Appendix 2

Air Quality

Construction Emission Calculations
(Controlled)

Construction Emission Calculations
(Uncontrolled)

Valley South Subtransmission Line Project

Appendix 2 - Construction Emission Calculations (Controlled)

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Table 1
Construction Emissions Summary
Total Daily Criteria Pollutant Emissions by Project Component

Phase	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
Substation Modifications						
Substation Modifications	2.42	16.17	21.17	0.06	4.98	1.61
Subtransmission Source Line Construction						
Survey	0.19	1.67	0.44	0.00	5.50	0.53
Marshalling Yard	2.23	15.03	11.92	0.04	12.47	1.44
Roads and Landing Work	1.83	9.70	11.59	0.03	13.18	2.48
Tree Trimming and Removal	1.20	6.25	5.92	0.02	13.49	1.48
Guard Structure Installation	1.05	6.40	7.35	0.02	21.88	1.80
Relocate Conductor and Groundwire	3.15	17.50	22.21	0.07	48.40	3.97
Existing Wood Poles and LWS Poles Removal	1.05	7.19	7.44	0.02	17.45	1.57
Tubular Steel Pole Foundations Installation	1.51	9.61	11.36	0.03	21.85	1.87
Tubular Steel Pole Haul	0.37	2.45	2.41	0.01	10.02	0.85
Tubular Steel Pole Assembly	0.86	5.69	5.24	0.02	20.08	1.73
Tubular Steel Pole Erection	0.77	5.18	4.48	0.02	15.62	1.47
Wood Guy Stub Pole/LWS Pole Haul	0.36	2.40	2.49	0.01	10.03	0.85
Wood/LWS Pole Assembly	0.86	5.69	5.24	0.02	20.08	1.73
Install Wood/Wood Guy Stub Pole/LWS Pole	1.30	8.87	9.24	0.03	23.85	1.89
Reconfigure Existing Structures	1.29	9.67	5.40	0.02	15.09	1.61
Install Conductor & GW	4.46	24.13	31.43	0.10	5.91	1.93
Guard Structure Removal	0.83	5.40	5.73	0.02	17.36	1.49
Restoration	1.16	7.01	6.70	0.02	18.27	1.93
Vault Installation	1.86	10.21	13.09	0.04	4.73	0.95
Duct Bank Installation	1.05	7.13	7.55	0.02	4.11	0.76
Install Underground Cable	2.35	13.79	16.00	0.04	3.48	0.89
Distribution Relocation						
Relocate Existing Conductor	0.46	2.86	3.46	0.01	17.05	1.22
Wood Pole Removal	0.38	2.28	3.09	0.01	8.65	0.79
Install Distribution Underground Cable	1.75	10.86	11.31	0.03	15.85	1.64
Telecommunications Construction						
Control Building Communications Room	0.82	5.13	6.18	0.02	1.10	0.48

Notes:
VOC = volatile organic compounds
CO = carbon monoxide
NOX = nitrogen oxides
SOX = sulfur oxides
PM10 = suspended particulate matter measuring less than 10 microns
PM2.5 = suspended particulate matter measuring less than 2.5 micron
lb/day = pounds per day

Table 2
Construction Emissions Summary
Peak Daily Criteria Pollutant Emissions for Overlapping Project Components

Construction Component	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
Substation Modification						
Substation Modifications	2.42	16.17	21.17	0.06	4.98	1.61
Maximum	**2.42**	**16.17**	**21.17**	**0.06**	**4.98**	**1.61**
Subtransmission Line Construction						
Survey, Marshalling Yard, Tree Trimming and Removal	3.63	22.95	18.28	0.06	31.45	3.45
Roads & Landing Work, Tubular Steel Pole Installation, Vault Installation, Duct Bank Installation, Reconfigure Existing Structures, Wood Guy Stub Pole/LWS Haul	7.92	48.72	51.49	0.15	68.99	8.52
Roads & Landing Work, Tubular Steel Pole Installation, Wood Guy Stub Pole/LWS Haul, Wood Guy Stub Pole/LWS Pole Assembly, Install Wood Poles	5.87	36.27	39.92	0.11	88.99	8.82
Roads & Landing Work, Tubular Steel Pole Installation, Tubular Steel Pole Haul, Tubular Steel Pole Assembly, Tubular Steel Pole Erection	5.34	32.63	35.07	0.10	80.75	8.39
Install Underground Cable	2.35	13.79	16.00	0.04	3.48	0.89
Relocate Groundwire	3.15	17.50	22.21	0.07	48.40	3.97
Guard Structure Installation	1.05	6.40	7.35	0.02	21.88	1.80
Install Conductor and Groundwire	4.46	24.13	31.43	0.10	5.91	1.93
Restoration, Existing Wood Pole Removal, Guard Structure Removal	3.04	19.60	19.87	0.06	53.09	4.99
Maximum	**7.92**	**48.72**	**51.49**	**0.15**	**88.99**	**8.82**
Distribution Relocation						
All	2.59	16.01	17.85	0.06	41.55	3.66
Maximum	**2.59**	**16.01**	**17.85**	**0.06**	**41.55**	**3.66**
Telecommunications Construction						
All	0.82	5.13	6.18	0.02	1.10	0.48
Maximum	**0.82**	**5.13**	**6.18**	**0.02**	**1.10**	**0.48**
Peak Daily Emissions[a]	**13.74**	**86.03**	**96.69**	**0.29**	**136.62**	**14.56**
SCAQMD Mass Daily Thresholds (lb/day) =	**75**	**550**	**100**	**150**	**150**	**55**
Exceed Thresholds (Y/N)?	**N**	**N**	**N**	**N**	**N**	**N**

[a] Peak daily construction emissions are the sum of highest daily emissions generated during concurrent construction activities associated with the substation modifications; subtransmission line; distribution relocation; and, installation of telecommunication equipment at existing SCE substations.

Table 3
Construction Emissions Summary
Onsite Daily Criteria Pollutant Emissions by Construction Phase

Construction Component	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
Substation Construction						
Substation Modifications	1.02	7.96	9.11	0.02	1.84	0.48
Subtransmission Line Construction						
Marshalling Yard	0.41	2.38	2.85	0.01	2.74	0.26
Tree Trimming and Removal	0.96	4.31	5.21	0.01	0.31	0.28
Guard Structure Installation	0.70	3.67	5.91	0.01	0.32	0.30
Relocate Conductor and Groundwire	0.72	4.55	6.24	0.02	0.33	0.30
Existing Wood Poles and LWS Poles Removal	0.72	4.55	6.24	0.02	0.33	0.30
Tubular Steel Pole Foundations Installation	0.96	6.02	7.54	0.02	0.53	0.39
Tubular Steel Pole Haul	0.15	0.69	1.74	0.00	0.09	0.08
Tubular Steel Pole Assembly	0.43	2.17	3.90	0.01	0.22	0.20
Tubular Steel Pole Erection	0.36	1.75	3.37	0.01	0.18	0.17
Wood Guy Stub Pole/LWS Pole Haul	0.15	0.69	1.74	0.00	0.09	0.08
Wood/LWS Pole Assembly	0.43	2.17	3.90	0.01	0.22	0.20
Install Wood/Wood Guy Stub Pole/LWS Pole	0.95	6.19	7.71	0.02	0.42	0.37
Reconfigure Existing Structures	0.43	2.17	3.90	0.01	0.22	0.20
Install Conductor & GW	3.54	15.79	30.51	0.09	1.28	1.18
Guard Structure Removal	0.49	2.76	4.52	0.01	0.24	0.22
Vault Installation	1.37	6.83	10.01	0.03	3.61	0.58
Duct Bank Installation	0.58	3.90	4.58	0.01	3.03	0.40
Install Underground Cable	1.99	10.72	15.11	0.03	2.60	0.81
Distribution Relocation						
Relocate Existing Conductor	0.20	0.92	2.32	0.01	0.12	0.00
Wood Pole Removal	0.20	0.92	2.32	0.01	0.12	0.11
Install Distribution Underground Cable	1.38	7.82	9.99	0.03	0.44	0.40
Telecommunications Construction						
Control Building Communications Room	0.49	2.32	5.45	0.01	0.29	0.25

Table 4
Construction Emissions Summary
Maximum Daily Onsite Criteria Pollutant Emissions

Construction Component[a]	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
Substation Modification						
Substation Modifications	1.02	7.96	9.11	0.02	1.84	0.48
Maximum	**1.02**	**7.96**	**9.11**	**0.02**	**1.84**	**0.48**
Marshalling Yards						
Marshalling Yard	0.41	2.38	2.85	0.01	2.74	0.26
Maximum	**0.41**	**2.38**	**2.85**	**0.01**	**2.74**	**0.26**
Subtransmission Line Construction[b]						
Tree Trimming and Removal	0.96	4.31	5.21	0.01	0.31	0.28
Guard Structure Installation	0.14	0.73	1.18	0.00	0.06	0.06
Relocate Conductor and Groundwire	0.72	4.55	6.24	0.02	0.33	0.30
Existing Wood Poles and LWS Poles Removal	0.08	0.51	0.69	0.00	0.04	0.03
Tubular Steel Pole Foundations Installation	0.96	6.02	7.54	0.02	0.53	0.39
Tubular Steel Pole Haul	0.03	0.11	0.29	0.00	0.01	0.01
Tubular Steel Pole Assembly	0.43	2.17	3.90	0.01	0.22	0.20
Tubular Steel Pole Erection	0.36	1.75	3.37	0.01	0.18	0.17
Wood Guy Stub Pole/LWS Pole Haul	0.03	0.11	0.29	0.00	0.01	0.01
Wood/LWS Pole Assembly	0.11	0.54	0.97	0.00	0.05	0.05
Install Wood/Wood Guy Stub Pole/LWS Pole	0.24	1.55	1.93	0.00	0.11	0.09
Reconfigure Existing Structures	0.11	0.54	0.97	0.00	0.05	0.05
Install Conductor & GW	1.77	7.89	15.25	0.04	0.64	0.59
Guard Structure Removal	0.07	0.39	0.65	0.00	0.03	0.03
Maximum	**1.77**	**7.89**	**15.25**	**0.04**	**0.64**	**0.59**
Subtransmission Line Construction at Valley Substation						
Vault Installation	1.37	6.83	10.01	0.03	3.61	0.58
Duct Bank Installation	0.58	3.90	4.58	0.01	3.03	0.40
Install Underground Cable	1.99	10.72	15.11	0.03	2.60	0.81
Maximum	**1.99**	**10.72**	**15.11**	**0.03**	**3.61**	**0.81**
Distribution Relocation						
All	1.78	9.66	14.63	0.04	0.67	0.51
Maximum	**1.78**	**9.66**	**14.63**	**0.04**	**0.67**	**0.51**
Telecommunications Construction						
All	0.49	2.32	5.45	0.01	0.29	0.25
Maximum	**0.49**	**2.32**	**5.45**	**0.01**	**0.29**	**0.25**
Peak Daily Construction Emissions - Onsite[b]	**1.99**	**10.72**	**15.11**	**0.04**	**3.61**	**0.81**

[a] The construction phases within a group could all occur at the same time at the same location.

The following Subtransmission Source Line construction activity emissions were divided by the following number of working locations per day:

Guard Structure Installation: 5 structures per day
Wood/LWS Pole Removal: 9 poles per day
TSP Foundations Installation: 1 foundation per day
Wood and LWS Pole Haul: 6 locations per day
Wood and LWS Pole Assembly: 4 poles per day
Wood and LWS Pole Installation: 4 poles per day
TSP Haul: 6 locations per day
TSP Assembly: 1 pole per day
TSP Erection: 1 pole per day
Reconfigure Existing Structures: 4 structures per day
Conductor Installation: 1 pull, and 1 tension site per day
Guard Structure Removal: 7 structures per day
Vault Installation: 1 vault per day
Duct Bank Installation: 1 location per day

[b] Survey, Roadwork and restoration were excluded from the LST analysis because these activities would occur over a distance of approximately 1 mile along the Proposed 115 kV Subtransmission Line, instead of at a single location, each day.

Table 5
Construction Emissions
Localized Significance Threshold Analysis

Pollutant	Maximum Daily Onsite Emissions (lb/day)	Receptor Distance (m)	Allowable Emissions Interpolation[a]					Allowable Exceeded?
			Distance 1 (m)	Emissions 1 (lb/day)	Distance 2 (m)	Emissions 2 (lb/day)	Interpolated Emissions (lb/day)[b]	
Substation Modifications[c]								
CO	7.96	500	200	4,359	500	17,640	17,640	No
NOx	9.11	500	200	335	500	652	652	No
PM10	1.84	500	200	67	500	178	178	No
PM2.5	0.48	500	200	20	500	86	86	No
Marshalling Yards[d]								
CO	2.38	25	25	602	25	602	602	No
NOx	2.85	25	25	118	25	118	118	No
PM10	2.74	25	25	4	25	4	4	No
PM2.5	0.26	25	25	3	25	3	3	No
Subtransmission Line Construction[e]								
CO	7.89	5	25	602	25	602	602	No
NOx	15.25	5	25	118	25	118	118	No
PM10	0.64	5	25	4	25	4	4	No
PM2.5	0.59	5	25	3	25	3	3	No
Subtransmission Line Construction at Valley 500/115 kV Substation[c]								
CO	10.72	460	200	4,359	500	17,640	15,869	No
NOx	15.11	460	200	335	500	652	610	No
PM10	3.61	460	200	67	500	178	163	No
PM2.5	0.81	460	200	20	500	86	77	No
Distribution Relocation[e]								
CO	9.66	5	25	602	25	602	602	No
NOx	14.63	5	25	118	25	118	118	No
PM10	0.67	5	25	4	25	4	4	No
PM2.5	0.51	5	25	3	25	3	3	No
Telecommunications Construction[e]								
CO	2.32	5	25	602	25	602	602	No
NOx	5.45	5	25	118	25	118	118	No
PM10	0.29	5	25	4	25	4	4	No
PM2.5	0.25	5	25	3	25	3	3	No

[a] Allowable emissions are from Appendix C to Final Localized Significance Methodology, SCAQMD, revised October 2009, downloaded from http://www.aqmd.gov/ceqa/handbook/LST/LST.html

[b] Interpolated emissions = Emissions 1 + (Receptor distance - Distance 1) x (Emissions 2 - Emissions 1) / (Distance 2 - Distance 1)

[c] Closest sensitive receptor is located approximately 200 meters north of the northern fenceline of Valley Substation. Allowable emissions are for a 5-acre site

[d] Closest sensitive receptor is located approximately 60 meters west of the Perris Staging Yard. Allowable emissions are for a 1-acre site.

[e] Closest senstive receptor is located within 25 meters east of the subtransmission line alignment. Allwable emissions are for a 1-acre site.

Table 6
Construction Emissions Summary
Total Greenhouse Gas Emissions by Construction Phase

Phase	CO2e (MT)
Substation Construction	
Substation Modifications	48.14
Subtransmission Source Line Construction	
Survey	2.41
Marshalling Yard	301.51
Roads and Landing Work	43.18
Tree Trimming and Removal	8.04
Guard Structure Installation	8.45
Relocate Conductor and Groundwire	24.38
Existing Wood Poles and LWS Poles Removal	6.03
Tubular Steel Pole Foundations Installation	85.31
Tubular Steel Pole Haul	3.67
Tubular Steel Pole Assembly	23.56
Tubular Steel Pole Erection	21.53
Wood Guy Stub Pole/LWS Pole Haul	19.60
Wood/LWS Pole Assembly	51.06
Install Wood/Wood Guy Stub Pole/LWS Pole	83.24
Reconfigure Existing Structures	14.52
Install Conductor & GW	363.83
Guard Structure Removal	7.29
Restoration	12.28
Vault Installation	14.72
Duct Bank Installation	7.12
Install Underground Cable	3.46
Distribution Relocation	
Relocate Existing Conductor	89.98
Wood Pole Removal	19.06
Install Distribution Underground Cable	31.38
Telecommunications Construction	
Control Building Communications Room	3.85
Total	**1297.60**

Table 7
Substation Construction Emissions
Substation Modifications

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.00	7.87	8.92	0.02	0.42	0.39	19.5
Onsite Motor Vehicle Exhaust	0.02	0.10	0.19	0.00	0.01	0.01	0.5
Onsite Motor Vehicle Fugitive PM	--	--	--	--	1.40	0.09	
Earthwork Fugitive PM	--	--	--	--	0.01	0.00	
Onsite Total	**1.02**	**7.96**	**9.11**	**0.02**	**1.84**	**0.48**	**20.0**
Offsite Motor Vehicle Exhaust	1.40	8.21	12.05	0.04	0.64	0.51	28.2
Offsite Motor Vehicle Fugitive PM	--	--	--	--	2.50	0.61	
Offsite Total	**1.40**	**8.21**	**12.05**	**0.04**	**3.15**	**1.13**	**28.2**
Total	**2.42**	**16.17**	**21.17**	**0.06**	**4.98**	**1.61**	**48.1**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Skid Steer Loader	80	1	15	7
Backhoe	80	1	15	7
Foundation Auger	80	1	5	7
Boom Truck	300	1	30	7
Lift Truck	200	1	30	7
Concrete Mixer Truck	350	4	5	4

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Skid Steer Loader	80	0.017	0.179	0.131	0.000	0.006	0.006	28.522	0.001	Skid Steer Loaders
Backhoe	80	0.029	0.229	0.196	0.000	0.012	0.011	34.503	0.003	Tractors/Loaders/Backhoes
Foundation Auger	80	0.021	0.311	0.181	0.001	0.005	0.004	51.440	0.002	Bore/Drill Rigs
Boom Truck[c]	300	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Cranes
Lift Truck[c]	200	0.027	0.175	0.186	0.001	0.008	0.007	54.083	0.001	Manlifts
Concrete Mixer Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Concrete Mixers

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.

50 miles per hour, conservative assumption

0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Skid Steer Loader	0.12	1.25	0.92	0.00	0.04	0.04
Backhoe	0.20	1.60	1.37	0.00	0.09	0.08
Foundation Auger	0.14	2.18	1.27	0.00	0.03	0.03
Boom Truck	0.18	0.80	2.03	0.01	0.10	0.09
Lift Truckc	0.19	1.23	1.30	0.00	0.05	0.05
Concrete Mixer Truck	0.18	0.80	2.03	0.01	0.10	0.09
Total	**1.00**	**7.87**	**8.92**	**0.02**	**0.42**	**0.39**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Skid Steer Loader	1.4	0.0	1.4
Backhoe	1.6	0.0	1.6
Foundation Auger	0.8	0.0	0.8
Boom Truck	7.6	0.0	7.6
Lift Truck	5.2	0.0	5.2
Concrete Mixer Truck	2.9	0.0	2.9
Total	**19.5**	**0.0**	**19.5**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
Boom Truck	1	30	N/A	1
Crew Truck	3	40	N/A	1
Flat Bed Truck	1	40	N/A	1
Lift Truck	1	30	N/A	1
Dump Truck	3	15	N/A	1
Water Truck	1	15	N/A	1
Concrete Mixer Truck	4	5	N/A	1
Offsite				
Boom Truck	1	30	N/A	5
Crew Truck	3	40	N/A	5
Flat Bed Truck	1	40	N/A	5
Lift Truck	1	30	N/A	5
Dump Truck	3	15	N/A	180

Table 7
Substation Construction Emissions
Substation Modifications

Water Truck	1	15	N/A	5
Concrete Mixer Truck	4	5	N/A	50
Worker Commute	10	30	N/A	60

[a] Onsite travel assumed to be 1 mile per day.

[a] Offsite truck travel based on location of Staging Area 1 (0.25 miles from Valley Substation) and up to 10 trips per day per vehicle; offsite concrete mixer truck (vendor) based on estimated 50 mile roundtrip distance; offsite worker commute based on estimated 60 mile roundtrip distance.

VMT estimation basis:	Value	Units	Basis
	0.5	miles/roundtrip/haul truck	Based on roundtrip distance from Valley Substation to Staging Area 1
	10	roundtrips/day/haul truck	Assumption
	5	miles/day/haul truck	Calculation
	60	miles/roundtrip/dump truck	Based on roundtrip distance to/from the San Timoteo Sanitary Landfill
	3	roundtrips/day/dump truck	Assumption
	180	miles/day/dump truck	Calculation
	50	miles/roundtrip/vendor trip	Vendor roundtrip distance, assumption
	60	miles/roundtrip/worker commute	Assumption

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
Boom Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Crew Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Flat Bed Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Lift Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Dump Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Concrete Mixer Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Offsite									
Boom Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Crew Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Flat Bed Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Lift Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Dump Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Concrete Mixer Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
Boom Truck	0.00	0.01	0.02	0.00	0.00	0.00
Crew Truck	0.00	0.03	0.03	0.00	0.00	0.00
Flat Bed Truck	0.00	0.01	0.01	0.00	0.00	0.00
Lift Truck	0.00	0.01	0.02	0.00	0.00	0.00
Dump Truck	0.00	0.02	0.05	0.00	0.00	0.00
Water Truck	0.00	0.01	0.02	0.00	0.00	0.00
Concrete Mixer Truck	0.01	0.02	0.06	0.00	0.00	0.00
Onsite Total	**0.02**	**0.10**	**0.19**	**0.00**	**0.01**	**0.01**
Offsite						
Boom Truck	0.01	0.03	0.08	0.00	0.00	0.00
Crew Truck	0.02	0.14	0.15	0.00	0.01	0.00
Flat Bed Truck	0.01	0.05	0.05	0.00	0.00	0.00
Lift Truck	0.01	0.03	0.08	0.00	0.00	0.00
Dump Truck	0.71	3.27	8.24	0.02	0.41	0.34
Water Truck	0.01	0.03	0.08	0.00	0.00	0.00
Concrete Mixer Truck	0.26	1.21	3.05	0.01	0.15	0.12
Worker Commute	0.38	3.45	0.33	0.01	0.06	0.04
Offsite Total	**1.40**	**8.21**	**12.05**	**0.04**	**0.64**	**0.51**
Total	**1.42**	**8.30**	**12.25**	**0.04**	**0.65**	**0.52**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
Boom Truck	0.1	0.0	0.1
Crew Truck	0.2	0.0	0.2
Flat Bed Truck	0.1	0.0	0.1
Lift Truck	0.1	0.0	0.1
Dump Truck	0.1	0.0	0.1
Water Truck	0.0	0.0	0.0
Concrete Mixer Truck	0.0	0.0	0.0
Onsite Total	**0.5**	**0.0**	**0.5**
Offsite			
Boom Truck	0.3	0.0	0.3
Crew Truck	0.8	0.0	0.8
Flat Bed Truck	0.3	0.0	0.3
Lift Truck	0.3	0.0	0.3
Dump Truck	15.5	0.0	15.5
Water Truck	0.1	0.0	0.1
Concrete Mixer Truck	1.9	0.0	1.9
Worker Commute	9.0	0.0	9.0
Offsite Total	**28.2**	**0.0**	**28.2**
Total	**28.6**	**0.0**	**28.6**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

Table 7
Substation Construction Emissions
Substation Modifications

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
Boom Truck	1	Paved	0.8	0.002	0.001	0.00	0.00
Crew Truck	3	Paved	0.8	0.002	0.001	0.00	0.00
Flat Bed Truck	1	Paved	0.8	0.002	0.001	0.00	0.00
Lift Truck	1	Paved	0.8	0.002	0.001	0.00	0.00
Dump Truck	3	Paved	0.8	0.002	0.001	0.00	0.00
Water Truck	1	Paved	0.8	0.002	0.001	0.00	0.00
Concrete Mixer Truck	4	Paved	0.8	0.002	0.001	0.01	0.00
Boom Truck	1	Unpaved - private	0.3	0.506	0.025	0.13	0.01
Crew Truck	3	Unpaved - private	0.3	0.291	0.024	0.22	0.02
Flat Bed Truck	1	Unpaved - private	0.3	0.291	0.024	0.07	0.01
Lift Truck	1	Unpaved - private	0.3	0.291	0.024	0.07	0.01
Dump Truck	3	Unpaved - private	0.3	0.506	0.025	0.38	0.02
Concrete Mixer Truck	4	Unpaved - private	0.3	0.506	0.025	0.51	0.03
Onsite Total						**1.40**	**0.09**
Offsite							
Boom Truck	1	Paved	5	0.002	0.001	0.01	0.00
Crew Truck	3	Paved	5	0.002	0.001	0.03	0.01
Flat Bed Truck	1	Paved	5	0.002	0.001	0.01	0.00
Lift Truck	1	Paved	5	0.002	0.001	0.01	0.00
Dump Truck	3	Paved	180	0.002	0.001	1.13	0.28
Water Truck	1	Paved	5	0.002	0.001	0.01	0.00
Concrete Mixer Truck	4	Paved	50	0.002	0.001	0.42	0.10
Worker Commute	10	Paved	60	0.001	0.000	0.88	0.22
Offsite Total						**2.50**	**0.61**
Total						**3.90**	**0.70**

[a] Assumes 75% onsite vehicle miles travelled (VMT) occur on paved areas within substation perimeter and 25% of VMT occur on unpaved areas within substation perimeter.

[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

c From Table 37

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling[c]	CY/day	5.5	1.36E-03	2.82E-04	0.01	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.01**	**0.00**

a From Table 38

b Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

c Activity level calculation:

Description	Value	Units	Source
Substation equipment foundation, cut	82.44	CY	Table 3.7 Substation Cut and Fill Grading Summary
Activity duration	15	days	Table 3.9-B Substation Construction Equipment and Workforce Estimates
Daily activity level	5.5	CY/day	calculation

Table 8
Subtransmission Line Construction Emissions
Survey

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.0**
Offsite Motor Vehicle Exhaust	0.19	1.67	0.44	0.00	0.03	0.02	2.4
Offsite Motor Vehicle Fugitive PM	--	--	--	--	5.47	0.51	
Offsite Total	**0.19**	**1.67**	**0.44**	**0.00**	**5.50**	**0.53**	**2.4**
Total	**0.19**	**1.67**	**0.44**	**0.00**	**5.50**	**0.53**	**2.4**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
None				

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]
None		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
None	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
None	0.0	0.0	0.0
Total	**0.0**	**0.0**	**0.0**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
1-Ton Truck, 4x4	2	15	N/A	2
Offsite				
1-Ton Truck, 4x4	2	15	N/A	15.4
Worker Commute	4	15	N/A	60

[a] Onsite travel during survey work assumed to be 2 miles roundtrip.

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None									
Offsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Table 8
Subtransmission Line Construction Emissions
Survey

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
1-Ton Truck, 4x4	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
Worker Commute	0.15	1.38	0.13	0.00	0.02	0.01
Offsite Total	**0.19**	**1.67**	**0.44**	**0.00**	**0.03**	**0.02**
Total	**0.19**	**1.67**	**0.44**	**0.00**	**0.03**	**0.02**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
1-Ton Truck, 4x4	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
1-Ton Truck, 4x4	0.6	0.0	0.6
Worker Commute	1.8	0.0	1.8
Offsite Total	**2.4**	**0.0**	**2.4**
Total	**2.4**	**0.0**	**2.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
1-Ton Truck, 4x4							
Onsite Total						**0.00**	**0.00**
Offsite							
1-Ton Truck, 4x4	2	Paved	8.5	0.002	0.001	0.04	0.01
1-Ton Truck, 4x4	2	Unpaved - private	4.2	0.291	0.024	2.45	0.20
1-Ton Truck, 4x4	2	Unpaved - public	2.7	0.487	0.040	2.63	0.21
Worker Commute	4	Paved	60	0.001	0.000	0.35	0.09
Offsite Total						**5.47**	**0.51**
Total						**5.47**	**0.51**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.
b From Table 37
[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 9
Subtransmission Line Construction Emissions
Marshalling Yard

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.39	2.29	2.65	0.01	0.13	0.12	75.4
Onsite Motor Vehicle Exhaust	0.02	0.08	0.19	0.00	0.01	0.01	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	2.60	0.13	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.41**	**2.38**	**2.85**	**0.01**	**2.74**	**0.26**	**75.4**
Offsite Motor Vehicle Exhaust	0.15	1.38	0.13	0.00	0.02	0.01	0.0
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.35	0.09	
Offsite Total	**0.15**	**1.38**	**0.13**	**0.00**	**0.37**	**0.10**	**0.0**
Total (for 4 Marshalling Yards)	**2.23**	**15.03**	**11.92**	**0.04**	**12.47**	**1.44**	**301.51**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Rough Terrain Forklift	125	1	260	6
Boom/Crane Truck	350	1	260	2

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Rough Terrain Forklift	125	0.057	0.344	0.346	0.001	0.017	0.015	79.760	0.005	Forklift
Boom/Crane Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Cranes

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.

50 miles per hour, conservative assumption

0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Rough Terrain Forklift	0.34	2.06	2.07	0.01	0.10	0.09
Boom/Crane Truck	0.05	0.23	0.58	0.00	0.03	0.03
Total	**0.39**	**2.29**	**2.65**	**0.01**	**0.13**	**0.12**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Rough Terrain Forklift	56.4	0.0	56.5
Boom/Crane Truck	18.9	0.0	18.9
Total	**75.3**	**0.0**	**75.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
1-Ton Truck, 4x4	1	260	N/A	1
Boom/Crane Truck	1	260	N/A	1
Water Truck	1	260	N/A	10
Truck, Semi-Tractor	1	260	N/A	1
Offsite				
Worker Commute	4	260	N/A	60

[a] Onsite travel assummed to be 1 mile per day; water truck travel based on 8 hrs/day x 5 MPH x 0.25 usage factor.

[a] Offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Truck, Semi-Tractor	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Offsite									
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
1-Ton Truck, 4x4	0.00	0.01	0.01	0.00	0.00	0.00
Boom/Crane Truck	0.00	0.01	0.02	0.00	0.00	0.00
Water Truck	0.01	0.06	0.15	0.00	0.01	0.01
Truck, Semi-Tractor	0.00	0.01	0.02	0.00	0.00	0.00
Onsite Total	**0.02**	**0.08**	**0.19**	**0.00**	**0.01**	**0.01**
Worker Commute	0.15	1.38	0.13	0.00	0.02	0.01
Offsite Total	**0.15**	**1.38**	**0.13**	**0.00**	**0.02**	**0.01**
Total	**0.17**	**1.46**	**0.33**	**0.00**	**0.03**	**0.02**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Table 9
Subtransmission Line Construction Emissions
Marshalling Yard

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
1-Ton Truck, 4x4	0.3	0.0	0.0
Boom/Crane Truck	0.5	0.0	0.0
Water Truck	5.0	0.0	0.0
Truck, Semi-Tractor	0.5	0.0	0.0
Onsite Total	**6.3**	**0.0**	**0.0**
Worker Commute	31.3	0.0	0.0
Offsite Total	**31.3**	**0.0**	**0.0**
Total	**37.6**	**0.0**	**0.0**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle	PM10 Emission Factor (lb/mi)[a]	PM2.5 Emission Factor (lb/mi)[a]	PM10 Emissions (lb/day)[b]	PM2.5 Emissions (lb/day)[b]
Onsite							
1-Ton Truck, 4x4	1	Unpaved - private	1	0.119	0.010	0.12	0.01
Boom/Crane Truck	1	Unpaved - private	1	0.207	0.010	0.21	0.01
Water Truck	1	Unpaved - private	10	0.207	0.010	2.07	0.10
Truck, Semi-Tractor	1	Unpaved - private	1	0.207	0.010	0.21	0.01
Onsite Total						**2.60**	**0.13**
Offsite							
Worker Commute	4	Paved	60	0.001	0.000	0.35	0.09
Offsite Total						**0.35**	**0.09**
Total						**2.96**	**0.22**

a From Table 37

[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]. These emissions factors are adjusted to assume graveling and speed reduction to 10 mph at the marshalling yards.

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 10
Subtransmission Line Construction Emissions
Roads and Landing Work

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.59	7.71	10.92	0.02	0.54	0.49	34.8
Onsite Motor Vehicle Exhaust	0.00	0.01	0.02	0.00	0.00	0.00	0.1
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	7.39	1.54	
Onsite Total	**1.59**	**7.72**	**10.94**	**0.02**	**7.93**	**2.03**	**34.9**
Offsite Motor Vehicle Exhaust	0.24	1.98	0.65	0.00	0.05	0.04	8.3
Offsite Motor Vehicle Fugitive PM	--	--	--	--	5.20	0.41	
Offsite Total	**0.24**	**1.98**	**0.65**	**0.00**	**5.25**	**0.45**	**8.3**
Total	**1.83**	**9.70**	**11.59**	**0.03**	**13.18**	**2.48**	**43.2**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Backhoe/Front Loader	125	1	39	4
Track Type Dozer	150	1	39	4
Motor Grader	250	1	39	6
Drum Type Compactor	100	1	39	6
Excavator	250	1	39	4

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Backhoe/Front Loader	125	0.045	0.390	0.284	0.001	0.015	0.013	67.625	0.004	Tractors/Loaders/Backhoes
Track Type Dozer	150	0.112	0.546	0.763	0.001	0.043	0.040	86.361	0.010	Rubber Tired Dozers
Motor Grader	250	0.074	0.252	0.561	0.001	0.019	0.018	114.800	0.007	Graders
Drum Type Compactor	100	0.045	0.261	0.294	0.000	0.023	0.021	39.345	0.004	Rollers
Excavator	250	0.062	0.222	0.399	0.001	0.013	0.012	105.841	0.006	Excavators

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Backhoe/Front Loader	0.18	1.56	1.14	0.00	0.06	0.05
Track Type Dozer	0.45	2.19	3.05	0.00	0.17	0.16
Motor Grader	0.45	1.51	3.37	0.01	0.12	0.11
Drum Type Compactor	0.27	1.57	1.77	0.00	0.14	0.13
Excavator	0.25	0.89	1.60	0.00	0.05	0.05
Total	**1.59**	**7.71**	**10.92**	**0.02**	**0.54**	**0.49**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Backhoe/Front Loader	4.8	0.0	4.8
Track Type Dozer	6.1	0.0	6.1
Motor Grader	12.2	0.0	12.2
Drum Type Compactor	4.2	0.0	4.2
Excavator	7.5	0.0	7.5
Total	**34.7**	**0.0**	**34.8**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number[a]	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
Water Truck	1	39	N/A	1.5
Offsite				
Water Truck	1	39	N/A	12
1-Ton Truck, 4x4	1	39	N/A	12
Lowboy Truck/Trailer	1	39	N/A	12
Worker Commute	5	39	N/A	60

[a] Onsite truck travel based on 3 trips/day x 0.5/roundtrip

[a] Offsite travel assumed to be 12 miles per day, equal to 1/2 total distance of Segment 1 of the Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Offsite									
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						

Table 10
Subtransmission Line Construction Emissions
Roads and Landing Work

Water Truck	0.00	0.01	0.02	0.00	0.00	0.00
Onsite Total	**0.00**	**0.01**	**0.02**	**0.00**	**0.00**	**0.00**
Offsite						
Water Truck	0.02	0.07	0.18	0.00	0.01	0.01
1-Ton Truck, 4x4	0.02	0.11	0.12	0.00	0.00	0.00
Lowboy Truck/Trailer	0.02	0.07	0.18	0.00	0.01	0.01
Worker Commute	0.19	1.73	0.17	0.00	0.03	0.02
Offsite Total	**0.24**	**1.98**	**0.65**	**0.00**	**0.05**	**0.04**
Total	**0.24**	**1.99**	**0.67**	**0.00**	**0.05**	**0.04**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
Water Truck	0.1	0.0	0.1
Onsite Total	**0.1**	**0.0**	**0.1**
Offsite			
Water Truck	0.9	0.0	0.9
1-Ton Truck, 4x4	0.6	0.0	0.6
Lowboy Truck/Trailer	0.9	0.0	0.9
Worker Commute	5.9	0.0	5.9
Offsite Total	**8.3**	**0.0**	**8.3**
Total	**8.4**	**0.0**	**8.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
Water Truck	1	Paved	1.5	0.002	0.001	0.00	0.00
Onsite Total						**0.00**	**0.00**
Offsite							
Water Truck	1	Paved	7.7	0.002	0.001	0.02	0.00
1-Ton Truck, 4x4	1	Paved	7.7	0.002	0.001	0.02	0.00
Lowboy Truck/Trailer	1	Paved	7.7	0.002	0.001	0.02	0.00
1-Ton Truck, 4x4	1	Unpaved - private	1.9	0.291	0.024	0.55	0.05
Lowboy Truck/Trailer	1	Unpaved - private	1.9	0.506	0.025	0.96	0.05
1-Ton Truck, 4x4	1	Unpaved - public	2.4	0.487	0.040	1.17	0.10
Lowboy Truck/Trailer	1	Unpaved - public	2.4	0.845	0.042	2.03	0.10
Worker Commute	5	Paved	60	0.001	0.000	0.44	0.11
Offsite Total						**5.20**	**0.41**
Total						**5.20**	**0.41**

a For Segment 1 of the Proposed Project, 7.7 miles occur on paved roadways and 4.3 miles occur on unpaved roadways (2.4 miles are unpaved public roadways and 1.9 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day. No additional roads&landing work is required along the 3.4 miles associated with Segment 2 of the Proposed Project.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling[c]	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day	10	0.475	0.099	4.75	0.99
Storage Pile Wind Erosion[d]	acres	0.6	4.4	0.92	2.64	0.55
Total					**7.39**	**1.54**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

[c] Based on excavating and backfilling 8.0 acres to 1.5' depth over 14 days

[d] Based on 8.0 acres total over 14 days

Table 11
Subtransmission Line Construction Emissions
Tree Trimming and Removal

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.96	4.31	5.21	0.01	0.31	0.28	5.4
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.96**	**4.31**	**5.21**	**0.01**	**0.31**	**0.28**	**5.4**
Offsite Motor Vehicle Exhaust	0.24	1.95	0.72	0.00	0.06	0.04	2.6
Offsite Motor Vehicle Fugitive PM	--	--	--	--	13.12	1.15	
Offsite Total	**0.24**	**1.95**	**0.72**	**0.00**	**13.18**	**1.19**	**2.6**
Total	**1.20**	**6.25**	**5.92**	**0.02**	**13.49**	**1.48**	**8.0**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Manlift/Bucket Truck	250	1	12	8
Chipper	48	1	12	8
Stump Grinder	30	1	12	4

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Manlift/Bucket Truck[c]	250	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Manlifts
Chipper	48	0.063	0.282	0.241	0.000	0.016	0.015	29.359	0.006	Crushing/Proc. Equipment
Stump Grinder	30	0.063	0.282	0.241	0.000	0.016	0.015	29.359	0.006	Crushing/Proc. Equipment

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.

50 miles per hour, conservative assumption

0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Manlift/Bucket Truck	0.20	0.92	2.32	0.01	0.12	0.11
Chipper	0.51	2.26	1.92	0.00	0.13	0.12
Stump Grinder	0.25	1.13	0.96	0.00	0.06	0.06
Total	**0.96**	**4.31**	**5.21**	**0.01**	**0.31**	**0.28**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Manlift/Bucket Truck	3.5	0.0	3.5
Chipper	1.3	0.0	1.3
Stump Grinder	0.6	0.0	0.6
Total	**5.4**	**0.0**	**5.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number[a]	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
1-Ton Truck, 4x4	1	12	N/A	12
Debris Haul Truck	1	12	N/A	12
Manlift Bucket Truck	1	12	N/A	12
Worker Commute	5	12	N/A	60

[a] Onsite truck travel based on 3 trips/day x 0.5/roundtrip

[a] Offsite travel assumed to be 12 miles per day, equal to 1/2 total distance of Segment 1 of the Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Offsite									
1-Ton Truck, 4x4	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Debris Haul Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Manlift Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Truck, 4x4	0.02	0.07	0.18	0.00	0.01	0.01

Table 11
Subtransmission Line Construction Emissions
Tree Trimming and Removal

Debris Haul Truck	0.02	0.07	0.18	0.00	0.01	0.01
Manlift Bucket Truck	0.02	0.07	0.18	0.00	0.01	0.01
Worker Commute	0.19	1.73	0.17	0.00	0.03	0.02
Offsite Total	**0.24**	**1.95**	**0.72**	**0.00**	**0.06**	**0.04**
Total	**0.24**	**1.95**	**0.72**	**0.00**	**0.06**	**0.04**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
1-Ton Truck, 4x4	0.3	0.0	0.3
Debris Haul Truck	0.3	0.0	0.3
Manlift Bucket Truck	0.3	0.0	0.3
Worker Commute	1.8	0.0	1.8
Offsite Total	**2.6**	**0.0**	**2.6**
Total	**2.6**	**0.0**	**2.6**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None	0	Paved	0				
Onsite Total						**0.00**	**0.00**
Offsite							
1-Ton Truck, 4x4	1	Paved	7.7	0.002	0.001	0.02	0.00
Debris Haul Truck	1	Paved	7.7	0.001	0.000	0.01	0.00
Manlift Bucket Truck	1	Paved	7.7	0.001	0.000	0.01	0.00
1-Ton Truck, 4x4	1	Unpaved - private	1.9	0.291	0.024	0.55	0.05
Debris Haul Truck	1	Unpaved - private	1.9	1.052	0.105	2.00	0.20
Manlift Bucket Truck	1	Unpaved - private	2.4	1.052	0.105	2.53	0.20
1-Ton Truck, 4x4	1	Unpaved - public	2.4	1.052	0.105	2.53	0.20
Debris Haul Truck	1	Unpaved - public	2.4	1.052	0.105	2.53	0.20
Manlift Bucket Truck	1	Unpaved - public	2.4	1.052	0.105	2.53	0.20
Worker Commute	5	Paved	60	0.001	0.000	0.44	0.11
Offsite Total						**13.12**	**1.15**
Total						**13.12**	**1.15**

a For Segment 1 of the Proposed Project, 7.7 miles occur on paved roadways and 4.3 miles occur on unpaved roadways (2.4 miles are unpaved public roadways and 1.9 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day. No additional roads&landing work is required along the 3.4 miles associated with Segment 2 of the Proposed Project.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling[c]	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day	0	0.475	0.099	0.00	0.00
Storage Pile Wind Erosion[d]	acres	0	4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 12
Subtransmission Line Construction Emissions
Guard Structure Installation

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.70	3.67	5.91	0.01	0.32	0.30	5.4
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.70**	**3.67**	**5.91**	**0.01**	**0.32**	**0.30**	**5.4**
Offsite Motor Vehicle Exhaust	0.35	2.73	1.44	0.01	0.09	0.07	3.0
Offsite Motor Vehicle Fugitive PM	--	--	--	--	21.46	1.43	
Offsite Total	**0.35**	**2.73**	**1.44**	**0.01**	**21.56**	**1.50**	**3.0**
Total	**1.05**	**6.40**	**7.35**	**0.02**	**21.88**	**1.80**	**8.4**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	60	1	9	4
Manlift/Bucket Truck	250	1	9	4
Boom/Crane Truck	350	1	9	6
Auger Truck	210	1	9	4

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Compressor Trailer	60	0.039	0.209	0.262	0.000	0.016	0.015	42.426	0.004	Air Compressors
Manlift/Bucket Truck[c]	250	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Manlifts
Boom/Crane Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Cranes
Auger Truck	210	0.074	0.422	0.489	0.001	0.027	0.025	88.250	0.007	Drill Rigs

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.

50 miles per hour, conservative assumption

0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Compressor Trailer	0.16	0.84	1.05	0.00	0.07	0.06
Manlift/Bucket Truck	0.10	0.46	1.16	0.00	0.06	0.05
Boom/Crane Truck	0.15	0.69	1.74	0.00	0.09	0.08
Auger Truck	0.30	1.69	1.96	0.00	0.11	0.10
Total	**0.70**	**3.67**	**5.91**	**0.01**	**0.32**	**0.30**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Compressor Trailer	0.7	0.0	0.7
Manlift/Bucket Truck	1.3	0.0	1.3
Boom/Crane Truck	2.0	0.0	2.0
Auger Truck	1.4	0.0	1.4
Total	**5.4**	**0.0**	**5.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
3/4-Ton Truck, 4x4	1	9	8	15.4
1-Ton Truck, 4x4	1	9	8	15.4
Manlift/Bucket Truck	1	9	4	15.4
Boom/Crane Truck	1	9	6	15.4
Auger Truck	1	9	4	15.4
Extendable Flat Bed Pole Truck	1	9	8	15.4
Worker Commute	6	9	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Manlift/Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Auger Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Extendable Flat Bed Pole Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

Table 12
Subtransmission Line Construction Emissions
Guard Structure Installation

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.02	0.14	0.15	0.00	0.01	0.00
1-Ton Truck, 4x4	0.02	0.14	0.15	0.00	0.01	0.00
Manlift/Bucket Truck	0.02	0.09	0.24	0.00	0.01	0.01
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Auger Truck	0.02	0.09	0.24	0.00	0.01	0.01
Extendable Flat Bed Pole Truck	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.23	2.07	0.20	0.00	0.03	0.02
Offsite Total	**0.35**	**2.73**	**1.44**	**0.01**	**0.09**	**0.07**
Total	**0.35**	**2.73**	**1.44**	**0.01**	**0.09**	**0.07**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	0.2	0.0	0.2
1-Ton Truck, 4x4	0.2	0.0	0.2
Manlift/Bucket Truck	0.3	0.0	0.3
Boom/Crane Truck	0.3	0.0	0.3
Auger Truck	0.3	0.0	0.3
Extendable Flat Bed Pole Truck	0.3	0.0	0.3
Worker Commute	1.6	0.0	1.6
Offsite Total	**3.0**	**0.0**	**3.0**
Total	**3.0**	**0.0**	**3.0**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x
days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	1	Paved	8.5	0.002	0.001	0.02	0.00
1-Ton Truck, 4x4	1	Paved	8.5	0.002	0.001	0.02	0.00
Manlift/Bucket Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Boom/Crane Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Auger Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Extendable Flat Bed Pole Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
3/4-Ton Truck, 4x4	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
1-Ton Truck, 4x4	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
Manlift/Bucket Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Boom/Crane Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Auger Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Extendable Flat Bed Pole Truck	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
3/4-Ton Truck, 4x4	1	Unpaved - public	2.7	0.487	0.040	1.31	0.11
1-Ton Truck, 4x4	1	Unpaved - public	2.7	0.487	0.040	1.31	0.11
Manlift/Bucket Truck	1	Unpaved - public	2.7	0.845	0.042	2.28	0.11
Boom/Crane Truck	1	Unpaved - public	2.7	0.845	0.042	2.28	0.11
Auger Truck	1	Unpaved - public	2.7	0.845	0.042	2.28	0.11
Extendable Flat Bed Pole Truck	1	Unpaved - public	2.7	0.487	0.040	1.31	0.11
Worker Commute	6	Paved	60	0.001	0.000	0.53	0.13
Offsite Total						**21.46**	**1.43**
Total						**21.46**	**1.43**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 13
Subtransmission Line Construction Emissions
Relocate Conductor and Groundwire

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	2.15	9.37	18.89	0.05	0.80	0.73	17.8
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**2.15**	**9.37**	**18.89**	**0.05**	**0.80**	**0.73**	**17.8**
Offsite Motor Vehicle Exhaust	1.00	8.13	3.32	0.02	0.24	0.18	6.6
Offsite Motor Vehicle Fugitive PM	--	--	--	--	47.36	3.06	
Offsite Total	**1.00**	**8.13**	**3.32**	**0.02**	**47.61**	**3.23**	**6.6**
Total	**3.15**	**17.50**	**22.21**	**0.07**	**48.40**	**3.97**	**24.4**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Manlift/Bucket Truck	250	2	7	8
Boom/Crane Truck	350	2	7	8
Bull Wheel Puller	350	1	7	6
Sock Line Puller	300	1	7	6
Static Truck/Tensioner	350	1	7	6

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Manlift/Bucket Truck[c]	250	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Manlifts
Boom/Crane Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Cranes
Bull Wheel Puller	350	0.075	0.316	0.534	0.002	0.018	0.017	169.577	0.007	Other Construction Equipment
Sock Line Puller	300	0.075	0.316	0.534	0.002	0.018	0.017	169.577	0.007	Other Construction Equipment
Static Truck/Tensioner	350	0.075	0.316	0.534	0.002	0.018	0.017	169.577	0.007	Other Construction Equipment

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.

50 miles per hour, conservative assumption

0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Manlift/Bucket Truck	0.40	1.84	4.64	0.01	0.23	0.21
Boom/Crane Truck	0.40	1.84	4.64	0.01	0.23	0.21
Bull Wheel Puller	0.45	1.90	3.20	0.01	0.11	0.10
Sock Line Puller	0.45	1.90	3.20	0.01	0.11	0.10
Static Truck/Tensioner	0.45	1.90	3.20	0.01	0.11	0.10
Total	**2.15**	**9.37**	**18.89**	**0.05**	**0.80**	**0.73**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Manlift/Bucket Truck	4.1	0.0	4.1
Boom/Crane Truck	4.1	0.0	4.1
Bull Wheel Puller	3.2	0.0	3.2
Sock Line Puller	3.2	0.0	3.2
Static Truck/Tensioner	3.2	0.0	3.2
Total	**17.8**	**0.0**	**17.8**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				0
Offsite				
1-Ton Truck, 4x4	2	7	4	15.4
Manlift/Bucket Truck	2	7	8	15.4
Boom/Crane Truck	2	7	8	15.4
Bull Wheel Puller	1	7	6	15.4
Sock Line Puller	1	7	6	15.4
Static Truck/Tensioner	1	7	6	15.4
Material Handling Truck	1	7	8	15.4
Lowboy Truck/Trailer	2	7	4	15.4
Worker Commute	20	7	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Manlift/Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Bull Wheel Puller	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Sock Line Puller	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Static Truck/Tensioner	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Table 13
Subtransmission Line Construction Emissions
Relocate Conductor and Groundwire

Offsite						
1-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
Manlift/Bucket Truck	0.04	0.19	0.47	0.00	0.02	0.02
Boom/Crane Truck	0.04	0.19	0.47	0.00	0.02	0.02
Bull Wheel Puller	0.02	0.09	0.24	0.00	0.01	0.01
Sock Line Puller	0.02	0.09	0.24	0.00	0.01	0.01
Static Truck/Tensioner	0.02	0.09	0.24	0.00	0.01	0.01
Material Handling Truck	0.02	0.09	0.24	0.00	0.01	0.01
Lowboy Truck/Trailer	0.04	0.19	0.47	0.00	0.02	0.02
Worker Commute	0.76	6.91	0.67	0.01	0.11	0.07
Offsite Total	**1.00**	**8.13**	**3.32**	**0.02**	**0.24**	**0.18**
Total	**1.00**	**8.13**	**3.32**	**0.02**	**0.24**	**0.18**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
1-Ton Truck, 4x4	0.3	0.0	0.3
Manlift/Bucket Truck	0.4	0.0	0.4
Boom/Crane Truck	0.4	0.0	0.4
Bull Wheel Puller	0.2	0.0	0.2
Sock Line Puller	0.2	0.0	0.2
Static Truck/Tensioner	0.2	0.0	0.2
Material Handling Truck	0.2	0.0	0.2
Lowboy Truck/Trailer	0.4	0.0	0.4
Worker Commute	4.2	0.0	4.2
Offsite Total	**6.6**	**0.0**	**6.6**
Total	**6.6**	**0.0**	**6.6**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None	0						
Onsite Total						**0.00**	**0.00**
Offsite							
1-Ton Truck, 4x4	2	Paved	8.5	0.002	0.001	0.04	0.01
Manlift/Bucket Truck	2	Paved	8.5	0.002	0.001	0.04	0.01
Boom/Crane Truck	2	Paved	8.5	0.002	0.001	0.04	0.01
Bull Wheel Puller	1	Paved	8.5	0.002	0.001	0.02	0.00
Sock Line Puller	1	Paved	8.5	0.002	0.001	0.02	0.00
Static Truck/Tensioner	1	Paved	8.5	0.002	0.001	0.02	0.00
Material Handling Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Lowboy Truck/Trailer	2	Paved	8.5	0.002	0.001	0.04	0.01
1-Ton Truck, 4x4	2	Unpaved - private	4.2	0.291	0.024	2.45	0.20
Manlift/Bucket Truck	2	Unpaved - private	4.2	0.506	0.025	4.25	0.21
Boom/Crane Truck	2	Unpaved - private	4.2	0.506	0.025	4.25	0.21
Bull Wheel Puller	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Sock Line Puller	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
Static Truck/Tensioner	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
Material Handling Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Lowboy Truck/Trailer	2	Unpaved - private	4.2	0.506	0.025	4.25	0.21
1-Ton Truck, 4x4	2	Unpaved - public	2.7	0.487	0.040	2.63	0.21
Manlift/Bucket Truck	2	Unpaved - public	2.7	0.845	0.042	4.56	0.23
Boom/Crane Truck	2	Unpaved - public	2.7	0.845	0.042	4.56	0.23
Bull Wheel Puller	1	Unpaved - public	2.7	0.845	0.042	2.28	0.11
Sock Line Puller	1	Unpaved - public	2.7	0.487	0.040	1.31	0.11
Static Truck/Tensioner	1	Unpaved - public	2.7	0.487	0.040	1.31	0.11
Material Handling Truck	1	Unpaved - public	2.7	0.845	0.042	2.28	0.11
Lowboy Truck/Trailer	2	Unpaved - public	2.7	0.845	0.042	4.56	0.23
Worker Commute	20	Paved	60	0.001	0.000	1.76	0.43
Offsite Total						**47.36**	**3.06**
Total						**47.36**	**3.06**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 14
Subtransmission Line Construction Emissions
Existing Wood Poles and LWS Poles Removal

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.72	4.55	6.24	0.02	0.33	0.30	4.2
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.72**	**4.55**	**6.24**	**0.02**	**0.33**	**0.30**	**4.2**
Offsite Motor Vehicle Exhaust	0.33	2.64	1.21	0.01	0.08	0.06	1.9
Offsite Motor Vehicle Fugitive PM	--	--	--	--	17.04	1.21	
Offsite Total	**0.33**	**2.64**	**1.21**	**0.01**	**17.12**	**1.27**	**1.9**
Total	**1.05**	**7.19**	**7.44**	**0.02**	**17.45**	**1.57**	**6.0**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	60	1	6	4
Backhoe/Front Loader	125	1	6	6
Manlift/Bucket Truck	250	1	6	6
Boom/Crane Truck	350	1	6	6

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Compressor Trailer	60	0.039	0.209	0.262	0.000	0.016	0.015	42.426	0.004	Air Compressors
Backhoe/Front Loader	125	0.045	0.390	0.284	0.001	0.015	0.013	67.625	0.004	Tractors/Loaders/Backhoes
Manlift/Bucket Truck[c]	250	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Manlifts
Boom/Crane Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Cranes

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5
and PM 2.5 Significance Thresholds, SCAQMD, October 2006,
http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.

50 miles per hour, conservative assumption

0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Compressor Trailer	0.16	0.84	1.05	0.00	0.07	0.06
Backhoe/Front Loader	0.27	2.34	1.71	0.00	0.09	0.08
Manlift/Bucket Truck	0.15	0.69	1.74	0.00	0.09	0.08
Boom/Crane Truck	0.15	0.69	1.74	0.00	0.09	0.08
Total	**0.72**	**4.55**	**6.24**	**0.02**	**0.33**	**0.30**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Compressor Trailer	0.5	0.0	0.5
Backhoe/Front Loader	1.1	0.0	1.1
Manlift/Bucket Truck	1.3	0.0	1.3
Boom/Crane Truck	1.3	0.0	1.3
Total	**4.2**	**0.0**	**4.2**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
1-Ton Truck, 4x4	2	6	N/A	15.4
Manlift/Bucket Truck	1	6	N/A	15.4
Boom/Crane Truck	1	6	N/A	15.4
Flat Bed Pole Truck	1	6	N/A	15.4
Worker Commute	6	6	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None									
Offsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Manlift/Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Flat Bed Pole Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00

Table 14
Subtransmission Line Construction Emissions
Existing Wood Poles and LWS Poles Removal

Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
Manlift/Bucket Truck	0.02	0.09	0.24	0.00	0.01	0.01
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Flat Bed Pole Truck	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.23	2.07	0.20	0.00	0.03	0.02
Offsite Total	**0.33**	**2.64**	**1.21**	**0.01**	**0.08**	**0.06**
Total	**0.33**	**2.64**	**1.21**	**0.01**	**0.08**	**0.06**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
1-Ton Truck, 4x4	0.2	0.0	0.2
Manlift/Bucket Truck	0.2	0.0	0.2
Boom/Crane Truck	0.2	0.0	0.2
Flat Bed Pole Truck	0.2	0.0	0.2
Worker Commute	1.1	0.0	1.1
Offsite Total	**1.9**	**0.0**	**1.9**
Total	**1.9**	**0.0**	**1.9**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
1-Ton Truck, 4x4	2	Paved	8.5	0.002	0.001	0.04	0.01
Manlift/Bucket Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Boom/Crane Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Flat Bed Pole Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
1-Ton Truck, 4x4	2	Unpaved - private	4.2	0.291	0.024	2.45	0.20
Manlift/Bucket Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Boom/Crane Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Flat Bed Pole Truck	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
1-Ton Truck, 4x4	2	Unpaved - public	2.7	0.487	0.040	2.63	0.21
Manlift/Bucket Truck	1	Unpaved - public	2.7	0.845	0.042	2.28	0.11
Boom/Crane Truck	1	Unpaved - public	2.7	0.845	0.042	2.28	0.11
Flat Bed Pole Truck	1	Unpaved - public	2.7	0.487	0.040	1.31	0.11
Worker Commute	6	Paved	60	0.001	0.000	0.53	0.13
Offsite Total						**17.04**	**1.21**
Total						**17.04**	**1.21**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 15
Subtransmission Line Construction Emissions
Tubular Steel Pole Foundations Installation

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.96	6.02	7.54	0.02	0.40	0.37	47.3
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.13	0.03	
Onsite Total	**0.96**	**6.02**	**7.54**	**0.02**	**0.53**	**0.39**	**47.3**
Offsite Motor Vehicle Exhaust	0.55	3.59	3.82	0.01	0.21	0.17	38.1
Offsite Motor Vehicle Fugitive PM	--	--	--	--	21.10	1.31	
Offsite Total	**0.55**	**3.59**	**3.82**	**0.01**	**21.32**	**1.48**	**38.1**
Total	**1.51**	**9.61**	**11.36**	**0.03**	**21.85**	**1.87**	**85.3**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Backhoe/Front Loader	125	1	60	6
Boom/Crane Truck	350	1	60	4
Auger Truck	210	1	60	6
Concrete Mixer Truck	350	3	60	2

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Backhoe/Front Loader	125	0.045	0.390	0.284	0.001	0.015	0.013	67.625	0.004	Tractors/Loaders/Backhoes
Boom/Crane Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Cranes
Auger Truck	210	0.074	0.422	0.489	0.001	0.027	0.025	88.250	0.007	Drill Rigs
Concrete Mixer Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Concrete Mixers

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.

50 miles per hour, conservative assumption

0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Backhoe/Front Loader	0.27	2.34	1.71	0.00	0.09	0.08
Boom/Crane Truck	0.10	0.46	1.16	0.00	0.06	0.05
Auger Truck	0.44	2.53	2.93	0.01	0.16	0.15
Concrete Mixer Truck	0.15	0.69	1.74	0.00	0.09	0.08
Total	**0.96**	**6.02**	**7.54**	**0.02**	**0.40**	**0.37**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Backhoe/Front Loader	11.0	0.0	11.1
Boom/Crane Truck	8.7	0.0	8.7
Auger Truck	14.4	0.0	14.4
Concrete Mixer Truck	13.1	0.0	13.1
Total	**47.2**	**0.0**	**47.3**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number[a]	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
3/4-Ton Truck, 4x4	1	60	N/A	15.4
Boom/Crane Truck	1	60	N/A	15.4
Auger Truck	1	60	N/A	15.4
Water Truck	1	60	N/A	15.4
Dump Truck	1	60	N/A	15.4
Material Handling Truck	1	60	N/A	15.4
Concrete Mixer Truck	3	60	N/A	50
Worker Commute	6	60	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance; offsite concrete mixer truck (vendor) based on estimated 50 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None									
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Auger Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Dump Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Concrete Mixer Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

Table 15
Subtransmission Line Construction Emissions
Tubular Steel Pole Foundations Installation

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.02	0.14	0.15	0.00	0.01	0.00
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Auger Truck	0.02	0.09	0.24	0.00	0.01	0.01
Water Truck	0.02	0.09	0.24	0.00	0.01	0.01
Dump Truck	0.02	0.09	0.24	0.00	0.01	0.01
Material Handling Truck	0.02	0.09	0.24	0.00	0.01	0.01
Concrete Mixer Truck	0.20	0.91	2.29	0.01	0.12	0.09
Worker Commute	0.23	2.07	0.20	0.00	0.03	0.02
Offsite Total	**0.55**	**3.59**	**3.82**	**0.01**	**0.21**	**0.17**
Total	**0.55**	**3.59**	**3.82**	**0.01**	**0.21**	**0.17**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	1.2	0.0	1.2
Boom/Crane Truck	1.8	0.0	1.8
Auger Truck	1.8	0.0	1.8
Water Truck	1.8	0.0	1.8
Dump Truck	1.8	0.0	1.8
Material Handling Truck	1.8	0.0	1.8
Concrete Mixer Truck	17.2	0.0	17.2
Worker Commute	10.8	0.0	10.9
Offsite Total	**38.0**	**0.0**	**38.1**
Total	**38.0**	**0.0**	**38.1**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	1	Paved	8.5	0.002	0.001	0.02	0.00
Boom/Crane Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Auger Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Water Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Dump Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Material Handling Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Concrete Mixer Truck	3	Paved	50	0.002	0.001	0.31	0.08
3/4-Ton Truck, 4x4	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
Boom/Crane Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Auger Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Dump Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Material Handling Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
3/4-Ton Truck, 4x4	1	Unpaved - public	2.7	0.487	0.040	1.31	0.11
Boom/Crane Truck	1	Unpaved - public	2.7	0.845	0.042	2.28	0.11
Auger Truck	1	Unpaved - public	2.7	0.845	0.042	2.28	0.11
Dump Truck	1	Unpaved - public	2.7	0.845	0.042	2.28	0.11
Material Handling Truck	1	Unpaved - public	2.7	0.845	0.042	2.28	0.11
Worker Commute	6	Paved	60	0.001	0.000	0.53	0.13
Offsite Total						**21.10**	**1.31**
Total						**21.10**	**1.31**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling[c]	CY/day	95	1.36E-03	2.82E-04	0.13	0.03
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.13**	**0.03**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

[c] Based on excavating one foundation per day at max. 95 CY per foundation

Table 16
Subtransmission Line Construction Emissions
Tubular Steel Pole Haul

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.15	0.69	1.74	0.00	0.09	0.08	2.0
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.15**	**0.69**	**1.74**	**0.00**	**0.09**	**0.08**	**2.0**
Offsite Motor Vehicle Exhaust	0.22	1.76	0.67	0.00	0.05	0.03	1.7
Offsite Motor Vehicle Fugitive PM	--	--	--	--	9.89	0.73	
Offsite Total	**0.22**	**1.76**	**0.67**	**0.00**	**9.93**	**0.76**	**1.7**
Total	**0.37**	**2.45**	**2.41**	**0.01**	**10.02**	**0.85**	**3.7**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Boom/Crane Truck	350	1	9	6

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Boom/Crane Truck	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Cranes

[a] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.
50 miles per hour, conservative assumption
0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10
PM2.5 Fraction= 0.920
From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5
and PM 2.5 Significance Thresholds, SCAQMD, October 2006,
http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Boom/Crane Truck	0.15	0.69	1.74	0.00	0.09	0.08
Total	**0.15**	**0.69**	**1.74**	**0.00**	**0.09**	**0.08**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Boom/Crane Truck	2.0	0.0	2.0
Total	**2.0**	**0.0**	**2.0**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x
days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				0
Offsite				
3/4-Ton Truck, 4x4	1	9	N/A	15.4
Boom/Crane Truck	1	9	N/A	15.4
Flat Bed Pole Truck	1	9	N/A	15.4
Worker Commute	4	9	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance; offsite concrete mixer truck (vendor) based on estimated 50 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None									
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Flat Bed Pole Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.02	0.14	0.15	0.00	0.01	0.00
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Flat Bed Pole Truck	0.02	0.14	0.15	0.00	0.01	0.00
Worker Commute	0.15	1.38	0.13	0.00	0.02	0.01

Table 16
Subtransmission Line Construction Emissions
Tubular Steel Pole Haul

Offsite Total	**0.22**	**1.76**	**0.67**	**0.00**	**0.05**	**0.03**
Total	**0.22**	**1.76**	**0.67**	**0.00**	**0.05**	**0.03**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	0.2	0.0	0.2
Boom/Crane Truck	0.3	0.0	0.3
Flat Bed Pole Truck	0.2	0.0	0.2
Worker Commute	1.1	0.0	1.1
Offsite Total	**1.7**	**0.0**	**1.7**
Total	**1.7**	**0.0**	**1.7**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None	0						
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	1	Paved	8.5	0.002	0.001	0.02	0.00
Boom/Crane Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Flat Bed Pole Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
3/4-Ton Truck, 4x4	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
Boom/Crane Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Flat Bed Pole Truck	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
3/4-Ton Truck, 4x4	1	Unpaved - public	2.7	0.487	0.040	1.31	0.11
Boom/Crane Truck	1	Unpaved - public	2.7	0.845	0.042	2.28	0.11
Flat Bed Pole Truck	1	Unpaved - public	2.7	0.487	0.040	1.31	0.11
Worker Commute	4	Paved	60	0.001	0.000	0.35	0.09
Offsite Total						**9.89**	**0.73**
Total						**9.89**	**0.73**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 17
Subtransmission Line Construction Emissions
Tubular Steel Pole Assembly

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.43	2.17	3.90	0.01	0.22	0.20	12.2
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.43**	**2.17**	**3.90**	**0.01**	**0.22**	**0.20**	**12.2**
Offsite Motor Vehicle Exhaust	0.43	3.52	1.34	0.01	0.09	0.07	11.4
Offsite Motor Vehicle Fugitive PM	--	--	--	--	19.78	1.46	
Offsite Total	**0.43**	**3.52**	**1.34**	**0.01**	**19.87**	**1.53**	**11.4**
Total	**0.86**	**5.69**	**5.24**	**0.02**	**20.08**	**1.73**	**23.6**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	60	1	30	6
Boom/Crane Truck	350	1	30	8

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Compressor Trailer	60	0.039	0.209	0.262	0.000	0.016	0.015	42.426	0.004	Air Compressors
Boom/Crane Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Cranes

a From Table 34

b Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

c Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.

50 miles per hour, conservative assumption

0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Compressor Trailer	0.23	1.25	1.57	0.00	0.10	0.09
Boom/Crane Truck	0.20	0.92	2.32	0.01	0.12	0.11
Total	**0.43**	**2.17**	**3.90**	**0.01**	**0.22**	**0.20**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Compressor Trailer	3.5	0.0	3.5
Boom/Crane Truck	8.7	0.0	8.7
Total	**12.2**	**0.0**	**12.2**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Vehicle[a]
Onsite				
None				0
Offsite				
3/4-Ton Truck, 4x4	2	30	N/A	15.4
1-Ton Truck, 4x4	2	30	N/A	15.4
Material Handling Truck	1	30	N/A	15.4
Boom/Crane Truck	1	30	N/A	15.4
Worker Commute	8	30	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance; offsite concrete mixer truck (vendor) based on estimated 50 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01

Table 17
Subtransmission Line Construction Emissions
Tubular Steel Pole Assembly

1-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
Material Handling Truck	0.02	0.09	0.24	0.00	0.01	0.01
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.30	2.76	0.27	0.01	0.05	0.03
Offsite Total	**0.43**	**3.52**	**1.34**	**0.01**	**0.09**	**0.07**
Total	**0.43**	**3.52**	**1.34**	**0.01**	**0.09**	**0.07**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	1.2	0.0	1.2
1-Ton Truck, 4x4	1.2	0.0	1.2
Material Handling Truck	0.9	0.0	0.9
Boom/Crane Truck	0.9	0.0	0.9
Worker Commute	7.2	0.0	7.2
Offsite Total	**11.4**	**0.0**	**11.4**
Total	**11.4**	**0.0**	**11.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None	0						
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	2	Paved	8.5	0.002	0.001	0.04	0.01
1-Ton Truck, 4x4	2	Paved	8.5	0.002	0.001	0.04	0.01
Material Handling Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Boom/Crane Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
3/4-Ton Truck, 4x4	2	Unpaved - private	4.2	0.291	0.024	2.45	0.20
1-Ton Truck, 4x4	2	Unpaved - private	4.2	0.291	0.024	2.45	0.20
Material Handling Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Boom/Crane Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
3/4-Ton Truck, 4x4	2	Unpaved - public	2.7	0.487	0.040	2.63	0.21
1-Ton Truck, 4x4	2	Unpaved - public	2.7	0.487	0.040	2.63	0.21
Material Handling Truck	1	Unpaved - public	2.7	0.845	0.042	2.28	0.11
Boom/Crane Truck	1	Unpaved - public	2.7	0.845	0.042	2.28	0.11
Worker Commute	8	Paved	60	0.001	0.000	0.70	0.17
Offsite Total						**19.78**	**1.46**
Total						**19.78**	**1.46**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 18
Subtransmission Line Construction Emissions
Tubular Steel Pole Erection

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.36	1.75	3.37	0.01	0.18	0.17	11.0
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.36**	**1.75**	**3.37**	**0.01**	**0.18**	**0.17**	**11.0**
Offsite Motor Vehicle Exhaust	0.41	3.43	1.11	0.01	0.08	0.06	10.5
Offsite Motor Vehicle Fugitive PM	--	--	--	--	15.35	1.24	
Offsite Total	**0.41**	**3.43**	**1.11**	**0.01**	**15.43**	**1.30**	**10.5**
Total	**0.77**	**5.18**	**4.48**	**0.02**	**15.62**	**1.47**	**21.5**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	60	1	30	4
Boom/Crane Truck	350	1	30	8

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Compressor Trailer	60	0.039	0.209	0.262	0.000	0.016	0.015	42.426	0.004	Air Compressors
Boom/Crane Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Cranes

[a] From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.

50 miles per hour, conservative assumption

0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Compressor Trailer	0.16	0.84	1.05	0.00	0.07	0.06
Boom/Crane Truck	0.20	0.92	2.32	0.01	0.12	0.11
Total	**0.36**	**1.75**	**3.37**	**0.01**	**0.18**	**0.17**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Compressor Trailer	2.3	0.0	2.3
Boom/Crane Truck	8.7	0.0	8.7
Total	**11.0**	**0.0**	**11.0**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				0
Offsite				
3/4-Ton Truck, 4x4	2	30	N/A	15.4
1-Ton Truck, 4x4	2	30	N/A	15.4
Boom/Crane Truck	1	30	N/A	15.4
Worker Commute	8	30	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance; offsite concrete mixer truck (vendor) based on estimated 50 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
1-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.30	2.76	0.27	0.01	0.05	0.03
Offsite Total	**0.41**	**3.43**	**1.11**	**0.01**	**0.08**	**0.06**
Total	**0.41**	**3.43**	**1.11**	**0.01**	**0.08**	**0.06**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0

Table 18
Subtransmission Line Construction Emissions
Tubular Steel Pole Erection

Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	1.2	0.0	1.2
1-Ton Truck, 4x4	1.2	0.0	1.2
Boom/Crane Truck	0.9	0.0	0.9
Worker Commute	7.2	0.0	7.2
Offsite Total	**10.5**	**0.0**	**10.5**
Total	**10.5**	**0.0**	**10.5**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None	0						
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	2	Paved	8.5	0.002	0.001	0.04	0.01
1-Ton Truck, 4x4	2	Paved	8.5	0.002	0.001	0.04	0.01
Boom/Crane Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
3/4-Ton Truck, 4x4	2	Unpaved - private	4.2	0.291	0.024	2.45	0.20
1-Ton Truck, 4x4	2	Unpaved - private	4.2	0.291	0.024	2.45	0.20
Boom/Crane Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
3/4-Ton Truck, 4x4	2	Unpaved - public	2.7	0.487	0.040	2.63	0.21
1-Ton Truck, 4x4	2	Unpaved - public	2.7	0.487	0.040	2.63	0.21
Boom/Crane Truck	1	Unpaved - public	2.7	0.845	0.042	2.28	0.11
Worker Commute	8	Paved	60	0.001	0.000	0.70	0.17
Offsite Total						**15.35**	**1.24**
Total						**15.35**	**1.24**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 19
Subtransmission Line Construction Emissions
Wood Guy Stub Pole/LWS Pole Haul

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.15	0.69	1.74	0.00	0.09	0.08	10.2
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.15**	**0.69**	**1.74**	**0.00**	**0.09**	**0.08**	**10.2**
Offsite Motor Vehicle Exhaust	0.21	1.71	0.75	0.00	0.05	0.04	9.4
Offsite Motor Vehicle Fugitive PM	--	--	--	--	9.89	0.73	
Offsite Total	**0.21**	**1.71**	**0.75**	**0.00**	**9.94**	**0.77**	**9.4**
Total	**0.36**	**2.40**	**2.49**	**0.01**	**10.03**	**0.85**	**19.6**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Boom/Crane Truck	350	1	47	6

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Boom/Crane Truck[a]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Cranes

[a] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.
50 miles per hour, conservative assumption
0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10
PM2.5 Fraction= 0.920
From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Boom/Crane Truck	0.15	0.69	1.74	0.00	0.09	0.08
Total	**0.15**	**0.69**	**1.74**	**0.00**	**0.09**	**0.08**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Boom/Crane Truck	10.2	0.0	10.2
Total	**10.2**	**0.0**	**10.2**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
3/4-Ton Truck, 4x4	1	47	N/A	15.4
Boom/Crane Truck	1	47	N/A	15.4
Flat Bed Pole Truck	1	47	N/A	15.4
Worker Commute	4	47	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance; offsite concrete mixer truck (vendor) based on estimated 50 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Flat Bed Pole Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.02	0.14	0.15	0.00	0.01	0.00
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Flat Bed Pole Truck	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.15	1.38	0.13	0.00	0.02	0.01
Offsite Total	**0.21**	**1.71**	**0.75**	**0.00**	**0.05**	**0.04**
Total	**0.21**	**1.71**	**0.75**	**0.00**	**0.05**	**0.04**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]

Table 19
Subtransmission Line Construction Emissions
Wood Guy Stub Pole/LWS Pole Haul

Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	0.9	0.0	0.9
Boom/Crane Truck	1.4	0.0	1.4
Flat Bed Pole Truck	1.4	0.0	1.4
Worker Commute	5.7	0.0	5.7
Offsite Total	**9.4**	**0.0**	**9.4**
Total	**9.4**	**0.0**	**9.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	1	Paved	8.5	0.002	0.001	0.02	0.00
Boom/Crane Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Flat Bed Pole Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
3/4-Ton Truck, 4x4	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
Boom/Crane Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Flat Bed Pole Truck	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
3/4-Ton Truck, 4x4	1	Unpaved - public	2.7	0.487	0.040	1.31	0.11
Boom/Crane Truck	1	Unpaved - public	2.7	0.845	0.042	2.28	0.11
Flat Bed Pole Truck	1	Unpaved - public	2.7	0.487	0.040	1.31	0.11
Worker Commute	4	Paved	60	0.001	0.000	0.35	0.09
Offsite Total						**9.89**	**0.73**
Total						**9.89**	**0.73**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 20
Subtransmission Line Construction Emissions
Wood/LWS Pole Assembly

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.43	2.17	3.90	0.01	0.22	0.20	26.4
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.43**	**2.17**	**3.90**	**0.01**	**0.22**	**0.20**	**26.4**
Offsite Motor Vehicle Exhaust	0.43	3.52	1.34	0.01	0.09	0.07	24.7
Offsite Motor Vehicle Fugitive PM	--	--	--	--	19.78	1.46	
Offsite Total	**0.43**	**3.52**	**1.34**	**0.01**	**19.87**	**1.53**	**24.7**
Total	**0.86**	**5.69**	**5.24**	**0.02**	**20.08**	**1.73**	**51.1**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	60	1	65	6
Boom/Crane Truck	350	1	65	8

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Compressor Trailer	60	0.039	0.209	0.262	0.000	0.016	0.015	42.426	0.004	Air Compressors
Boom/Crane Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Cranes

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5
and PM 2.5 Significance Thresholds, SCAQMD, October 2006,
http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.

50 miles per hour, conservative assumption

0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Compressor Trailer	0.23	1.25	1.57	0.00	0.10	0.09
Boom/Crane Truck	0.20	0.92	2.32	0.01	0.12	0.11
Total	**0.43**	**2.17**	**3.90**	**0.01**	**0.22**	**0.20**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Compressor Trailer	7.5	0.0	7.5
Boom/Crane Truck	18.9	0.0	18.9
Total	**26.4**	**0.0**	**26.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
3/4-Ton Truck, 4x4	2	65	N/A	15.4
1-Ton Truck, 4x4	2	65	N/A	15.4
Material Handling Truck	1	65	N/A	15.4
Boom/Crane Truck	1	65	N/A	15.4
Worker Commute	8	65	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance; offsite concrete mixer truck (vendor) bsaed on estimated 50 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
1-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
Material Handling Truck	0.02	0.09	0.24	0.00	0.01	0.01
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.30	2.76	0.27	0.01	0.05	0.03
Offsite Total	**0.43**	**3.52**	**1.34**	**0.01**	**0.09**	**0.07**
Total	**0.43**	**3.52**	**1.34**	**0.01**	**0.09**	**0.07**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			

Table 20
Subtransmission Line Construction Emissions
Wood/LWS Pole Assembly

None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	2.6	0.0	2.6
1-Ton Truck, 4x4	2.6	0.0	2.6
Material Handling Truck	1.9	0.0	1.9
Boom/Crane Truck	1.9	0.0	1.9
Worker Commute	15.7	0.0	15.7
Offsite Total	**24.7**	**0.0**	**24.7**
Total	**24.7**	**0.0**	**24.7**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	2	Paved	8.5	0.002	0.001	0.04	0.01
1-Ton Truck, 4x4	2	Paved	8.5	0.002	0.001	0.04	0.01
Material Handling Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Boom/Crane Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
3/4-Ton Truck, 4x4	2	Unpaved - private	4.2	0.291	0.024	2.45	0.20
1-Ton Truck, 4x4	2	Unpaved - private	4.2	0.291	0.024	2.45	0.20
Material Handling Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Boom/Crane Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
3/4-Ton Truck, 4x4	2	Unpaved - public	2.7	0.487	0.040	2.63	0.21
1-Ton Truck, 4x4	2	Unpaved - public	2.7	0.487	0.040	2.63	0.21
Material Handling Truck	1	Unpaved - public	2.7	0.845	0.042	2.28	0.11
Boom/Crane Truck	1	Unpaved - public	2.7	0.845	0.042	2.28	0.11
Worker Commute	8	Paved	60	0.001	0.000	0.70	0.17
Offsite Total						**19.78**	**1.46**
Total						**19.78**	**1.46**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 21
Subtransmission Line Construction Emissions
Install Wood/Wood Guy Stub Pole/LWS Pole

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.95	6.19	7.71	0.02	0.40	0.37	58.9
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.02	0.00	
Onsite Total	**0.95**	**6.19**	**7.71**	**0.02**	**0.42**	**0.37**	**58.9**
Offsite Motor Vehicle Exhaust	0.35	2.68	1.53	0.01	0.10	0.08	24.3
Offsite Motor Vehicle Fugitive PM	--	--	--	--	23.33	1.44	
Offsite Total	**0.35**	**2.68**	**1.53**	**0.01**	**23.43**	**1.52**	**24.3**
Total	**1.30**	**8.87**	**9.24**	**0.03**	**23.85**	**1.89**	**83.2**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Backhoe/Front Loader	125	1	70	8
Manlift/Bucket Truck	250	1	70	6
Boom/Crane Truck	350	1	70	6
Auger Truck	210	1	70	4

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Backhoe/Front Loader	125	0.045	0.390	0.284	0.001	0.015	0.013	67.625	0.004	Tractors/Loaders/Backhoes
Manlift/Bucket Truck[c]	250	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Manlifts
Boom/Crane Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Cranes
Auger Truck	210	0.074	0.422	0.489	0.001	0.027	0.025	88.250	0.007	Drill Rigs

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5
and PM 2.5 Significance Thresholds, SCAQMD, October 2006,
http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.

50 miles per hour, conservative assumption

0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Backhoe/Front Loader	0.36	3.12	2.28	0.01	0.12	0.11
Manlift/Bucket Truck	0.15	0.69	1.74	0.00	0.09	0.08
Boom/Crane Truck	0.15	0.69	1.74	0.00	0.09	0.08
Auger Truck	0.30	1.69	1.96	0.00	0.11	0.10
Total	**0.95**	**6.19**	**7.71**	**0.02**	**0.40**	**0.37**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Backhoe/Front Loader	17.2	1.0E-03	17.2
Manlift/Bucket Truck	15.2	2.2E-04	15.2
Boom/Crane Truck	15.2	2.2E-04	15.2
Auger Truck	11.2	8.5E-04	11.2
Total	**58.8**	**0.0**	**58.9**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
1-Ton Truck, 4x4	1	70	N/A	15.4
Manlift/Bucket Truck	1	70	N/A	15.4
Boom/Crane Truck	1	70	N/A	15.4
Auger Truck	1	70	N/A	15.4
Material Handling Truck	1	70	N/A	15.4
Extendable Flat Bed Pole Truck	1	70	N/A	15.4
Worker Commute	6	70	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance; offsite concrete mixer truck (vendor) bsaed on estimated 50 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Manlift/Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Auger Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Extendable Flat Bed Pole Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Truck, 4x4	0.02	0.14	0.15	0.00	0.01	0.00
Manlift/Bucket Truck	0.02	0.09	0.24	0.00	0.01	0.01
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Auger Truck	0.02	0.09	0.24	0.00	0.01	0.01
Material Handling Truck	0.02	0.09	0.24	0.00	0.01	0.01
Extendable Flat Bed Pole Truck	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.23	2.07	0.20	0.00	0.03	0.02

Table 21
Subtransmission Line Construction Emissions
Install Wood/Wood Guy Stub Pole/LWS Pole

Offsite Total	**0.35**	**2.68**	**1.53**	**0.01**	**0.10**	**0.08**
Total	**0.35**	**2.68**	**1.53**	**0.01**	**0.10**	**0.08**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
1-Ton Truck, 4x4	1.4	0.0	1.4
Manlift/Bucket Truck	2.1	0.0	2.1
Boom/Crane Truck	2.1	0.0	2.1
Auger Truck	2.1	0.0	2.1
Material Handling Truck	2.1	0.0	2.1
Extendable Flat Bed Pole Truck	2.1	0.0	2.1
Worker Commute	12.7	0.0	12.7
Offsite Total	**24.3**	**0.0**	**24.3**
Total	**24.3**	**0.0**	**24.3**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
1-Ton Truck, 4x4	1	Paved	8.5	0.002	0.001	0.02	0.00
Manlift/Bucket Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Boom/Crane Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Auger Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Material Handling Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Extendable Flat Bed Pole Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
1-Ton Truck, 4x4	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
Manlift/Bucket Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Boom/Crane Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Auger Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Material Handling Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Extendable Flat Bed Pole Truck	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
1-Ton Truck, 4x4	1	Unpaved - public	2.7	0.487	0.040	1.31	0.11
Manlift/Bucket Truck	1	Unpaved - public	2.7	0.845	0.042	2.28	0.11
Boom/Crane Truck	1	Unpaved - public	2.7	0.845	0.042	2.28	0.11
Auger Truck	1	Unpaved - public	2.7	0.845	0.042	2.28	0.11
Material Handling Truck	1	Unpaved - public	2.7	0.845	0.042	2.28	0.11
Extendable Flat Bed Pole Truck	1	Unpaved - public	2.7	0.487	0.040	1.31	0.11
Worker Commute	6	Paved	60	0.001	0.000	0.53	0.13
Offsite Total						**23.33**	**1.44**
Total						**23.33**	**1.44**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day	14	1.36E-03	2.82E-04	0.02	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.02**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

[c] Based on excavating 3.5 ft. diameter x 10 ft. deep per pole x 274 poles = 976 CY over 69 days

Table 22
Subtransmission Line Construction Emissions
Reconfigure Existing Structures

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.43	2.17	3.90	0.01	0.22	0.20	5.3
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.43**	**2.17**	**3.90**	**0.01**	**0.22**	**0.20**	**5.3**
Offsite Motor Vehicle Exhaust	0.86	7.50	1.50	0.02	0.15	0.10	9.2
Offsite Motor Vehicle Fugitive PM	--	--	--	--	14.72	1.31	
Offsite Total	**0.86**	**7.50**	**1.50**	**0.02**	**14.87**	**1.42**	**9.2**
Total	**1.29**	**9.67**	**5.40**	**0.02**	**15.09**	**1.61**	**14.5**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	60	1	13	6
Boom/Crane Truck	350	1	13	8

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Compressor Trailer	60	0.039	0.209	0.262	0.000	0.016	0.015	42.426	0.004	Air Compressors
Boom/Crane Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Cranes

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.

50 miles per hour, conservative assumption

0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Compressor Trailer	0.23	1.25	1.57	0.00	0.10	0.09
Boom/Crane Truck	0.20	0.92	2.32	0.01	0.12	0.11
Total	**0.43**	**2.17**	**3.90**	**0.01**	**0.22**	**0.20**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Compressor Trailer	1.5	0.0	1.5
Boom/Crane Truck	3.8	0.0	3.8
Total	**5.3**	**0.0**	**5.3**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				0
Offsite				
3/4-Ton Truck, 4x4	2	13	N/A	12
1-Ton Truck, 4x4	2	13	N/A	12
Material Handling Truck	1	13	N/A	12
Boom/Crane Truck	1	13	N/A	12
Worker Commute	20	13	N/A	60

[a] Offsite travel assumed to be 12 miles per day, equal to 1/2 total distance of Segment 1 of the Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.03	0.22	0.24	0.00	0.01	0.01
1-Ton Truck, 4x4	0.03	0.22	0.24	0.00	0.01	0.01
Material Handling Truck	0.02	0.07	0.18	0.00	0.01	0.01
Boom/Crane Truck	0.02	0.07	0.18	0.00	0.01	0.01
Worker Commute	0.76	6.91	0.67	0.01	0.11	0.07
Offsite Total	**0.86**	**7.50**	**1.50**	**0.02**	**0.15**	**0.10**
Total	**0.86**	**7.50**	**1.50**	**0.02**	**0.15**	**0.10**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 22
Subtransmission Line Construction Emissions
Reconfigure Existing Structures

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	0.4	0.0	0.4
1-Ton Truck, 4x4	0.4	0.0	0.4
Material Handling Truck	0.3	0.0	0.3
Boom/Crane Truck	0.3	0.0	0.3
Worker Commute	7.8	0.0	7.8
Offsite Total	**9.2**	**0.0**	**9.2**
Total	**9.2**	**0.0**	**9.2**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None	0						
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	2	Paved	7.7	0.002	0.001	0.03	0.01
1-Ton Truck, 4x4	2	Paved	7.7	0.002	0.001	0.03	0.01
Material Handling Truck	1	Paved	7.7	0.002	0.001	0.02	0.00
Boom/Crane Truck	1	Paved	7.7	0.002	0.001	0.02	0.00
3/4-Ton Truck, 4x4	2	Unpaved - private	1.9	0.291	0.024	1.11	0.09
1-Ton Truck, 4x4	2	Unpaved - private	1.9	0.291	0.024	1.11	0.09
Material Handling Truck	1	Unpaved - private	1.9	0.506	0.025	0.96	0.05
Boom/Crane Truck	1	Unpaved - private	1.9	0.506	0.025	0.96	0.05
3/4-Ton Truck, 4x4	2	Unpaved - public	2.4	0.487	0.040	2.34	0.19
1-Ton Truck, 4x4	2	Unpaved - public	2.4	0.487	0.040	2.34	0.19
Material Handling Truck	1	Unpaved - public	2.4	0.845	0.042	2.03	0.10
Boom/Crane Truck	1	Unpaved - public	2.4	0.845	0.042	2.03	0.10
Worker Commute	20	Paved	60	0.001	0.000	1.76	0.43
Offsite Total						**14.72**	**1.31**
Total						**14.72**	**1.31**

a For Segment 1 of the Proposed Project, 7.7 miles occur on paved roadways and 4.3 miles occur on unpaved roadways (2.4 miles are unpaved public roadways and 1.9 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day. Existing structures would not be reconfigured along Segment 2 of the Proposed Project.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 23
Subtransmission Line Construction Emissions
Install Conductor & GW

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	3.54	15.79	30.51	0.09	1.28	1.18	308.4
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**3.54**	**15.79**	**30.51**	**0.09**	**1.28**	**1.18**	**308.4**
Offsite Motor Vehicle Exhaust	0.92	8.35	0.92	0.02	0.14	0.09	55.4
Offsite Motor Vehicle Fugitive PM	--	--	--	--	4.49	0.66	
Offsite Total	**0.92**	**8.35**	**0.92**	**0.02**	**4.63**	**0.75**	**55.4**
Total	**4.46**	**24.13**	**31.43**	**0.10**	**5.91**	**1.93**	**363.8**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Backhoe/Front Loader	125	1	75	2
Manlift/Bucket Truck	250	4	75	8
Boom/Crane Truck	350	1	75	8
Boom Truck (guard)	350	4	75	2
Wire Truck/Trailer	350	2	75	6
Sock Line Puller	300	1	75	6
Bull Wheel Puller	350	1	75	6
Static Truck/Tensioner	350	1	75	6

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Backhoe/Front Loader	125	0.045	0.390	0.284	0.001	0.015	0.013	67.625	0.004	Tractors/Loaders/Backhoes
Manlift/Bucket Truck[c]	250	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Manlifts
Boom/Crane Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Cranes
Boom Truck (guard)[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Cranes
Wire Truck/Trailer	350	0.075	0.316	0.534	0.002	0.018	0.017	169.577	0.007	Other Construction Equipment
Sock Line Puller	300	0.075	0.316	0.534	0.002	0.018	0.017	169.577	0.007	Other Construction Equipment
Bull Wheel Puller	350	0.075	0.316	0.534	0.002	0.018	0.017	169.577	0.007	Other Construction Equipment
Static Truck/Tensioner	350	0.075	0.316	0.534	0.002	0.018	0.017	169.577	0.007	Other Construction Equipment

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5
and PM 2.5 Significance Thresholds, SCAQMD, October 2006,
http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.

50 miles per hour, conservative assumption

0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Backhoe/Front Loader	0.09	0.78	0.57	0.00	0.03	0.03
Manlift/Bucket Truck	0.80	3.68	9.28	0.02	0.47	0.43
Boom/Crane Truck	0.20	0.92	2.32	0.01	0.12	0.11

Table 23
Subtransmission Line Construction Emissions
Install Conductor & GW

Boom Truck (guard)	0.20	0.92	2.32	0.01	0.12	0.11
Wire Truck/Trailer	0.90	3.80	6.41	0.02	0.22	0.20
Sock Line Puller	0.45	1.90	3.20	0.01	0.11	0.10
Bull Wheel Puller	0.45	1.90	3.20	0.01	0.11	0.10
Static Truck/Tensioner	0.45	1.90	3.20	0.01	0.11	0.10
Total	**3.54**	**15.79**	**30.51**	**0.09**	**1.28**	**1.18**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Backhoe/Front Loader	4.6	0.0	4.6
Manlift/Bucket Truck	87.0	0.0	87.1
Boom/Crane Truck	21.8	0.0	21.8
Boom Truck (guard)	21.8	0.0	21.8
Wire Truck/Trailer	69.2	0.0	69.3
Sock Line Puller	34.6	0.0	34.6
Bull Wheel Puller	34.6	0.0	34.6
Static Truck/Tensioner	34.6	0.0	34.6
Total	**308.2**	**0.0**	**308.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				0
Offsite				
1-Ton Truck, 4x4	3	75	4	0.4
Manlift/Bucket Truck	4	75	8	0.4
Boom/Crane Truck	1	75	8	0.4
Boom Truck (guard)	4	75	2	0.4
Dump Truck	1	75	2	0.4
Wire Truck/Trailer	2	75	6	0.4
Sock Line Puller	1	75	6	0.4
Bull Wheel Puller	1	75	6	0.4
Static Truck/Tensioner	1	75	6	0.4
Material Handling Truck	1	75	8	0.4
Lowboy Truck/Trailer	2	75	4	0.4
Worker Commute	24	75	N/A	60

[a] Offsite travel assumed to be 0.2 miles per day x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 23
Subtransmission Line Construction Emissions
Install Conductor & GW

Offsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Manlift/Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom Truck (guard)	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Dump Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Wire Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Sock Line Puller	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Bull Wheel Puller	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Static Truck/Tensioner	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Truck, 4x4	0.00	0.01	0.01	0.00	0.00	0.00
Manlift/Bucket Truck	0.00	0.01	0.02	0.00	0.00	0.00
Boom/Crane Truck	0.00	0.00	0.01	0.00	0.00	0.00
Boom Truck (guard)	0.00	0.01	0.02	0.00	0.00	0.00
Dump Truck	0.00	0.00	0.01	0.00	0.00	0.00
Wire Truck/Trailer	0.00	0.00	0.01	0.00	0.00	0.00
Sock Line Puller	0.00	0.00	0.01	0.00	0.00	0.00
Bull Wheel Puller	0.00	0.00	0.01	0.00	0.00	0.00
Static Truck/Tensioner	0.00	0.00	0.01	0.00	0.00	0.00
Material Handling Truck	0.00	0.00	0.01	0.00	0.00	0.00
Lowboy Truck/Trailer	0.00	0.00	0.01	0.00	0.00	0.00
Worker Commute	0.91	8.29	0.80	0.02	0.14	0.09
Offsite Total	**0.92**	**8.35**	**0.92**	**0.02**	**0.14**	**0.09**
Total	**0.92**	**8.35**	**0.92**	**0.02**	**0.14**	**0.09**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
1-Ton Truck, 4x4	0.1	0.0	0.1
Manlift/Bucket Truck	0.2	0.0	0.2
Boom/Crane Truck	0.1	0.0	0.1
Boom Truck (guard)	0.2	0.0	0.2
Dump Truck	0.1	0.0	0.1
Wire Truck/Trailer	0.1	0.0	0.1
Sock Line Puller	0.1	0.0	0.1
Bull Wheel Puller	0.1	0.0	0.1

Table 23
Subtransmission Line Construction Emissions
Install Conductor & GW

Static Truck/Tensioner	0.1	0.0	0.1
Material Handling Truck	0.1	0.0	0.1
Lowboy Truck/Trailer	0.1	0.0	0.1
Worker Commute	54.2	0.0	54.3
Offsite Total	**55.4**	**0.0**	**55.4**
Total	**55.4**	**0.0**	**55.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x
days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None	0						
Onsite Total						**0.00**	**0.00**
Offsite							
1-Ton Truck, 4x4	3	Paved	0.2	0.002	0.001	0.00	0.00
Manlift/Bucket Truck	4	Paved	0.2	0.002	0.001	0.00	0.00
Boom/Crane Truck	1	Paved	0.2	0.002	0.001	0.00	0.00
Boom Truck (guard)	4	Paved	0.2	0.001	0.000	0.00	0.00
Dump Truck	1	Paved	0.2	0.002	0.001	0.00	0.00
Wire Truck/Trailer	2	Paved	0.2	0.002	0.001	0.00	0.00
Sock Line Puller	1	Paved	0.2	0.002	0.001	0.00	0.00
Bull Wheel Puller	1	Paved	0.2	0.002	0.001	0.00	0.00
Static Truck/Tensioner	1	Paved	0.2	0.002	0.001	0.00	0.00
Material Handling Truck	1	Paved	0.2	0.002	0.001	0.00	0.00
Lowboy Truck/Trailer	2	Paved	0.2	0.002	0.001	0.00	0.00
1-Ton Truck, 4x4	3	Unpaved - public	0.2	0.487	0.040	0.29	0.02
Manlift/Bucket Truck	4	Unpaved - public	0.2	0.845	0.042	0.68	0.03
Boom/Crane Truck	1	Unpaved - public	0.2	0.845	0.042	0.17	0.01
Boom Truck (guard)							
Dump Truck	1	Unpaved - public	0.2	0.845	0.042	0.17	0.01
Wire Truck/Trailer	2	Unpaved - public	0.2	0.487	0.040	0.19	0.02
Sock Line Puller	1	Unpaved - public	0.2	0.487	0.040	0.10	0.01
Bull Wheel Puller	1	Unpaved - public	0.2	0.845	0.042	0.17	0.01
Static Truck/Tensioner	1	Unpaved - public	0.2	0.487	0.040	0.10	0.01
Material Handling Truck	1	Unpaved - public	0.2	0.845	0.042	0.17	0.01
Lowboy Truck/Trailer	2	Unpaved - public	0.2	0.845	0.042	0.34	0.02
Worker Commute	24	Paved	60	0.001	0.000	2.11	0.52
Offsite Total						**4.49**	**0.66**
Total						**4.49**	**0.66**

[a] Assumes distance travelled on unpaved roadways is 1/2 total distance (0.2 miles/day) x two trips per day

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Table 23
Subtransmission Line Construction Emissions
Install Conductor & GW

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 24
Subtransmission Line Construction Emissions
Guard Structure Removal

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.49	2.76	4.52	0.01	0.24	0.22	4.5
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.49**	**2.76**	**4.52**	**0.01**	**0.24**	**0.22**	**4.5**
Offsite Motor Vehicle Exhaust	0.33	2.64	1.21	0.01	0.08	0.06	2.8
Offsite Motor Vehicle Fugitive PM	--	--	--	--	17.04	1.21	
Offsite Total	**0.33**	**2.64**	**1.21**	**0.01**	**17.12**	**1.27**	**2.8**
Total	**0.83**	**5.40**	**5.73**	**0.02**	**17.36**	**1.49**	**7.3**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	60	1	9	4
Backhoe/Front Loader	125	1	9	2
Manlift/Bucket Truck	250	1	9	4
Boom/Crane Truck	350	1	9	6

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Compressor Trailer	60	0.039	0.209	0.262	0.000	0.016	0.015	42.426	0.004	Air Compressors
Backhoe/Front Loader	125	0.045	0.390	0.284	0.001	0.015	0.013	67.625	0.004	Tractors/Loaders/Backhoes
Manlift/Bucket Truck[c]	250	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Manlifts
Boom/Crane Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Cranes

[a] From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.

50 miles per hour, conservative assumption

0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Compressor Trailer	0.16	0.84	1.05	0.00	0.07	0.06
Backhoe/Front Loader	0.09	0.78	0.57	0.00	0.03	0.03
Manlift/Bucket Truck	0.10	0.46	1.16	0.00	0.06	0.05
Boom/Crane Truck	0.15	0.69	1.74	0.00	0.09	0.08
Total	**0.49**	**2.76**	**4.52**	**0.01**	**0.24**	**0.22**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Compressor Trailer	0.7	0.0	0.7
Backhoe/Front Loader	0.6	0.0	0.6
Manlift/Bucket Truck	1.3	0.0	1.3
Boom/Crane Truck	2.0	0.0	2.0
Total	**4.5**	**0.0**	**4.5**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
3/4-Ton Truck, 4x4	1	9	N/A	15.4
1-Ton Truck, 4x4	1	9	N/A	15.4
Manlift/Bucket Truck	1	9	N/A	15.4
Boom/Crane Truck	1	9	N/A	15.4
Extendable Flat Bed Pole Truck	1	9	N/A	15.4
Worker Commute	6	9	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Manlift/Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Extendable Flat Bed Pole Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.02	0.14	0.15	0.00	0.01	0.00
1-Ton Truck, 4x4	0.02	0.14	0.15	0.00	0.01	0.00
Manlift/Bucket Truck	0.02	0.09	0.24	0.00	0.01	0.01
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Extendable Flat Bed Pole Truck	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.23	2.07	0.20	0.00	0.03	0.02
Offsite Total	**0.33**	**2.64**	**1.21**	**0.01**	**0.08**	**0.06**
Total	**0.33**	**2.64**	**1.21**	**0.01**	**0.08**	**0.06**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 24
Subtransmission Line Construction Emissions
Guard Structure Removal

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	0.2	0.0	0.2
1-Ton Truck, 4x4	0.2	0.0	0.2
Manlift/Bucket Truck	0.3	0.0	0.3
Boom/Crane Truck	0.3	0.0	0.3
Extendable Flat Bed Pole Truck	0.3	0.0	0.3
Worker Commute	1.6	0.0	1.6
Offsite Total	**2.8**	**0.0**	**2.8**
Total	**2.8**	**0.0**	**2.8**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	1	Paved	8.5	0.002	0.001	0.02	0.00
1-Ton Truck, 4x4	1	Paved	8.5	0.002	0.001	0.02	0.00
Manlift/Bucket Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Boom/Crane Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Extendable Flat Bed Pole Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
3/4-Ton Truck, 4x4	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
1-Ton Truck, 4x4	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
Manlift/Bucket Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Boom/Crane Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Extendable Flat Bed Pole Truck	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
3/4-Ton Truck, 4x4	1	Unpaved - public	2.7	0.487	0.040	1.31	0.11
1-Ton Truck, 4x4	1	Unpaved - public	2.7	0.487	0.040	1.31	0.11
Manlift/Bucket Truck	1	Unpaved - public	2.7	0.845	0.042	2.28	0.11
Boom/Crane Truck	1	Unpaved - public	2.7	0.845	0.042	2.28	0.11
Extendable Flat Bed Pole Truck	1	Unpaved - public	2.7	0.487	0.040	1.31	0.11
Worker Commute	6	Paved	60	0.001	0.000	0.53	0.13
Offsite Total						**17.04**	**1.21**
Total						**17.04**	**1.21**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 25
Subtransmission Line Construction Emissions
Restoration

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.81	4.12	5.68	0.01	0.26	0.24	7.6
Onsite Motor Vehicle Exhaust	0.00	0.01	0.02	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.51	0.03	
Earthwork Fugitive PM	--	--	--	--	2.85	0.59	
Onsite Total	**0.81**	**4.12**	**5.70**	**0.01**	**3.62**	**0.86**	**7.6**
Offsite Motor Vehicle Exhaust	0.35	2.89	1.01	0.01	0.08	0.05	4.6
Offsite Motor Vehicle Fugitive PM	--	--	--	--	14.57	1.02	
Offsite Total	**0.35**	**2.89**	**1.01**	**0.01**	**14.65**	**1.07**	**4.6**
Total	**1.16**	**7.01**	**6.70**	**0.02**	**18.27**	**1.93**	**12.3**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Backhoe/Front Loader	125	1	15	4
Motor Grader	250	1	15	6
Drum Type Compactor	100	1	15	4

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Backhoe/Front Loader	125	0.045	0.390	0.284	0.001	0.015	0.013	67.625	0.004	Tractors/Loaders/Backhoes
Motor Grader	250	0.074	0.252	0.561	0.001	0.019	0.018	114.800	0.007	Graders
Drum Type Compactor	100	0.045	0.261	0.294	0.000	0.023	0.021	39.345	0.004	Rollers

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Backhoe/Front Loader	0.18	1.56	1.14	0.00	0.06	0.05
Motor Grader	0.45	1.51	3.37	0.01	0.12	0.11
Drum Type Compactor	0.18	1.05	1.18	0.00	0.09	0.08
Total	**0.81**	**4.12**	**5.68**	**0.01**	**0.26**	**0.24**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Backhoe/Front Loader	1.8	0.0	1.8
Motor Grader	4.7	0.0	4.7
Drum Type Compactor	1.1	0.0	1.1
Total	**7.6**	**0.0**	**7.6**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
Water Truck	1	15	2	1
Offsite				
1-Ton Crew Cab, 4x4	2	15	4	15.4
Water Truck	1	15	6	15.4
Lowboy Truck/Trailer	1	15	4	15.4
Worker Commute	7	15	N/A	60

[a] Onsite travel assumed to be 1 mile per day

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance; offsite concrete mixer truck (vendor) bsaed on estimated 50 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Offsite									
1-Ton Crew Cab, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
Water Truck	0.00	0.01	0.02	0.00	0.00	0.00
Onsite Total	**0.00**	**0.01**	**0.02**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Crew Cab, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
Water Truck	0.02	0.09	0.24	0.00	0.01	0.01
Lowboy Truck/Trailer	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.27	2.42	0.23	0.00	0.04	0.03
Offsite Total	**0.35**	**2.89**	**1.01**	**0.01**	**0.08**	**0.05**
Total	**0.35**	**2.90**	**1.02**	**0.01**	**0.08**	**0.06**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
Water Truck	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
1-Ton Crew Cab, 4x4	0.6	0.0	0.6
Water Truck	0.4	0.0	0.4
Lowboy Truck/Trailer	0.4	0.0	0.4
Worker Commute	3.2	0.0	3.2

Table 25
Subtransmission Line Construction Emissions
Restoration

Offsite Total	**4.6**	**0.0**	**4.6**
Total	**4.7**	**0.0**	**4.7**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
Water Truck	1	Unpaved - private	1	0.506	0.025	0.51	0.03
Onsite Total						**0.51**	**0.03**
Offsite							
1-Ton Crew Cab, 4x4	2	Paved	8.5	0.002	0.001	0.04	0.01
Water Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Lowboy Truck/Trailer	1	Paved	8.5	0.002	0.001	0.02	0.00
1-Ton Crew Cab, 4x4	2	Unpaved - private	4.2	0.291	0.024	2.45	0.20
Water Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Lowboy Truck/Trailer	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
1-Ton Crew Cab, 4x4	2	Unpaved - public	2.7	0.487	0.040	2.63	0.21
Water Truck	1	Unpaved - public	2.7	0.845	0.042	2.28	0.11
Lowboy Truck/Trailer	1	Unpaved - public	2.7	0.845	0.042	2.28	0.11
Worker Commute	7	Paved	60	0.001	0.000	0.62	0.15
Offsite Total						**14.57**	**1.02**
Total						**15.08**	**1.04**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day	6	0.475	0.099	2.85	0.59
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**2.85**	**0.59**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 26
Subtransmission Line Construction Emissions
Vault Installation

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.36	6.77	9.91	0.02	0.41	0.38	9.7
Onsite Motor Vehicle Exhaust	0.01	0.06	0.09	0.00	0.00	0.00	0.1
Onsite Motor Vehicle Fugitive PM	--	--	--	--	3.13	0.18	
Earthwork Fugitive PM	--	--	--	--	0.07	0.01	
Onsite Total	**1.37**	**6.83**	**10.01**	**0.03**	**3.61**	**0.58**	**9.8**
Offsite Motor Vehicle Exhaust	0.49	3.38	3.09	0.01	0.18	0.14	4.9
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.95	0.23	
Offsite Total	**0.49**	**3.38**	**3.09**	**0.01**	**1.12**	**0.37**	**4.9**
Total	**1.86**	**10.21**	**13.09**	**0.04**	**4.73**	**0.95**	**14.7**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Backhoe/Front Loader	125	1	9	8
Excavator	250	1	9	6
Crane (L)	500	1	9	6
Concrete Mixer Truck	350	3	9	2

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Backhoe/Front Loader	125	0.045	0.390	0.284	0.001	0.015	0.013	67.625	0.004	Tractors/Loaders/Backhoes
Excavator	250	0.062	0.222	0.399	0.001	0.013	0.012	105.841	0.006	Excavators
Crane (L)	500	0.080	0.272	0.584	0.001	0.021	0.019	120.128	0.007	Cranes
Concrete Mixer Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Concrete Mixers

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10
PM2.5 Fraction= 0.920
From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.
50 miles per hour, conservative assumption
0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Backhoe/Front Loader	0.36	3.12	2.28	0.01	0.12	0.11
Excavator	0.37	1.33	2.39	0.01	0.08	0.07
Crane (L)	0.48	1.63	3.50	0.01	0.13	0.12
Concrete Mixer Truck	0.15	0.69	1.74	0.00	0.09	0.08
Total	**1.36**	**6.77**	**9.91**	**0.02**	**0.41**	**0.38**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Backhoe/Front Loader	2.2	0.0	2.2
Excavator	2.6	0.0	2.6
Crane (L)	2.9	0.0	2.9
Concrete Mixer Truck	2.0	0.0	2.0
Total	**9.7**	**0.0**	**9.7**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
1-Ton Truck, 4x4	2	9	N/A	0.6
Dump Truck	2	9	N/A	0.6
Water Truck	1	9	N/A	0.6
Concrete Mixer Truck	3	9	N/A	0.6
Lowboy Truck/Trailer	1	9	N/A	0.6
Material Handling Truck	1	9	N/A	0.6
Flat Bed Truck/Trailer	3	9	N/A	0.6
Offsite				
1-Ton Truck, 4x4	2	9	N/A	5
Dump Truck	2	9	N/A	5
Water Truck	1	9	N/A	5
Concrete Mixer Truck	3	9	N/A	50
Lowboy Truck/Trailer	1	9	N/A	5
Material Handling Truck	1	9	N/A	5
Flat Bed Truck/Trailer	3	9	N/A	5
Worker Commute	6	9	N/A	60

[a] Assumes onsite vehicle miles travelled would occur on unpaved areas based on length of underground subtransmission line (1,500 ft) x two trips per day during vault installation (3000 ft / 5,280 ft/mile = 0.6 miles/day).

[a] Offsite truck travel based on location of Staging Area 1 (0.25 miles from Valley Substation) and up to 10 haul trips per day; offsite worker commute based on estimated 60 mile roundtrip distance.

VMT estimation basis:	Value	Units	Basis
	0.5	miles/roundtrip/haul truck	Based on roundtrip distance from Valley Substation to Staging Area 1
	10	roundtrips/day/haul truck	Assumption
	5	miles/day/haul truck	Calculation
	50	miles/roundtrip/vendor trip	Vendor roundtrip distance, assumption
	60	miles/roundtrip/worker commute	Assumption

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Dump Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Concrete Mixer Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Material Handling Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Flat Bed Truck/Trailer	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Offsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Dump Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Concrete Mixer Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05

Table 26
Subtransmission Line Construction Emissions
Vault Installation

Material Handling Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Flat Bed Truck/Trailer	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
1-Ton Truck, 4x4	0.00	0.01	0.01	0.00	0.00	0.00
Dump Truck	0.00	0.01	0.02	0.00	0.00	0.00
Water Truck	0.00	0.00	0.01	0.00	0.00	0.00
Concrete Mixer Truck	0.00	0.01	0.03	0.00	0.00	0.00
Lowboy Truck/Trailer	0.00	0.00	0.01	0.00	0.00	0.00
Material Handling Truck	0.00	0.01	0.01	0.00	0.00	0.00
Flat Bed Truck/Trailer	0.00	0.02	0.02	0.00	0.00	0.00
Onsite Total	**0.01**	**0.06**	**0.09**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Truck, 4x4	0.01	0.09	0.10	0.00	0.00	0.00
Dump Truck	0.01	0.06	0.15	0.00	0.01	0.01
Water Truck	0.01	0.03	0.08	0.00	0.00	0.00
Concrete Mixer Truck	0.20	0.91	2.29	0.01	0.12	0.09
Lowboy Truck/Trailer	0.01	0.03	0.08	0.00	0.00	0.00
Material Handling Truck	0.01	0.05	0.05	0.00	0.00	0.00
Flat Bed Truck/Trailer	0.02	0.14	0.15	0.00	0.01	0.00
Worker Commute	0.23	2.07	0.20	0.00	0.03	0.02
Offsite Total	**0.49**	**3.38**	**3.09**	**0.01**	**0.18**	**0.14**
Total	**0.50**	**3.43**	**3.18**	**0.01**	**0.18**	**0.14**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
1-Ton Truck, 4x4	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0
Concrete Mixer Truck	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0
Material Handling Truck	0.0	0.0	0.0
Flat Bed Truck/Trailer	0.0	0.0	0.0
Onsite Total	**0.1**	**0.0**	**0.1**
Offsite			
1-Ton Truck, 4x4	0.1	0.0	0.1
Dump Truck	0.2	0.0	0.2
Water Truck	0.1	0.0	0.1
Concrete Mixer Truck	2.6	0.0	2.6
Lowboy Truck/Trailer	0.1	0.0	0.1
Material Handling Truck	0.1	0.0	0.1
Flat Bed Truck/Trailer	0.2	0.0	0.2
Worker Commute	1.6	0.0	1.6
Offsite Total	**4.9**	**0.0**	**4.9**
Total	**5.0**	**0.0**	**5.0**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
1-Ton Truck, 4x4	2	Unpaved - private	0.6	0.291	0.024	0.33	0.03
Dump Truck	2	Unpaved - private	0.6	0.506	0.025	0.57	0.03
Water Truck	1	Unpaved - private	0.6	0.506	0.025	0.29	0.01
Concrete Mixer Truck	3	Unpaved - private	0.6	0.506	0.025	0.86	0.04
Lowboy Truck/Trailer	1	Unpaved - private	0.6	0.506	0.025	0.29	0.01
Material Handling Truck	1	Unpaved - private	0.6	0.506	0.025	0.29	0.01
Flat Bed Truck/Trailer	3	Unpaved - private	0.6	0.291	0.024	0.50	0.04
Onsite Total						**3.13**	**0.18**
Offsite							
1-Ton Truck, 4x4	2	Paved	5	0.002	0.001	0.02	0.01
Dump Truck	2	Paved	5	0.002	0.001	0.02	0.01
Water Truck	1	Paved	5	0.002	0.001	0.01	0.00
Concrete Mixer Truck	3	Paved	50	0.002	0.001	0.31	0.08
Lowboy Truck/Trailer	1	Paved	5	0.002	0.001	0.01	0.00
Material Handling Truck	1	Paved	5	0.002	0.001	0.01	0.00
Flat Bed Truck/Trailer	3	Paved	5	0.002	0.001	0.03	0.01
Worker Commute	6	Paved	60	0.001	0.000	0.53	0.13
Offsite Total						**0.95**	**0.23**
Total						**4.07**	**0.41**

[a] Assumes onsite vehicle miles travelled would occur on unpaved areas based on length of underground subtransmission line (1,500 ft) x two trips per day during vault installation (3000 ft / 5,280 ft/mile = 0.6 miles/day).
[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]
c From Table 37

144.0

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling[c]	CY/day	48	1.36E-03	2.82E-04	0.07	0.01
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.07**	**0.01**

a From Table 38
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]
[c] Based on 48 CY per vault

Table 27
Subtransmission Line Construction Emissions
Duct Bank Installation

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.57	3.86	4.50	0.01	0.24	0.22	3.4
Onsite Motor Vehicle Exhaust	0.01	0.04	0.09	0.00	0.00	0.00	0.1
Onsite Motor Vehicle Fugitive PM	--	--	--	--	2.65	0.15	
Earthwork Fugitive PM	--	--	--	--	0.13	0.03	
Onsite Total	**0.58**	**3.90**	**4.58**	**0.01**	**3.03**	**0.40**	**3.4**
Offsite Motor Vehicle Exhaust	0.47	3.22	2.97	0.01	0.17	0.13	3.7
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.91	0.22	
Offsite Total	**0.47**	**3.22**	**2.97**	**0.01**	**1.09**	**0.36**	**3.7**
Total	**1.05**	**7.13**	**7.55**	**0.02**	**4.11**	**0.76**	**7.1**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	60	1	7	4
Backhoe/Front Loader	125	1	7	6
Concrete Mixer Truck	350	3	7	2

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Compressor Trailer	60	0.039	0.209	0.262	0.000	0.016	0.015	42.426	0.004	Air Compressors
Backhoe/Front Loader	125	0.045	0.390	0.284	0.001	0.015	0.013	67.625	0.004	Tractors/Loaders/Backhoes
Concrete Mixer Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Concrete Mixers

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5
and PM 2.5 Significance Thresholds, SCAQMD, October 2006,
http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.

50 miles per hour, conservative assumption

0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Compressor Trailer	0.16	0.84	1.05	0.00	0.07	0.06
Backhoe/Front Loader	0.27	2.34	1.71	0.00	0.09	0.08
Concrete Mixer Truck	0.15	0.69	1.74	0.00	0.09	0.08
Total	**0.57**	**3.86**	**4.50**	**0.01**	**0.24**	**0.22**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Compressor Trailer	0.5	0.0	0.5
Backhoe/Front Loader	1.3	0.0	1.3
Concrete Mixer Truck	1.5	0.0	1.5
Total	**3.4**	**0.0**	**3.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
1-Ton Truck, 4x4	2	7	N/A	0.6
Dump Truck	2	7	N/A	0.6
Pipe Truck/Trailer	1	7	N/A	0.6
Water Truck	1	7	N/A	0.6
Concrete Mixer Truck	3	7	N/A	0.6
Lowboy Truck/Trailer	1	7	N/A	0.6
Offsite				
1-Ton Truck, 4x4	2	7	N/A	5
Dump Truck	2	7	N/A	5
Pipe Truck/Trailer	1	7	N/A	5
Water Truck	1	7	N/A	5
Concrete Mixer Truck	3	7	N/A	50
Lowboy Truck/Trailer	1	7	N/A	5
Worker Commute	6	7	N/A	60

[a] Assumes onsite vehicle miles travelled would occur on unpaved areas based on length of underground subtransmission line (1,500 ft) x two trips per day during vault installation (3000 ft / 5,280 ft/mile = 0.6 miles/day).

[a] Offsite truck travel based on location of Staging Area 1 (0.25 miles from Valley Substation) and up to 10 haul trips per day; offsite concrete mixer truck (vendor) based on estimated 50 mile roundtrip distance; offsite worker commute based on estimated 60 mile roundtrip distance.

VMT estimation basis:	Value	Units	Basis
	0.5	miles/roundtrip/haul truck	Based on roundtrip distance from Valley Substation to Staging Area 1
	10	roundtrips/day/haul truck	Assumption
	5	miles/day/haul truck	Calculation
	60	miles/roundtrip/dump truck	Based on roundtrip distance to/from the San Timoteo Sanitary Landfill
	3	roundtrips/day/dump truck	Assumption
	180	miles/day/dump truck	Calculation
	50	miles/roundtrip/vendor trip	Vendor roundtrip distance, assumption
	60	miles/roundtrip/worker commute	Assumption

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Dump Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Pipe Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Concrete Mixer Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Offsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Dump Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Pipe Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Concrete Mixer Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Table 27
Subtransmission Line Construction Emissions
Duct Bank Installation

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
1-Ton Truck, 4x4	0.00	0.01	0.01	0.00	0.00	0.00
Dump Truck	0.00	0.01	0.02	0.00	0.00	0.00
Pipe Truck/Trailer	0.00	0.00	0.01	0.00	0.00	0.00
Water Truck	0.00	0.00	0.01	0.00	0.00	0.00
Concrete Mixer Truck	0.00	0.01	0.03	0.00	0.00	0.00
Lowboy Truck/Trailer	0.00	0.00	0.01	0.00	0.00	0.00
Onsite Total	**0.01**	**0.04**	**0.09**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Truck, 4x4	0.01	0.09	0.10	0.00	0.00	0.00
Dump Truck	0.01	0.06	0.15	0.00	0.01	0.01
Pipe Truck/Trailer	0.01	0.03	0.08	0.00	0.00	0.00
Water Truck	0.01	0.03	0.08	0.00	0.00	0.00
Concrete Mixer Truck	0.20	0.91	2.29	0.01	0.12	0.09
Lowboy Truck/Trailer	0.01	0.03	0.08	0.00	0.00	0.00
Worker Commute	0.23	2.07	0.20	0.00	0.03	0.02
Offsite Total	**0.47**	**3.22**	**2.97**	**0.01**	**0.17**	**0.13**
Total	**0.48**	**3.26**	**3.05**	**0.01**	**0.18**	**0.14**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
1-Ton Truck, 4x4	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0
Pipe Truck/Trailer	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0
Concrete Mixer Truck	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0
Onsite Total	**0.1**	**0.0**	**0.1**
Offsite			
1-Ton Truck, 4x4	0.1	0.0	0.1
Dump Truck	0.1	0.0	0.1
Pipe Truck/Trailer	0.1	0.0	0.1
Water Truck	0.1	0.0	0.1
Concrete Mixer Truck	2.0	0.0	2.0
Lowboy Truck/Trailer	0.1	0.0	0.1
Worker Commute	1.3	0.0	1.3
Offsite Total	**3.7**	**0.0**	**3.7**
Total	**3.8**	**0.0**	**3.8**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
1-Ton Truck, 4x4	2	Unpaved - private	0.6	0.291	0.024	0.35	0.03
Dump Truck	2	Unpaved - private	0.6	0.506	0.025	0.61	0.03
Pipe Truck/Trailer	1	Unpaved - private	0.6	0.291	0.024	0.17	0.01
Water Truck	1	Unpaved - private	0.6	0.506	0.025	0.30	0.02
Concrete Mixer Truck	3	Unpaved - private	0.6	0.506	0.025	0.91	0.05
Lowboy Truck/Trailer	1	Unpaved - private	0.6	0.506	0.025	0.30	0.02
Onsite Total						**2.65**	**0.15**
Offsite							
1-Ton Truck, 4x4	2	Paved	5	0.002	0.001	0.02	0.01
Dump Truck	2	Paved	5	0.002	0.001	0.02	0.01
Pipe Truck/Trailer	1	Paved	5	0.002	0.001	0.01	0.00
Water Truck	1	Paved	5	0.002	0.001	0.01	0.00
Concrete Mixer Truck	3	Paved	50	0.002	0.001	0.31	0.08
Lowboy Truck/Trailer	1	Paved	5	0.002	0.001	0.01	0.00
Worker Commute	6	Paved	60	0.001	0.000	0.53	0.13
Offsite Total						**0.91**	**0.22**
Total						**3.56**	**0.37**

[a] Assumes onsite vehicle miles travelled would occur on unpaved areas based on length of underground subtransmission line (1,500 ft) x two trips per day during duct bank installation (3000 ft / 5,280 ft/mile = 0.6 miles/day).
[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]
c From Table 37

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling[c]	CY/day	98	1.36E-03	2.82E-04	0.13	0.03
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.13**	**0.03**

a From Table 38
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]
[c] Based on 490 CY over 5 days

Table 28
Subtransmission Line Construction Emissions
Install Underground Cable

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.98	10.68	15.03	0.03	0.74	0.68	2.8
Onsite Motor Vehicle Exhaust	0.01	0.03	0.07	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	1.86	0.12	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**1.99**	**10.72**	**15.11**	**0.03**	**2.60**	**0.81**	**2.8**
Offsite Motor Vehicle Exhaust	0.36	3.07	0.90	0.01	0.08	0.05	0.6
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.80	0.02	
Offsite Total	**0.36**	**3.07**	**0.90**	**0.01**	**0.87**	**0.08**	**0.6**
Total	**2.35**	**13.79**	**16.00**	**0.04**	**3.48**	**0.89**	**3.5**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Manlift/Bucket Truck	250	1	2	6
Boom/Crane Truck	350	1	2	6
Wire Truck/Trailer	350	2	2	6
Pulling Rig	350	1	2	6
Static Truck/Tensioner	350	1	2	6

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Manlift/Bucket Truck[c]	250	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Manlifts
Boom/Crane Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Manlifts
Wire Truck/Trailer	350	0.070	0.388	0.481	0.001	0.024	0.022	88.540	0.006	Manlifts
Pulling Rig	350	0.070	0.388	0.481	0.001	0.024	0.022	88.540	0.006	Manlifts
Static Truck/Tensioner	350	0.070	0.388	0.481	0.001	0.024	0.022	88.540	0.006	Manlifts

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.

50 miles per hour, conservative assumption

0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Manlift/Bucket Truck	0.15	0.69	1.74	0.00	0.09	0.08
Boom/Crane Truck	0.15	0.69	1.74	0.00	0.09	0.08
Wire Truck/Trailer	0.84	4.65	5.78	0.01	0.28	0.26
Pulling Rig	0.42	2.33	2.89	0.01	0.14	0.13
Static Truck/Tensioner	0.42	2.33	2.89	0.01	0.14	0.13
Total	**1.98**	**10.68**	**15.03**	**0.03**	**0.74**	**0.68**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Manlift/Bucket Truck	0.4	0.0	0.4
Boom/Crane Truck	0.4	0.0	0.4
Wire Truck/Trailer	1.0	0.0	1.0
Pulling Rig	0.5	0.0	0.5
Static Truck/Tensioner	0.5	0.0	0.5
Total	**2.8**	**0.0**	**2.8**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
1-Ton Truck, 4x4	2	2	N/A	0.6
Manlift/Bucket Truck	1	2	N/A	0.6
Boom/Crane Truck	1	2	N/A	0.6
Wire Truck/Trailer	2	2	N/A	0.6
Pulling Rig	1	2	N/A	0.6
Material Handling Truck	1	2	N/A	0.6
Static Truck/Tensioner	1	2	N/A	0.6
Offsite				
1-Ton Truck, 4x4	2	2	4	5
Manlift/Bucket Truck	1	2	6	5
Boom/Crane Truck	1	2	6	5
Wire Truck/Trailer	2	2	6	5
Pulling Rig	1	2	6	5
Material Handling Truck	1	2	8	5
Static Truck/Tensioner	1	2	6	5
Worker Commute	8	2	N/A	60

[a] Assumes onsite vehicle miles travelled would occur on unpaved areas based on length of underground subtransmission line (1,500 ft) x two trips per day during vault installation (3000 ft / 5,280 ft/mile = 0.6 miles/day).

[a] Offsite truck travel based on location of Staging Area 1 (0.25 miles from Valley Substation) and up to 10 haul trips per day; offsite worker commute based on estimated 60 mile roundtrip distance.

VMT estimation basis:	Value	Units	Basis
	0.5	miles/roundtrip/haul truck	Based on roundtrip distance from Valley Substation to Staging Area 1
	10	roundtrips/day/haul truck	Assumption
	5	miles/day/haul truck	Calculation
	60	miles/roundtrip/worker commute	Assumption

Table 28
Subtransmission Line Construction Emissions
Install Underground Cable

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Manlift/Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Wire Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Pulling Rig	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Static Truck/Tensioner	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Offsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Manlift/Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Wire Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Pulling Rig	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Static Truck/Tensioner	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
1-Ton Truck, 4x4	0.00	0.01	0.01	0.00	0.00	0.00
Manlift/Bucket Truck	0.00	0.00	0.01	0.00	0.00	0.00
Boom/Crane Truck	0.00	0.00	0.01	0.00	0.00	0.00
Wire Truck/Trailer	0.00	0.01	0.02	0.00	0.00	0.00
Pulling Rig	0.00	0.00	0.01	0.00	0.00	0.00
Material Handling Truck	0.00	0.00	0.01	0.00	0.00	0.00
Static Truck/Tensioner	0.00	0.00	0.01	0.00	0.00	0.00
Onsite Total	**0.01**	**0.03**	**0.07**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Truck, 4x4	0.01	0.09	0.10	0.00	0.00	0.00
Manlift/Bucket Truck	0.01	0.03	0.08	0.00	0.00	0.00
Boom/Crane Truck	0.01	0.03	0.08	0.00	0.00	0.00
Wire Truck/Trailer	0.01	0.06	0.15	0.00	0.01	0.01
Pulling Rig	0.01	0.03	0.08	0.00	0.00	0.00
Material Handling Truck	0.01	0.03	0.08	0.00	0.00	0.00
Static Truck/Tensioner	0.01	0.03	0.08	0.00	0.00	0.00
Worker Commute	0.30	2.76	0.27	0.01	0.05	0.03
Offsite Total	**0.36**	**3.07**	**0.90**	**0.01**	**0.08**	**0.05**
Total	**0.37**	**3.10**	**0.97**	**0.01**	**0.08**	**0.06**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
1-Ton Truck, 4x4	0.0	0.0	0.0
Manlift/Bucket Truck	0.0	0.0	0.0
Boom/Crane Truck	0.0	0.0	0.0
Wire Truck/Trailer	0.0	0.0	0.0
Pulling Rig	0.0	0.0	0.0
Material Handling Truck	0.0	0.0	0.0
Static Truck/Tensioner	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
1-Ton Truck, 4x4	0.0	0.0	0.0
Manlift/Bucket Truck	0.0	0.0	0.0
Boom/Crane Truck	0.0	0.0	0.0
Wire Truck/Trailer	0.0	0.0	0.0
Pulling Rig	0.0	0.0	0.0
Material Handling Truck	0.0	0.0	0.0
Static Truck/Tensioner	0.0	0.0	0.0
Worker Commute	0.5	0.0	0.5
Offsite Total	**0.6**	**0.0**	**0.6**
Total	**0.7**	**0.0**	**0.7**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
1-Ton Truck, 4x4	2	Unpaved - private	0.6	0.291	0.024	0.33	0.03
Manlift/Bucket Truck	1	Unpaved - private	0.6	0.506	0.025	0.29	0.01
Boom/Crane Truck	1	Unpaved - private	0.6	0.506	0.025	0.29	0.01
Wire Truck/Trailer	2	Unpaved - private	0.6	0.291	0.024	0.33	0.03
Pulling Rig	1	Unpaved - private	0.6	0.291	0.024	0.17	0.01
Material Handling Truck	1	Unpaved - private	0.6	0.506	0.025	0.29	0.01
Static Truck/Tensioner	1	Unpaved - private	0.6	0.291	0.024	0.17	0.01
Onsite Total						**1.86**	**0.12**
Offsite							
1-Ton Truck, 4x4	2	Paved	5	0.002	0.001	0.02	0.01
Manlift/Bucket Truck	1	Paved	5	0.002	0.001	0.01	0.00
Boom/Crane Truck	1	Paved	5	0.002	0.001	0.01	0.00
Wire Truck/Trailer	2	Paved	5	0.002	0.001	0.02	0.01
Pulling Rig	1	Paved	5	0.002	0.001	0.01	0.00
Material Handling Truck	1	Paved	5	0.002	0.001	0.01	0.00

Table 28
Subtransmission Line Construction Emissions
Install Underground Cable

Static Truck/Tensioner	1	Paved	5	0.002	0.001	0.01	0.00
Worker Commute	8	Paved	60	0.001	0.000	0.70	0.17
Offsite Total						**0.80**	**0.02**
Total						**2.65**	**0.15**

[a] Assumes onsite vehicle miles travelled would occur on unpaved areas based on length of underground subtransmission line (1,500 ft) x two trips per day during UG cable installation (3000 ft / 5,280 ft/mile = 0.6 miles/day).

[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

c From Table 37

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 29
Distribution Relocation Emissions
Relocate Existing Conductor

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.20	0.92	2.32	0.01	0.12	0.00	48.5
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.20**	**0.92**	**2.32**	**0.01**	**0.12**	**0.00**	**48.5**
Offsite Motor Vehicle Exhaust	0.26	1.95	1.14	0.01	0.07	0.05	41.5
Offsite Motor Vehicle Fugitive PM	--	--	--	--	16.87	1.16	
Offsite Total	**0.26**	**1.95**	**1.14**	**0.01**	**16.94**	**1.22**	**41.5**
Total	**0.46**	**2.86**	**3.46**	**0.01**	**17.05**	**1.22**	**90.0**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Bucket Truck	300	1	167	8

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Bucket Truck	300	0.025	0.115	0.290	0.001	0.015	0.000	79.944	0.001	Manlifts

[a] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.
50 miles per hour, conservative assumption
0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10
PM2.5 Fraction= 0.920
From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5
and PM 2.5 Significance Thresholds, SCAQMD, October 2006,
http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Bucket Truck	0.20	0.92	2.32	0.01	0.12	0.00
Total	**0.20**	**0.92**	**2.32**	**0.01**	**0.12**	**0.00**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Bucket Truck	48.4	0.0	48.5
Total	**48.4**	**0.0**	**48.5**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x
days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
Foreman Truck	1	167	N/A	15.4
Reel Truck	1	167	N/A	15.4
Bucket Truck	1	167	N/A	15.4
Arrow Board Truck	1	167	N/A	15.4
Flat Bed Truck/Trailer	1	167	N/A	15.4
Worker Commute	4	167	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None									
Offsite									
Foreman Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Reel Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Arrow Board Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Flat Bed Truck/Trailer	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
Foreman Truck	0.02	0.14	0.15	0.00	0.01	0.00
Reel Truck	0.02	0.09	0.24	0.00	0.01	0.01
Bucket Truck	0.02	0.09	0.24	0.00	0.01	0.01
Arrow Board Truck	0.02	0.09	0.24	0.00	0.01	0.01
Flat Bed Truck/Trailer	0.02	0.14	0.15	0.00	0.01	0.00
Worker Commute	0.15	1.38	0.13	0.00	0.02	0.01
Offsite Total	**0.26**	**1.95**	**1.14**	**0.01**	**0.07**	**0.05**

Table 29
Distribution Relocation Emissions
Relocate Existing Conductor

Total	**0.26**	**1.95**	**1.14**	**0.01**	**0.07**	**0.05**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
Foreman Truck	3.3	0.0	3.3
Reel Truck	4.9	0.0	4.9
Bucket Truck	4.9	0.0	4.9
Arrow Board Truck	4.9	0.0	4.9
Flat Bed Truck/Trailer	3.3	0.0	3.3
Worker Commute	20.1	0.0	20.1
Offsite Total	**41.5**	**0.0**	**41.5**
Total	**41.5**	**0.0**	**41.5**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
Foreman Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Reel Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Bucket Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Arrow Board Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Flat Bed Truck/Trailer	1	Paved	8.5	0.002	0.001	0.02	0.00
Foreman Truck	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
Reel Truck	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
Bucket Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Arrow Board Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Flat Bed Truck/Trailer	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
Foreman Truck	1	Unpaved - public	2.7	0.487	0.040	1.31	0.11
Reel Truck	1	Unpaved - public	2.7	0.487	0.040	1.31	0.11
Bucket Truck	1	Unpaved - public	2.7	0.845	0.042	2.28	0.11
Arrow Board Truck	1	Unpaved - public	2.7	0.845	0.042	2.28	0.11
Flat Bed Truck/Trailer	1	Unpaved - public	2.7	0.487	0.040	1.31	0.11
Worker Commute	4	Paved	60	0.001	0.000	0.35	0.09
Offsite Total						**16.87**	**1.16**
Total						**16.87**	**1.16**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 30
Distribution Relocation Emissions
Wood Pole Removal

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.20	0.92	2.32	0.01	0.12	0.11	11.9
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.20**	**0.92**	**2.32**	**0.01**	**0.12**	**0.11**	**11.9**
Offsite Motor Vehicle Exhaust	0.18	1.36	0.77	0.00	0.05	0.04	7.2
Offsite Motor Vehicle Fugitive PM	--	--	--	--	8.48	0.65	
Offsite Total	**0.18**	**1.36**	**0.77**	**0.00**	**8.53**	**0.69**	**7.2**
Total	**0.38**	**2.28**	**3.09**	**0.01**	**8.65**	**0.79**	**19.1**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Lineman/Boom Truck	300	1	41	8

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Lineman/Boom Truck	300	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Manlifts

[a] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.
50 miles per hour, conservative assumption
0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10
PM2.5 Fraction= 0.920
From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Lineman/Boom Truck	0.20	0.92	2.32	0.01	0.12	0.11
Total	**0.20**	**0.92**	**2.32**	**0.01**	**0.12**	**0.11**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Lineman/Boom Truck	11.9	0.0	11.9
Total	**11.9**	**0.0**	**11.9**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
Foreman Truck	1	41	8	12
Lineman/Boom Truck	1	41	8	12
Flat Bed Truck/Trailer	1	41	8	12
Arrowhead Trailer	1	41	8	12
Worker Commute	3	41	N/A	60

[a] Offsite travel assumed to be 12 miles per day, equal to 1/2 total distance of Segment 1 of the Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None									
Offsite									
Foreman Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Lineman/Boom Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Flat Bed Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Arrowhead Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
Foreman Truck	0.02	0.11	0.12	0.00	0.00	0.00
Lineman/Boom Truck	0.02	0.07	0.18	0.00	0.01	0.01
Flat Bed Truck/Trailer	0.02	0.07	0.18	0.00	0.01	0.01
Arrowhead Trailer	0.02	0.07	0.18	0.00	0.01	0.01
Worker Commute	0.11	1.04	0.10	0.00	0.02	0.01
Offsite Total	**0.18**	**1.36**	**0.77**	**0.00**	**0.05**	**0.04**
Total	**0.18**	**1.36**	**0.77**	**0.00**	**0.05**	**0.04**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 30
Distribution Relocation Emissions
Wood Pole Removal

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
Foreman Truck	0.6	0.0	0.6
Lineman/Boom Truck	0.9	0.0	0.9
Flat Bed Truck/Trailer	0.9	0.0	0.9
Arrowhead Trailer	0.9	0.0	0.9
Worker Commute	3.7	0.0	3.7
Offsite Total	**7.2**	**0.0**	**7.2**
Total	**7.2**	**0.0**	**7.2**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
Foreman Truck	1	Paved	7.7	0.002	0.001	0.02	0.00
Lineman/Boom Truck	1	Paved	7.7	0.002	0.001	0.02	0.00
Flat Bed Truck/Trailer	1	Paved	7.7	0.002	0.001	0.02	0.00
Arrowhead Trailer	1	Paved	7.7	0.002	0.001	0.02	0.00
Foreman Truck	1	Unpaved - private	1.9	0.291	0.024	0.55	0.05
Lineman/Boom Truck	1	Unpaved - private	1.9	0.291	0.024	0.55	0.05
Flat Bed Truck/Trailer	1	Unpaved - private	1.9	0.291	0.024	0.55	0.05
Arrowhead Trailer	1	Unpaved - private	1.9	0.506	0.025	0.96	0.05
Foreman Truck	1	Unpaved - public	2.4	0.487	0.040	1.17	0.10
Lineman/Boom Truck	1	Unpaved - public	2.4	0.487	0.040	1.17	0.10
Flat Bed Truck/Trailer	1	Unpaved - public	2.4	0.487	0.040	1.17	0.10
Arrowhead Trailer	1	Unpaved - public	2.4	0.845	0.042	2.03	0.10
Worker Commute	3	Paved	60	0.001	0.000	0.26	0.06
Offsite Total						**8.48**	**0.65**
Total						**8.48**	**0.65**

a For Segment 1 of the Proposed Project, 7.7 miles occur on paved roadways and 4.3 miles occur on unpaved roadways (2.4 miles are unpaved public roadways and 1.9 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day. No additional wood pole removal work is required along the 3.4 miles associated with Segment 2 of the Proposed Project.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 31
Distribution Relocation Emissions
Install Distribution Underground Cable

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.38	7.82	9.99	0.03	0.44	0.40	24.4
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**1.38**	**7.82**	**9.99**	**0.03**	**0.44**	**0.40**	**24.4**
Offsite Motor Vehicle Exhaust	0.38	3.04	1.32	0.01	0.09	0.07	7.0
Offsite Motor Vehicle Fugitive PM	--	--	--	--	15.32	1.18	
Offsite Total	**0.38**	**3.04**	**1.32**	**0.01**	**15.41**	**1.24**	**7.0**
Total	**1.75**	**10.86**	**11.31**	**0.03**	**15.85**	**1.64**	**31.4**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Reel Truck	300	1	20	8
Rodder Truck	35	1	20	8
Concrete Mixer Truck	350	1	20	8
Backhoe/Front Loader	125	1	20	8

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Reel Truck	300	0.075	0.316	0.534	0.002	0.018	0.017	169.577	0.007	Other Construction Equipment
Rodder Truck	35	0.027	0.156	0.140	0.000	0.007	0.007	18.669	0.002	Other Construction Equipment
Concrete Mixer Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Concrete Mixers
Backhoe/Front Loader	125	0.045	0.390	0.284	0.001	0.015	0.013	67.625	0.004	Tractors/Loaders/Backhoes

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.

50 miles per hour, conservative assumption

0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Reel Truck	0.60	2.53	4.27	0.01	0.15	0.14
Rodder Truck	0.22	1.25	1.12	0.00	0.06	0.05
Concrete Mixer Truck	0.20	0.92	2.32	0.01	0.12	0.11
Backhoe/Front Loader	0.36	3.12	2.28	0.01	0.12	0.11
Total	**1.38**	**7.82**	**9.99**	**0.03**	**0.44**	**0.40**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Reel Truck	12.3	0.0	12.3
Rodder Truck	1.4	0.0	1.4
Concrete Mixer Truck	5.8	0.0	5.8
Backhoe/Front Loader	4.9	0.0	4.9
Total	**24.4**	**0.0**	**24.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
Crew Truck	1	20	8	12
Foreman Truck	1	20	8	12
Reel Truck	1	20	8	12
Rodder Truck	1	20	8	12
Concrete Mixer Truck	1	20	N/A	12
1-Ton Truck, 4x4	1	20	N/A	12
Lowboy Truck/Trailer	1	20	N/A	12
Worker Commute	7	20	N/A	60

[a] Offsite travel assumed to be 12 miles per day, equal to 1/2 total distance of Segment 1 of the Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None									
Offsite									
Crew Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Foreman Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Reel Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Rodder Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Concrete Mixer Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Table 31
Distribution Relocation Emissions
Install Distribution Underground Cable

Offsite						
Crew Truck	0.02	0.11	0.12	0.00	0.00	0.00
Foreman Truck	0.02	0.11	0.12	0.00	0.00	0.00
Reel Truck	0.02	0.07	0.18	0.00	0.01	0.01
Rodder Truck	0.02	0.07	0.18	0.00	0.01	0.01
Concrete Mixer Truck	0.02	0.07	0.18	0.00	0.01	0.01
1-Ton Truck, 4x4	0.02	0.11	0.12	0.00	0.00	0.00
Lowboy Truck/Trailer	0.02	0.07	0.18	0.00	0.01	0.01
Worker Commute	0.27	2.42	0.23	0.00	0.04	0.03
Offsite Total	**0.38**	**3.04**	**1.32**	**0.01**	**0.09**	**0.07**
Total	**0.38**	**3.04**	**1.32**	**0.01**	**0.09**	**0.07**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
Crew Truck	0.3	0.0	0.3
Foreman Truck	0.3	0.0	0.3
Reel Truck	0.5	0.0	0.5
Rodder Truck	0.5	0.0	0.5
Concrete Mixer Truck	0.5	0.0	0.5
1-Ton Truck, 4x4	0.3	0.0	0.3
Lowboy Truck/Trailer	0.5	0.0	0.5
Worker Commute	4.2	0.0	4.2
Offsite Total	**7.0**	**0.0**	**7.0**
Total	**7.0**	**0.0**	**7.0**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
Crew Truck	1	Paved	7.7	0.002	0.001	0.02	0.00
Foreman Truck	1	Paved	7.7	0.002	0.001	0.02	0.00
Reel Truck	1	Paved	7.7	0.002	0.001	0.02	0.00
Rodder Truck	1	Paved	7.7	0.002	0.001	0.02	0.00
Concrete Mixer Truck	1	Paved	7.7	0.002	0.001	0.02	0.00
1-Ton Truck, 4x4	1	Paved	7.7	0.002	0.001	0.02	0.00
Lowboy Truck/Trailer	1	Paved	7.7	0.002	0.001	0.02	0.00
Crew Truck	1	Unpaved - private	1.9	0.291	0.024	0.55	0.05
Foreman Truck	1	Unpaved - private	1.9	0.291	0.024	0.55	0.05
Reel Truck	1	Unpaved - private	1.9	0.291	0.024	0.55	0.05
Rodder Truck	1	Unpaved - private	1.9	0.291	0.024	0.55	0.05
Concrete Mixer Truck	1	Unpaved - private	1.9	0.506	0.025	0.96	0.05
1-Ton Truck, 4x4	1	Unpaved - private	1.9	0.291	0.024	0.55	0.05
Lowboy Truck/Trailer	1	Unpaved - private	1.9	0.506	0.025	0.96	0.05
Crew Truck	1	Unpaved - public	2.4	0.487	0.040	1.17	0.10
Foreman Truck	1	Unpaved - public	2.4	0.487	0.040	1.17	0.10
Reel Truck	1	Unpaved - public	2.4	0.487	0.040	1.17	0.10
Rodder Truck	1	Unpaved - public	2.4	0.487	0.040	1.17	0.10
Concrete Mixer Truck	1	Unpaved - public	2.4	0.845	0.042	2.03	0.10
1-Ton Truck, 4x4	1	Unpaved - public	2.4	0.487	0.040	1.17	0.10
Lowboy Truck/Trailer	1	Unpaved - public	2.4	0.845	0.042	2.03	0.10
Worker Commute	7	Paved	60	0.001	0.000	0.62	0.15
Offsite Total						**15.32**	**1.18**
Total						**15.32**	**1.18**

a For Segment 1 of the Proposed Project, 7.7 miles occur on paved roadways and 4.3 miles occur on unpaved roadways (2.4 miles are unpaved public roadways and 1.9 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day. No additional UG cable is required along the 3.4 miles associated with Segment 2 of the Proposed Project.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 32
Telecommunications Construction
Control Building Communications Room

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.40	1.84	4.64	0.01	0.23	0.21	2.3
Onsite Motor Vehicle Exhaust	0.09	0.48	0.81	0.00	0.04	0.03	0.4
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.02	0.01	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.49**	**2.32**	**5.45**	**0.01**	**0.29**	**0.25**	**2.7**
Offsite Motor Vehicle Exhaust	0.33	2.81	0.73	0.01	0.06	0.05	1.1
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.74	0.18	
Offsite Total	**0.33**	**2.81**	**0.73**	**0.01**	**0.81**	**0.23**	**1.1**
Total	**0.82**	**5.13**	**6.18**	**0.02**	**1.10**	**0.48**	**3.9**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Bucket Truck	300	2	4	8

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Bucket Truck	300	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Manlifts

[a] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.
50 miles per hour, conservative assumption
0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10
PM2.5 Fraction= 0.920
From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Bucket Truck	0.40	1.84	4.64	0.01	0.23	0.21
Total	**0.40**	**1.84**	**4.64**	**0.01**	**0.23**	**0.21**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Bucket Truck	2.3	0.0	2.3
Total	**2.3**	**0.0**	**2.3**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
Bucket Truck	2	4	8	20
Crew Truck	1	4	8	20
Van	2	2	2	5
Offsite				
Bucket Truck	2	4	8	12
Crew Truck	1	4	8	12
Van	2	2	6	12
Worker Commute	7	4	N/A	60

[a] Onsite travel based hours of operation x 10 mph x 25% usage factor.

[a] Offsite travel assumed to be 12 miles per day, equal to 1/2 total distance of Segment 1 of the Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Crew Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Van	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05
Offsite									
Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Crew Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Van	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						

Table 32
Telecommunications Construction
Control Building Communications Room

Bucket Truck	0.05	0.24	0.61	0.00	0.03	0.02
Crew Truck	0.03	0.18	0.20	0.00	0.01	0.01
Van	0.01	0.06	0.01	0.00	0.00	0.00
Onsite Total	**0.09**	**0.48**	**0.81**	**0.00**	**0.04**	**0.03**
Offsite						
Bucket Truck	0.03	0.15	0.37	0.00	0.02	0.01
Crew Truck	0.02	0.11	0.12	0.00	0.00	0.00
Van	0.02	0.14	0.01	0.00	0.00	0.00
Worker Commute	0.27	2.42	0.23	0.00	0.04	0.03
Offsite Total	**0.33**	**2.81**	**0.73**	**0.01**	**0.06**	**0.05**
Total	**0.42**	**3.30**	**1.54**	**0.01**	**0.10**	**0.08**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
Bucket Truck	0.3	0.0	0.3
Crew Truck	0.1	0.0	0.1
Van	0.0	0.0	0.0
Onsite Total	**0.4**	**0.0**	**0.4**
Offsite			
Bucket Truck	0.2	0.0	0.2
Crew Truck	0.1	0.0	0.1
Van	0.0	0.0	0.0
Worker Commute	0.8	0.0	0.8
Offsite Total	**1.1**	**0.0**	**1.1**
Total	**1.5**	**0.0**	**1.5**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle	PM10 Emission Factor (lb/mi)[a]	PM2.5 Emission Factor (lb/mi)[a]	PM10 Emissions (lb/day)[b]	PM2.5 Emissions (lb/day)[b]
Onsite							
Bucket Truck	2	Paved	20	0.002	0.001	0.08	0.02
Crew Truck	1	Paved	20	0.002	0.001	0.04	0.01
Van	2	Paved	5	0.002	0.001	0.02	0.01
Onsite Total						**0.02**	**0.01**
Offsite							
Bucket Truck	2	Paved	12	0.002	0.001	0.05	0.01
Crew Truck	1	Paved	12	0.002	0.001	0.03	0.01
Van	2	Paved	12	0.002	0.001	0.05	0.01
Worker Commute	7	Paved	60	0.001	0.000	0.62	0.15
Offsite Total						**0.74**	**0.18**
Total						**0.76**	**0.19**

a From Table 37

[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 33
Operational Emissions

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT/yr)
Motor Vehicle Exhaust	0.04	0.35	0.03	0.00	0.01	0.00	0
Motor Vehicle Fugitive PM	--	--	--	--	7.40	0.62	--
SF6 Leakage	--	--	--	--	--	--	9
Total	**0.04**	**0.35**	**0.03**	**0.00**	**7.40**	**0.62**	**10**
SCAQMD CEQA Thresholds	55	550	55	150	150	55	
Would the Proposed Project Exceed the Thresholds (Y/N)?	N	N	N	N	N	N	

Motor Vehicle Usage

Vehicle	Number	Days Used/ Year	Miles/ Day/ Veh.
Subtransmission Line Inspection	1	2	60

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Subtransmission Line Inspection	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Subtransmission Line Inspection	0.04	0.35	0.03	0.00	0.01	0.00
Total	**0.04**	**0.35**	**0.03**	**0.00**	**0.01**	**0.00**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Annual Greenhouse Gas Emissions

Vehicle	CO2 (MT/yr)[a]	CH4 (MT/yr)[a]	CO2e (MT/yr)[b]
Subtransmission Line Inspection	0.1	0.0	0.1
Total	**0.1**	**0.0**	**0.1**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle	PM10 Emission Factor (lb/mi)[a]	PM2.5 Emission Factor (lb/mi)[a]	PM10 Emissions (lb/day)[b]	PM2.5 Emissions (lb/day)[b]
Subtransmission Line Inspection	1	Paved	45	0.002	0.001	0.09	0.02
Subtransmission Line Inspection	1	Unpaved - publ	15	0.487	0.040	7.30	0.59
Total						**7.40**	**0.62**

a From Table 37

[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

SF6 Leakage Greenhouse Gas Emissions

Item	Value	Units
Total SF6	180	pounds
SF6 Leakage Rate	0.5	%/year
SF6 Emissions	0.9	pounds
SF6 Global Warming Potential[a]	23,200	
CO2e Emissions[b]	**9**	**MT/yr**

[a] Based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008.
http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

[b] CO_2e emissions [metric tons] = SF_6 emissions [lb] x Global warming potential [lb CO_2e/lb SF_6] x 453.6 [g/lb] / 1,000,000 [g/MT]

Table 34
SCAB Emission Factors (Diesel)

CY 2018

Air Basin	SC

		(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)
Equipment	**MaxHP**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**CO2**	**CH4**
Aerial Lifts	15	0.0067	0.0352	0.0421	0.0001	0.0016	5.8	0.0006
	25	0.0095	0.0312	0.0577	0.0001	0.0026	7.3	0.0009
	50	0.0224	0.1005	0.1017	0.0002	0.0062	13.1	0.0020
	120	0.0218	0.1547	0.1711	0.0003	0.0113	25.4	0.0020
	500	0.0560	0.2601	0.5904	0.0014	0.0180	142.0	0.0051
	750	0.1030	0.4701	1.0954	0.0026	0.0330	256.6	0.0093
Aerial Lifts Composite		0.0215	0.1161	0.1435	0.0003	0.0079	23.2	0.0019
Air Compressors	15	0.0065	0.0304	0.0405	0.0001	0.0022	4.8	0.0006
	25	0.0138	0.0431	0.0792	0.0001	0.0040	9.6	0.0012
	50	0.0345	0.1429	0.1233	0.0002	0.0087	14.9	0.0031
	120	0.0336	0.2066	0.2248	0.0004	0.0170	31.3	0.0030
	175	0.0457	0.3331	0.3381	0.0007	0.0179	59.0	0.0041
	250	0.0498	0.1769	0.4355	0.0010	0.0137	87.5	0.0045
	500	0.0842	0.3004	0.6777	0.0015	0.0230	154.6	0.0076
	750	0.1307	0.4643	1.0761	0.0024	0.0360	238.9	0.0118
	1000	0.1973	0.6948	2.4851	0.0033	0.0644	324.4	0.0178
Air Compressors Composite		0.0388	0.2088	0.2625	0.0005	0.0164	42.4	0.0035
Bore/Drill Rigs	15	0.0080	0.0421	0.0503	0.0001	0.0020	6.9	0.0007
	25	0.0129	0.0439	0.0813	0.0001	0.0030	10.7	0.0012
	50	0.0136	0.1475	0.1265	0.0003	0.0023	20.7	0.0012
	120	0.0206	0.3112	0.1808	0.0006	0.0048	51.4	0.0019
	175	0.0317	0.5030	0.1941	0.0011	0.0061	94.1	0.0029
	250	0.0359	0.2285	0.1667	0.0014	0.0046	125.5	0.0032
	500	0.0591	0.3676	0.2691	0.0020	0.0075	207.6	0.0053
	750	0.1170	0.7264	0.5351	0.0041	0.0148	410.3	0.0106
	1000	0.1860	1.0966	2.8078	0.0062	0.0482	619.2	0.0168
Bore/Drill Rigs Composite		0.0360	0.3342	0.2784	0.0012	0.0066	110.0	0.0032
Cement and Mortar Mixers	15	0.0049	0.0257	0.0307	0.0001	0.0012	4.2	0.0004
	25	0.0154	0.0503	0.0928	0.0001	0.0042	11.7	0.0014
Cement and Mortar Mixers Composite		0.0058	0.0278	0.0359	0.0001	0.0015	4.8	0.0005
Concrete/Industrial Saws	25	0.0133	0.0453	0.0838	0.0001	0.0031	11.0	0.0012
	50	0.0366	0.1690	0.1593	0.0003	0.0098	20.1	0.0033
	120	0.0434	0.3109	0.3267	0.0006	0.0224	49.5	0.0039
	175	0.0675	0.5777	0.5539	0.0012	0.0274	106.9	0.0061
Concrete/Industrial Saws Composite		0.0403	0.2568	0.2640	0.0005	0.0174	39.0	0.0036
Cranes	50	0.0431	0.1686	0.1347	0.0002	0.0101	15.5	0.0039
	120	0.0426	0.2325	0.2573	0.0004	0.0204	33.4	0.0038
	175	0.0502	0.3179	0.3354	0.0006	0.0189	53.6	0.0045
	250	0.0525	0.1682	0.4114	0.0008	0.0141	74.8	0.0047
	500	0.0801	0.2725	0.5835	0.0012	0.0212	120.1	0.0072
	750	0.1357	0.4582	1.0164	0.0020	0.0363	202.1	0.0122
	9999	0.4950	1.5963	5.2251	0.0065	0.1431	647.4	0.0447
Cranes Composite		0.0675	0.2708	0.5275	0.0009	0.0212	85.8	0.0061
Crawler Tractors	50	0.0542	0.1924	0.1494	0.0002	0.0121	16.6	0.0049
	120	0.0631	0.3121	0.3728	0.0005	0.0299	43.9	0.0057
	175	0.0847	0.4887	0.5692	0.0009	0.0319	80.8	0.0076
	250	0.0889	0.2788	0.6957	0.0012	0.0257	110.8	0.0080
	500	0.1307	0.4803	0.9755	0.0017	0.0369	172.9	0.0118
	750	0.2354	0.8597	1.7953	0.0031	0.0671	309.9	0.0212
	1000	0.3588	1.3454	3.8260	0.0044	0.1109	439.0	0.0324
Crawler Tractors Composite		0.0790	0.3593	0.5309	0.0008	0.0305	76.1	0.0071
Crushing/Proc. Equipment	50	0.0633	0.2822	0.2406	0.0004	0.0161	29.4	0.0057
	120	0.0567	0.3673	0.3788	0.0007	0.0278	55.5	0.0051
	175	0.0839	0.6350	0.5987	0.0013	0.0317	111.6	0.0076
	250	0.0924	0.3290	0.7526	0.0018	0.0240	163.1	0.0083

Table 34
SCAB Emission Factors (Diesel)

CY 2018

Air Basin	SC

Equipment	MaxHP	(lb/hr) ROG	(lb/hr) CO	(lb/hr) NOX	(lb/hr) SOX	(lb/hr) PM	(lb/hr) CO2	(lb/hr) CH4
	500	0.1359	0.4823	1.0142	0.0024	0.0349	249.2	0.0123
	750	0.2130	0.7582	1.6302	0.0039	0.0550	392.8	0.0192
	9999	0.5544	1.8389	6.3966	0.0088	0.1646	872.3	0.0500
Crushing/Proc. Equipment Composite		0.0740	0.4221	0.4889	0.0010	0.0275	88.2	0.0067
Dumpers/Tenders	25	0.0061	0.0209	0.0389	0.0001	0.0015	5.1	0.0006
Dumpers/Tenders Composite		0.0061	0.0209	0.0389	0.0001	0.0015	5.1	0.0006
Excavators	25	0.0132	0.0452	0.0836	0.0001	0.0031	11.0	0.0012
	50	0.0312	0.1681	0.1335	0.0002	0.0074	16.7	0.0028
	120	0.0462	0.3347	0.2952	0.0006	0.0193	49.1	0.0042
	175	0.0550	0.4429	0.3381	0.0008	0.0176	74.9	0.0050
	250	0.0623	0.2217	0.3991	0.0012	0.0135	105.8	0.0056
	500	0.0893	0.3128	0.5257	0.0015	0.0190	155.9	0.0081
	750	0.1483	0.5182	0.8925	0.0026	0.0318	258.4	0.0134
Excavators Composite		0.0566	0.3441	0.3456	0.0009	0.0166	79.8	0.0051
Forklifts	50	0.0153	0.0960	0.0787	0.0001	0.0038	9.8	0.0014
	120	0.0177	0.1412	0.1164	0.0002	0.0072	20.8	0.0016
	175	0.0262	0.2216	0.1553	0.0004	0.0083	37.4	0.0024
	250	0.0293	0.1040	0.1730	0.0006	0.0059	51.4	0.0026
	500	0.0416	0.1422	0.2289	0.0007	0.0083	74.0	0.0038
Forklifts Composite		0.0248	0.1450	0.1458	0.0004	0.0068	36.3	0.0022
Generator Sets	15	0.0082	0.0429	0.0569	0.0001	0.0029	6.8	0.0007
	25	0.0154	0.0525	0.0966	0.0001	0.0047	11.8	0.0014
	50	0.0328	0.1510	0.1572	0.0003	0.0092	20.4	0.0030
	120	0.0428	0.3131	0.3456	0.0006	0.0222	52.0	0.0039
	175	0.0539	0.4885	0.5021	0.0011	0.0225	94.7	0.0049
	250	0.0572	0.2622	0.6507	0.0016	0.0183	141.7	0.0052
	500	0.0843	0.4077	0.9228	0.0022	0.0277	224.7	0.0076
	750	0.1387	0.6582	1.5287	0.0036	0.0453	362.7	0.0125
	9999	0.3488	1.3972	5.0262	0.0070	0.1186	699.4	0.0315
Generator Sets Composite		0.0318	0.1858	0.2507	0.0005	0.0128	40.7	0.0029
Graders	50	0.0451	0.1913	0.1537	0.0002	0.0105	18.4	0.0041
	120	0.0574	0.3427	0.3550	0.0006	0.0266	50.0	0.0052
	175	0.0706	0.4865	0.4670	0.0009	0.0257	82.7	0.0064
	250	0.0744	0.2520	0.5609	0.0013	0.0192	114.8	0.0067
	500	0.0947	0.3465	0.6663	0.0015	0.0240	153.1	0.0085
	750	0.2017	0.7329	1.4554	0.0033	0.0516	324.0	0.0182
Graders Composite		0.0700	0.3877	0.4814	0.0010	0.0237	88.5	0.0063
Off-Highway Tractors	120	0.1082	0.4588	0.6288	0.0007	0.0520	62.5	0.0098
	175	0.1076	0.5392	0.7464	0.0010	0.0421	87.0	0.0097
	250	0.0851	0.2575	0.6833	0.0010	0.0274	87.0	0.0077
	750	0.3450	1.3950	2.7523	0.0038	0.1089	378.9	0.0311
	1000	0.5230	2.1858	5.3907	0.0055	0.1685	543.1	0.0472
Off-Highway Tractors Composite		0.1088	0.4510	0.8199	0.0011	0.0386	101.0	0.0098
Off-Highway Trucks	175	0.0656	0.5031	0.3966	0.0009	0.0209	83.4	0.0059
	250	0.0695	0.2382	0.4442	0.0012	0.0150	111.1	0.0063
	500	0.1105	0.3721	0.6474	0.0018	0.0234	181.6	0.0100
	750	0.1796	0.6033	1.0774	0.0030	0.0385	294.6	0.0162
	1000	0.2706	0.8897	2.8944	0.0042	0.0741	416.7	0.0244
Off-Highway Trucks Composite		0.1076	0.3758	0.7020	0.0018	0.0240	173.5	0.0097
Other Construction Equipment	15	0.0078	0.0412	0.0491	0.0001	0.0019	6.7	0.0007
	25	0.0106	0.0363	0.0672	0.0001	0.0025	8.8	0.0010
	50	0.0275	0.1562	0.1402	0.0002	0.0072	18.7	0.0025
	120	0.0403	0.3413	0.3050	0.0006	0.0186	53.9	0.0036
	175	0.0406	0.3908	0.2987	0.0008	0.0145	71.0	0.0037
	500	0.0749	0.3164	0.5338	0.0017	0.0184	169.6	0.0068

Table 34
SCAB Emission Factors (Diesel)

CY 2018

Air Basin	SC

Equipment	MaxHP	(lb/hr) ROG	(lb/hr) CO	(lb/hr) NOX	(lb/hr) SOX	(lb/hr) PM	(lb/hr) CO2	(lb/hr) CH4
Other Construction Equipment Composite		0.0422	0.2363	0.2987	0.0008	0.0121	81.7	0.0038
Other General Industrial Equipmen	15	0.0044	0.0260	0.0311	0.0001	0.0012	4.3	0.0004
	25	0.0124	0.0422	0.0780	0.0001	0.0029	10.2	0.0011
	50	0.0366	0.1543	0.1246	0.0002	0.0089	14.5	0.0033
	120	0.0488	0.2853	0.3031	0.0005	0.0233	41.4	0.0044
	175	0.0557	0.3778	0.3740	0.0007	0.0205	64.0	0.0050
	250	0.0590	0.1909	0.4580	0.0010	0.0148	90.4	0.0053
	500	0.1110	0.3559	0.7901	0.0017	0.0275	177.0	0.0100
	750	0.1838	0.5867	1.3378	0.0029	0.0459	291.8	0.0166
	1000	0.2579	0.8251	2.9158	0.0038	0.0780	373.3	0.0233
Other General Industrial Equipmen Composite		0.0742	0.3062	0.5498	0.0011	0.0224	101.5	0.0067
Other Material Handling Equipment	50	0.0506	0.2129	0.1733	0.0003	0.0124	20.2	0.0046
	120	0.0473	0.2776	0.2959	0.0005	0.0228	40.5	0.0043
	175	0.0700	0.4783	0.4752	0.0009	0.0260	81.4	0.0063
	250	0.0623	0.2032	0.4893	0.0011	0.0158	96.7	0.0056
	500	0.0791	0.2560	0.5698	0.0013	0.0198	127.8	0.0071
	9999	0.3592	1.0893	3.8567	0.0049	0.1029	494.5	0.0324
Other Material Handling Equipment Composite		0.0700	0.2998	0.5371	0.0010	0.0216	94.2	0.0063
Pavers	25	0.0151	0.0513	0.0957	0.0002	0.0038	12.4	0.0014
	50	0.0645	0.2127	0.1694	0.0002	0.0145	18.7	0.0058
	120	0.0687	0.3243	0.4139	0.0005	0.0338	46.2	0.0062
	175	0.0910	0.5091	0.6432	0.0010	0.0360	85.6	0.0082
	250	0.1050	0.3335	0.8779	0.0015	0.0327	129.6	0.0095
	500	0.1177	0.4592	0.9464	0.0015	0.0359	155.6	0.0106
Pavers Composite		0.0748	0.3347	0.4163	0.0006	0.0279	52.0	0.0067
Paving Equipment	25	0.0102	0.0347	0.0642	0.0001	0.0024	8.4	0.0009
	50	0.0548	0.1798	0.1444	0.0002	0.0124	16.0	0.0049
	120	0.0537	0.2540	0.3248	0.0004	0.0267	36.4	0.0048
	175	0.0709	0.3983	0.5047	0.0008	0.0283	67.4	0.0064
	250	0.0642	0.2046	0.5493	0.0009	0.0200	81.6	0.0058
Paving Equipment Composite		0.0571	0.2759	0.3707	0.0005	0.0249	46.0	0.0052
Plate Compactors	15	0.0033	0.0176	0.0210	0.0000	0.0008	2.9	0.0003
Plate Compactors Composite		0.0033	0.0176	0.0210	0.0000	0.0008	2.9	0.0003
Pressure Washers	15	0.0039	0.0206	0.0272	0.0001	0.0014	3.3	0.0004
	25	0.0063	0.0213	0.0392	0.0001	0.0019	4.8	0.0006
	50	0.0113	0.0597	0.0706	0.0001	0.0036	9.5	0.0010
	120	0.0111	0.0922	0.1019	0.0002	0.0058	16.1	0.0010
Pressure Washers Composite		0.0067	0.0375	0.0469	0.0001	0.0024	6.3	0.0006
Pumps	15	0.0067	0.0312	0.0417	0.0001	0.0023	5.0	0.0006
	25	0.0186	0.0581	0.1068	0.0002	0.0054	13.0	0.0017
	50	0.0400	0.1781	0.1785	0.0003	0.0109	22.9	0.0036
	120	0.0451	0.3180	0.3508	0.0006	0.0234	52.0	0.0041
	175	0.0564	0.4894	0.5035	0.0011	0.0234	93.5	0.0051
	250	0.0578	0.2525	0.6269	0.0015	0.0181	134.3	0.0052
	500	0.0925	0.4231	0.9583	0.0023	0.0295	230.3	0.0083
	750	0.1554	0.6995	1.6259	0.0038	0.0494	380.7	0.0140
	9999	0.4703	1.8298	6.5705	0.0091	0.1573	903.7	0.0424
Pumps Composite		0.0305	0.1815	0.2205	0.0004	0.0126	33.1	0.0028
Rollers	15	0.0049	0.0257	0.0307	0.0001	0.0012	4.2	0.0004
	25	0.0107	0.0366	0.0678	0.0001	0.0025	8.9	0.0010
	50	0.0442	0.1699	0.1448	0.0002	0.0106	17.3	0.0040
	120	0.0454	0.2614	0.2942	0.0005	0.0227	39.3	0.0041
	175	0.0599	0.4089	0.4381	0.0008	0.0237	72.1	0.0054
	250	0.0623	0.2205	0.5446	0.0011	0.0183	102.1	0.0056
	500	0.0842	0.3270	0.6900	0.0014	0.0243	146.1	0.0076

Table 34
SCAB Emission Factors (Diesel)

CY 2018

Air Basin	SC

Equipment	MaxHP	(lb/hr) ROG	(lb/hr) CO	(lb/hr) NOX	(lb/hr) SOX	(lb/hr) PM	(lb/hr) CO2	(lb/hr) CH4
Rollers Composite		0.0455	0.2591	0.2991	0.0005	0.0194	44.7	0.0041
Rough Terrain Forklifts	50	0.0437	0.2197	0.1830	0.0003	0.0110	22.6	0.0039
	120	0.0398	0.2787	0.2646	0.0005	0.0182	41.7	0.0036
	175	0.0608	0.4823	0.4050	0.0009	0.0215	83.3	0.0055
	250	0.0659	0.2337	0.4719	0.0013	0.0158	113.9	0.0059
	500	0.0961	0.3355	0.6315	0.0017	0.0228	171.1	0.0087
Rough Terrain Forklifts Composite		0.0425	0.3001	0.2814	0.0005	0.0185	46.9	0.0038
Rubber Tired Dozers	175	0.1118	0.5463	0.7633	0.0010	0.0431	86.4	0.0101
	250	0.1261	0.3762	0.9924	0.0014	0.0404	122.4	0.0114
	500	0.1688	0.6895	1.2991	0.0017	0.0525	176.7	0.0152
	750	0.2549	1.0352	1.9955	0.0027	0.0797	266.0	0.0230
	1000	0.3993	1.6730	4.0068	0.0040	0.1271	394.8	0.0360
Rubber Tired Dozers Composite		0.1563	0.5882	1.2135	0.0016	0.0492	159.5	0.0141
Rubber Tired Loaders	25	0.0136	0.0465	0.0861	0.0001	0.0032	11.3	0.0012
	50	0.0495	0.2133	0.1728	0.0003	0.0116	20.8	0.0045
	120	0.0440	0.2678	0.2749	0.0005	0.0205	39.3	0.0040
	175	0.0592	0.4153	0.3937	0.0008	0.0216	70.9	0.0053
	250	0.0631	0.2159	0.4764	0.0011	0.0162	99.4	0.0057
	500	0.0960	0.3506	0.6739	0.0016	0.0242	158.1	0.0087
	750	0.1979	0.7178	1.4257	0.0033	0.0506	323.8	0.0179
	1000	0.2610	0.9451	2.9720	0.0040	0.0792	396.1	0.0235
Rubber Tired Loaders Composite		0.0574	0.2981	0.3889	0.0008	0.0200	72.4	0.0052
Scrapers	120	0.0922	0.4460	0.5446	0.0007	0.0441	62.6	0.0083
	175	0.1053	0.5972	0.7145	0.0011	0.0402	98.8	0.0095
	250	0.1137	0.3551	0.9043	0.0016	0.0334	139.7	0.0103
	500	0.1640	0.6113	1.2458	0.0021	0.0472	214.4	0.0148
	750	0.2846	1.0543	2.2093	0.0037	0.0826	370.4	0.0257
Scrapers Composite		0.1424	0.5615	1.0700	0.0018	0.0436	175.1	0.0129
Signal Boards	15	0.0048	0.0251	0.0300	0.0001	0.0012	4.1	0.0004
	50	0.0433	0.1978	0.1881	0.0003	0.0115	24.1	0.0039
	120	0.0464	0.3334	0.3506	0.0006	0.0238	53.5	0.0042
	175	0.0637	0.5520	0.5315	0.0012	0.0257	103.1	0.0057
	250	0.0768	0.3240	0.7540	0.0019	0.0225	170.3	0.0069
Signal Boards Composite		0.0095	0.0611	0.0686	0.0001	0.0033	11.1	0.0009
Skid Steer Loaders	25	0.0117	0.0388	0.0721	0.0001	0.0032	9.2	0.0011
	50	0.0176	0.1357	0.1192	0.0002	0.0043	17.0	0.0016
	120	0.0165	0.1788	0.1314	0.0003	0.0063	28.5	0.0015
Skid Steer Loaders Composite		0.0168	0.1431	0.1200	0.0002	0.0049	20.2	0.0015
Surfacing Equipment	50	0.0211	0.0828	0.0760	0.0001	0.0052	9.4	0.0019
	120	0.0446	0.2716	0.3102	0.0005	0.0223	42.5	0.0040
	175	0.0425	0.3120	0.3390	0.0006	0.0171	57.2	0.0038
	250	0.0489	0.1906	0.4678	0.0010	0.0153	90.0	0.0044
	500	0.0747	0.3367	0.6881	0.0014	0.0233	147.5	0.0067
	750	0.1189	0.5277	1.1129	0.0023	0.0372	231.5	0.0107
Surfacing Equipment Composite		0.0616	0.2793	0.5364	0.0011	0.0194	110.7	0.0056
Sweepers/Scrubbers	15	0.0083	0.0486	0.0580	0.0001	0.0023	8.0	0.0007
	25	0.0158	0.0539	0.0997	0.0002	0.0037	13.1	0.0014
	50	0.0348	0.1984	0.1693	0.0003	0.0091	21.0	0.0031
	120	0.0431	0.3324	0.2963	0.0006	0.0194	50.1	0.0039
	175	0.0644	0.5356	0.4189	0.0010	0.0225	92.7	0.0058
	250	0.0596	0.2147	0.4051	0.0012	0.0136	108.1	0.0054
Sweepers/Scrubbers Composite		0.0454	0.3299	0.2873	0.0006	0.0167	52.4	0.0041
Tractors/Loaders/Backhoes	25	0.0128	0.0436	0.0808	0.0001	0.0031	10.6	0.0012
	50	0.0332	0.1893	0.1562	0.0003	0.0081	20.2	0.0030
	120	0.0290	0.2285	0.1959	0.0004	0.0122	34.5	0.0026

Table 34
SCAB Emission Factors (Diesel)

CY 2018

Air Basin	SC

Equipment	MaxHP	ROG (lb/hr)	CO (lb/hr)	NOX (lb/hr)	SOX (lb/hr)	PM (lb/hr)	CO2 (lb/hr)	CH4 (lb/hr)
	175	0.0446	0.3898	0.2844	0.0008	0.0146	67.6	0.0040
	250	0.0609	0.2323	0.3978	0.0013	0.0134	114.5	0.0055
	500	0.1193	0.4516	0.7161	0.0026	0.0257	230.0	0.0108
	750	0.1795	0.6773	1.1022	0.0039	0.0390	345.0	0.0162
Tractors/Loaders/Backhoes Composite		0.0342	0.2432	0.2222	0.0005	0.0126	44.6	0.0031
Trenchers	15	0.0066	0.0345	0.0412	0.0001	0.0016	5.6	0.0006
	25	0.0265	0.0904	0.1674	0.0003	0.0062	22.0	0.0024
	50	0.0761	0.2432	0.1978	0.0003	0.0170	22.0	0.0069
	120	0.0640	0.3000	0.3934	0.0005	0.0318	43.3	0.0058
	175	0.1004	0.5627	0.7351	0.0011	0.0405	96.0	0.0091
	250	0.1189	0.3884	1.0303	0.0017	0.0388	148.7	0.0107
	500	0.1542	0.6379	1.2963	0.0020	0.0494	207.6	0.0139
	750	0.2923	1.2002	2.5035	0.0039	0.0942	391.4	0.0264
Trenchers Composite		0.0708	0.2913	0.3413	0.0005	0.0262	39.2	0.0064
Welders	15	0.0056	0.0261	0.0348	0.0001	0.0019	4.1	0.0005
	25	0.0108	0.0336	0.0619	0.0001	0.0031	7.5	0.0010
	50	0.0375	0.1560	0.1406	0.0002	0.0096	17.3	0.0034
	120	0.0265	0.1694	0.1859	0.0003	0.0136	26.3	0.0024
	175	0.0469	0.3602	0.3692	0.0007	0.0189	65.5	0.0042
	250	0.0412	0.1566	0.3887	0.0009	0.0119	79.4	0.0037
	500	0.0550	0.2131	0.4831	0.0011	0.0159	111.8	0.0050
Welders Composite		0.0258	0.1252	0.1295	0.0002	0.0089	17.1	0.0023

Source: File offroadEF07_25.xls, downloaded from http://www.aqmd.gov/ceqa/handbook/offroad/offroad.html

0.667 load correction factor

Table 35

Highest (Most Conservative) EMFAC2007 (version 2.3) Emission Factors for On-Road Passenger Vehicles & Delivery Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)

Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:

Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)

The following emission factors were compiled by running the California Air Resources Board's EMFAC2007 (version 2.3) Burden Model, taking the weighted average of vehicle types and simplifying into two categories: **Passenger Vehicles & Delivery Trucks.**

These emission factors can be used to calculate on-road mobile source emissions for the vehicle categories listed in the tables below, by use of the following equation:

Emissions (pounds per day) = N x TL x EF

where N = number of trips, TL = trip length (miles/day), and EF = emission factor (pounds per mile)

This methodology replaces the old EMFAC emission factors in Tables A-9-5-J-1 through A-9-5-L in Appendix A9 of the current SCAQMD CEQA Handbook. All the emission factors account for the emissions from start, running and idling exhaust. In addition, the ROG emission factors include diurnal, hot soak, running and resting emissions, and the PM10 & PM2.5 emission factors include tire and brake wear.

Scenario Year: **2018**

All model years in the range 1972 to 2016

Passenger Vehicles (pounds/mile)	
CO	0.00575800
NOx	0.00055658
ROG	0.00063254
SOx	0.00001071
PM10	0.00009392
PM2.5	0.00006131
CO2	1.10677664
CH4	0.00005623

Delivery Trucks (pounds/mile)	
CO	0.00923234
NOx	0.00979416
ROG	0.00139856
SOx	0.00002749
PM10	0.00040110
PM2.5	0.00031792
CO2	2.84646835
CH4	0.00006203

Source: File onroadEF07_26.xls, downloaded from http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html

Table 36
Highest (Most Conservative) EMFAC2007 (version 2.3)
Emission Factors for On-Road Heavy-Heavy-Duty Diesel Trucks
Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Heavy-Heavy-Duty Diesel Trucks (33,001 to 60,000 pounds)

The following emission factors were compiled by running the California Air Resources Board's EMFAC2007 (version 2.3) Burden Model and extracting the **Heavy-Heavy-Duty Diesel Truck (HHDT)** Emission Factors.

These emission factors can be used to calculate on-road mobile source emissions for the vehicle/emission categories listed in the tables below, by use of the following equation:

Emissions (pounds per day) = N x TL x EF

where N = number of trips, TL = trip length (miles/day), and EF = emission factor (pounds per mile)

The **HHDT-DSL** vehicle/emission category accounts for all emissions from heavy-heavy-duty diesel trucks, including start, running and idling exhaust. In addition, ROG emission factors account for diurnal, hot soak, running and resting emissions, and the PM10 & PM2.5 emission factors account for tire and brake wear.

The **HHDT-DSL, Exh** vehicle/emission category includes only the exhaust portion of PM10 & PM2.5 emissions from heavy-heavy-duty diesel trucks.

Scenario Year: **2018**

All model years in the range 1972 to 2016

HHDT-DSL (pounds/mile)	
CO	**0.00604721**
NOx	**0.01526414**
ROG	**0.00131697**
SOx	**0.00003934**
PM10	**0.00076808**
PM2.5	**0.00062383**
CO2	**4.20756838**
CH4	**0.00006182**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00062758**
PM2.5	**0.00057700**

Source: File onroadEFHHDT07_26.xls, downloaded from http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html

Table 37
Motor Vehicle Entrained Road Dust Emission Factors

Vehicle Type	Surface	Silt Content (s, %)[a]	Average Weight (W) (tons)[b]	Un-controlled PM10 Emission Factor (lb/VMT)[c]	Un-controlled PM2.5 Emission Factor (lb/VMT)[c]	Control Efficiency (%)[d]	Controlled PM10 Emission Factor (lb/VMT)[e]	Controlled PM2.5 Emission Factor (lb/VMT)[e]
1/2-Ton Truck, 4x4	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
1/2-Ton Truck, 4x4	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
1/2-Ton Truck, 4x4	Unpaved - public	11	5	1.75E+00	1.42E-01	72%	4.87E-01	3.96E-02
1-Ton Truck, 4x4	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
1-Ton Truck, 4x4	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
1-Ton Truck, 4x4	Unpaved - public	11	5	1.75E+00	1.42E-01	72%	4.87E-01	3.96E-02
1-Ton Crew Cab, 4x4	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
1-Ton Crew Cab, 4x4	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
1-Ton Crew Cab, 4x4	Unpaved - public	11	5	1.75E+00	1.42E-01	72%	4.87E-01	3.96E-02
3/4-Ton Truck, 4x4	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
3/4-Ton Truck, 4x4	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
3/4-Ton Truck, 4x4	Unpaved - public	11	5	1.75E+00	1.42E-01	72%	4.87E-01	3.96E-02
Arrow Board Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Arrow Board Truck	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Arrow Board Truck	Unpaved - public	11	17	3.03E+00	1.50E-01	72%	8.45E-01	4.18E-02
Arrowhead Trailer	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Arrowhead Trailer	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Arrowhead Trailer	Unpaved - public	11	17	3.03E+00	1.50E-01	72%	8.45E-01	4.18E-02
Auger Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Auger Truck	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Auger Truck	Unpaved - public	11	17	3.03E+00	1.50E-01	72%	8.45E-01	4.18E-02
Boom Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Boom Truck	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Boom Truck	Unpaved - public	11	17	3.03E+00	1.50E-01	72%	8.45E-01	4.18E-02
Boom/Crane Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Boom/Crane Truck	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Boom/Crane Truck	Unpaved - public	11	17	3.03E+00	1.50E-01	72%	8.45E-01	4.18E-02
Bull Wheel Puller	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Bull Wheel Puller	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Bull Wheel Puller	Unpaved - public	11	17	3.03E+00	1.50E-01	72%	8.45E-01	4.18E-02
Bucket Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Bucket Truck	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Bucket Truck	Unpaved - public	11	17	3.03E+00	1.50E-01	72%	8.45E-01	4.18E-02
Carry-all Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Carry-all Truck	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Carry-all Truck	Unpaved - public	11	17	3.03E+00	1.50E-01	72%	8.45E-01	4.18E-02
Concrete Mixer Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Concrete Mixer Truck	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Concrete Mixer Truck	Unpaved - public	11	17	3.03E+00	1.50E-01	72%	8.45E-01	4.18E-02
Crew Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Crew Truck	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Crew Truck	Unpaved - public	11	5	1.75E+00	1.42E-01	72%	4.87E-01	3.96E-02
Crewcab Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Crewcab Truck	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Crewcab Truck	Unpaved - public	11	5	1.75E+00	1.42E-01	72%	4.87E-01	3.96E-02
Crushed Rock Delivery Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Crushed Rock Delivery Truck	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Crushed Rock Delivery Truck	Unpaved - public	11	17	3.03E+00	1.50E-01	72%	8.45E-01	4.18E-02
Dump Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Dump Truck	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Dump Truck	Unpaved - public	11	17	3.03E+00	1.50E-01	72%	8.45E-01	4.18E-02
Delivery Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Delivery Truck	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Delivery Truck	Unpaved - public	11	17	3.03E+00	1.50E-01	72%	8.45E-01	4.18E-02
Dump Truck (Trash)	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Dump Truck (Trash)	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Dump Truck (Trash)	Unpaved - public	11	17	3.03E+00	1.50E-01	72%	8.45E-01	4.18E-02
Extendable Flat Bed Pole Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Extendable Flat Bed Pole Truck	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Extendable Flat Bed Pole Truck	Unpaved - public	11	5	1.75E+00	1.42E-01	72%	4.87E-01	3.96E-02
Truck, Semi-Tractor	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Truck, Semi-Tractor	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Truck, Semi-Tractor	Unpaved - public	11	17	3.03E+00	1.50E-01	72%	8.45E-01	4.18E-02
Flat Bed Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Flat Bed Truck	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Flat Bed Truck	Unpaved - public	11	5	1.75E+00	1.42E-01	72%	4.87E-01	3.96E-02
Flat Bed Truck/Trailer	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Flat Bed Truck/Trailer	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Flat Bed Truck/Trailer	Unpaved - public	11	5	1.75E+00	1.42E-01	72%	4.87E-01	3.96E-02
Flat Bed Pole Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Flat Bed Pole Truck	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Flat Bed Pole Truck	Unpaved - public	11	5	1.75E+00	1.42E-01	72%	4.87E-01	3.96E-02
Foreman Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Foreman Truck	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Foreman Truck	Unpaved - public	11	5	1.75E+00	1.42E-01	72%	4.87E-01	3.96E-02
Lift Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Lift Truck	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Lift Truck	Unpaved - public	11	5	1.75E+00	1.42E-01	72%	4.87E-01	3.96E-02
Lineman/Boom Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Lineman/Boom Truck	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02

Table 37
Motor Vehicle Entrained Road Dust Emission Factors

Vehicle Type	Surface	Silt Content (s, %)[a]	Average Weight (W) (tons)[b]	Un-controlled PM10 Emission Factor (lb/VMT)[c]	Un-controlled PM2.5 Emission Factor (lb/VMT)[c]	Control Efficiency (%)[d]	Controlled PM10 Emission Factor (lb/VMT)[e]	Controlled PM2.5 Emission Factor (lb/VMT)[e]
Lineman/Boom Truck	Unpaved - public	11	5	1.75E+00	1.42E-01	72%	4.87E-01	3.96E-02
Low Bed Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Low Bed Truck	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Low Bed Truck	Unpaved - public	11	5	1.75E+00	1.42E-01	72%	4.87E-01	3.96E-02
Lowboy Truck/Trailer	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Lowboy Truck/Trailer	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Lowboy Truck/Trailer	Unpaved - public	11	17	3.03E+00	1.50E-01	72%	8.45E-01	4.18E-02
Manlift/Bucket Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Manlift/Bucket Truck	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Manlift/Bucket Truck	Unpaved - public	11	17	3.03E+00	1.50E-01	72%	8.45E-01	4.18E-02
Maintenance Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Maintenance Truck	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Maintenance Truck	Unpaved - public	11	5	1.75E+00	1.42E-01	72%	4.87E-01	3.96E-02
Material Handling Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Material Handling Truck	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Material Handling Truck	Unpaved - public	11	17	3.03E+00	1.50E-01	72%	8.45E-01	4.18E-02
Pipe Truck/Trailer	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Pipe Truck/Trailer	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Pipe Truck/Trailer	Unpaved - public	11	5	1.75E+00	1.42E-01	72%	4.87E-01	3.96E-02
Pulling Rig	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Pulling Rig	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Pulling Rig	Unpaved - public	11	5	1.75E+00	1.42E-01	72%	4.87E-01	3.96E-02
Pumper/Tanker Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Pumper/Tanker Truck	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Pumper/Tanker Truck	Unpaved - public	11	17	3.03E+00	1.50E-01	72%	8.45E-01	4.18E-02
Reel Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Reel Truck	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Reel Truck	Unpaved - public	11	5	1.75E+00	1.42E-01	72%	4.87E-01	3.96E-02
Rodder Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Rodder Truck	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Rodder Truck	Unpaved - public	11	5	1.75E+00	1.42E-01	72%	4.87E-01	3.96E-02
Sock Line Puller	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Sock Line Puller	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Sock Line Puller	Unpaved - public	11	5	1.75E+00	1.42E-01	72%	4.87E-01	3.96E-02
Splice Lab Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Splice Lab Truck	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Splice Lab Truck	Unpaved - public	11	5	1.75E+00	1.42E-01	72%	4.87E-01	3.96E-02
Splicing Lab	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Splicing Lab	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Splicing Lab	Unpaved - public	11	5	1.75E+00	1.42E-01	72%	4.87E-01	3.96E-02
Splicing Rig	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Splicing Rig	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Splicing Rig	Unpaved - public	11	5	1.75E+00	1.42E-01	72%	4.87E-01	3.96E-02
Static Truck/Tensioner	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Static Truck/Tensioner	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Static Truck/Tensioner	Unpaved - public	11	5	1.75E+00	1.42E-01	72%	4.87E-01	3.96E-02
Tool Trailer	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Tool Trailer	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Tool Trailer	Unpaved - public	11	5	1.75E+00	1.42E-01	72%	4.87E-01	3.96E-02
Troubleman Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Troubleman Truck	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Troubleman Truck	Unpaved - public	11	5	1.75E+00	1.42E-01	72%	4.87E-01	3.96E-02
Truck, Semi Tractor	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Truck, Semi Tractor	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Truck, Semi Tractor	Unpaved - public	11	17	3.03E+00	1.50E-01	72%	8.45E-01	4.18E-02
Van	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Van	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Van	Unpaved - public	11	5	1.75E+00	1.42E-01	72%	4.87E-01	3.96E-02
Water Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Water Truck	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Water Truck	Unpaved - public	11	17	3.03E+00	1.50E-01	72%	8.45E-01	4.18E-02
Wire Truck/Trailer	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Wire Truck/Trailer	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Wire Truck/Trailer	Unpaved - public	11	5	1.75E+00	1.42E-01	72%	4.87E-01	3.96E-02
Worker Commute	Paved	0.24	2.4	1.47E-03	3.60E-04	0%	1.47E-03	3.60E-04
Worker Commute	Unpaved - private	11	2.4	1.25E+00	1.37E-01	83%	2.10E-01	2.29E-02
Worker Commute	Unpaved - public	11	2.4	1.25E+00	1.37E-01	72%	3.50E-01	3.83E-02
Subtransmission Line Inspection	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Subtransmission Line Inspection	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Subtransmission Line Inspection	Unpaved - public	11	5	1.75E+00	1.42E-01	72%	4.87E-01	3.96E-02
Substation Site Visit	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Substation Site Visit	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Substation Site Visit	Unpaved - public	11	5	1.75E+00	1.42E-01	72%	4.87E-01	3.96E-02

[a] Paved road silt content from ARB Emission Inventory Methodology 7.9, Entrained Paved Road Dust (1997) for local roads, http://www.arb.ca.gov/ei/areasrc/fullpdf/full7-9.pdf
Unpaved road moisture content obtained from the WRAP Handbook, (2006) Table 6.2 Typcial Silt Content Values of Surface Material of Public Unpaved Roads

[b] Average paved on-road vehicle weight in Riverside County from ARB Emission Inventory Methodology 7.9, Entrained Paved Road Dust (1997)
Unpaved worker commuting weight on access road assumed to be same as paved road weight
Unpaved weight for other trucks is based on upper limit of 33,000 lbs for medium heavy-duty trucks.

Table 37
Motor Vehicle Entrained Road Dust Emission Factors

Vehicle Type	Surface	Silt Content (s, %)[a]	Average Weight (W) (tons)[b]	Un-controlled PM10 Emission Factor (lb/VMT)[c]	Un-controlled PM2.5 Emission Factor (lb/VMT)[c]	Control Efficiency (%)[d]	Controlled PM10 Emission Factor (lb/VMT)[e]	Controlled PM2.5 Emission Factor (lb/VMT)[e]

[c] Equations:

$EF(paved) = k_o\ (sL)^{0.91}\ (W)^{1.02}$ Ref: AP-42, Section 13.2.1, "Paved Roads," January 2011

$EF\ (unpaved) = k\ (s/12)^a\ (W/3)^b$ Ref: AP-42, Section 13.2.2, "Unpaved Roads," November 2006

[d] Control efficiency, for private unpaved roads only, based on SCAQMD Fugitive Dust Mitigation Table XI-A for watering (61 percent) and speed control to 15 mph (57 percent), or 83 percent combined. For public roads watering (61 percent) with speed control to 25 mph (29 percent), or 72 percent combined efficiency.

Constants:

k_o =	0.0022	(Particle size multiplier for PM10)
	0.00054	(Particle size multiplier for PM2.5)
k_u =	1.5	(Particle size multiplier for PM10)
	0.15	(Particle size multiplier for PM2.5)
a =	0.9	for PM10
	0.9	for PM2.5
b =	0.45	for PM10
	0.045	for PM2.5
^{c} =	0.2	for PM10
	0.2	for PM2.5

Table 38
Fugitive Dust Emission Factors
Soil Dropping During Excavation

Emission Factor [lb/cu. yd] = 0.0011 x (mean wind speed [mi/hr] / 5)$^{1.3}$ / (moisture [%] / 2)$^{1.4}$ x (number drops per ton) x (density [ton/cu. yd])
Reference: AP-42, Equation (1), Section 13.2.4, November 2006

Parameter	Value	Basis
Mean Wind Speed	12	SCAQMD CEQA Air Quality Handbook (1993), Table 9-9-G, default
Moisture	12	SCAQMD CEQA Fugitive Dust Mitigation, Table XI-A minimum moisture content due to watering
Number Drops	4	Assumption
Soil Density	1.215	Table 2.46, Handbook of Solid Waste Management

Controlled PM10 Emission Factor	1.36E-03	lb/cu. yd
Controlled PM2.5 Emission Factor[a]	2.82E-04	lb/cu. yd

[a] PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction of PM10 in Construction Dust = 0.208 from Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006

Emissions [pounds per day] = Controlled emission factor [pounds per cubic yard] x Volume soil handled [cubic yards per day]

Storage Pile Wind Erosion

Emission Factor [lb/day-acre] = 0.85 x (silt content [%] / 1.5) x (365 / 235) x (percentage of time unobstructed wind exceeds 12 mph / 15)
Reference: SCAQMD CEQA Air Quality Handbook (1993), Table 9-9-E

Parameter	Value	Basis
Silt Content	7.5	SCAQMD CEQA Air Quality Analysis Handbook, Table A9-9-F-2 for overburden
Pct. time wind > 12 mph	100	Worst-case assumption

PM10 Emission Factor (Uncontrolled)	44.0	lb/day-acre
Reduction from watering	90%	Control efficiency from watering storage pile by hand at a rate of 1.4 gallons/hour-yard^2, Table XI-B, Mitigation Measure Examples, Fugitive Dust from Materials Handling, http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/MM_fugitive.html
Controlled PM10 Emission Factor	4.4	lb/day-acre
Controlled PM2.5 Emission Factor[a]	0.9	lb/day-acre

[a] PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction of PM10 in Construction Dust = 0.208 from Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006

Emissions [pounds per day] = Controlled emission factor [pounds per acre-day] x Storage pile surface area [acres]

Bulldozing, Scraping and Grading

Emission Factor [lb/hr] = 0.75 x (silt content [%])$^{1.5}$ / (moisture)$^{1.4}$
Reference: AP-42, Table 11.9-1, July 1998

Parameter	Value	Basis
Silt Content	7.5	SCAQMD CEQA Air Quality Analysis Handbook, Table A9-9-F-2 for overburden
Moisture	12	SCAQMD CEQA Fugitive Dust Mitigation, Table XI-A minimum moisture content due to watering

Controlled PM10 Emission Factor	0.475	lb/hr
Controlled PM2.5 Emission Factor[a]	0.099	lb/hr

[a] PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction of PM10 in Construction Dust = 0.208 from Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006

[b] Watering is assumed to be used to maintain moist conditions, so no further reduction from watering is included.

Emissions [pounds per day] = Controlled emission factor [pounds per hour] x Bulldozing, scraping or grading time [hours/day]

Valley South Subtransmission Line Project

Appendix 2 - Construction Emission Calculations (Uncontrolled)

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Table 1
Construction Emissions Summary
Total Daily Criteria Pollutant Emissions by Project Component

Phase	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
Substation Modifications						
Substation Modifications	2.42	16.17	21.17	0.06	4.98	1.61
Subtransmission Source Line Construction						
Survey	0.19	1.67	0.44	0.00	12.30	1.09
Marshalling Yard	2.23	15.03	11.92	0.04	27.49	2.21
Roads and Landing Work	1.83	9.70	11.59	0.03	21.44	2.98
Tree Trimming and Removal	1.20	6.25	5.92	0.02	13.49	1.48
Guard Structure Installation	1.05	6.40	7.35	0.02	49.75	3.50
Relocate Conductor and Groundwire	3.15	17.50	22.21	0.07	109.14	7.41
Existing Wood Poles and LWS Poles Removal	1.05	7.19	7.44	0.02	39.43	2.98
Tubular Steel Pole Foundations Installation	1.51	9.61	11.36	0.03	48.82	3.32
Tubular Steel Pole Haul	0.37	2.45	2.41	0.01	22.71	1.69
Tubular Steel Pole Assembly	0.86	5.69	5.24	0.02	45.46	3.42
Tubular Steel Pole Erection	0.77	5.18	4.48	0.02	35.10	2.86
Wood Guy Stub Pole/LWS Pole Haul	0.36	2.40	2.49	0.01	22.72	1.69
Wood/LWS Pole Assembly	0.86	5.69	5.24	0.02	45.46	3.42
Install Wood/Wood Guy Stub Pole/LWS Pole	1.30	8.87	9.24	0.03	54.22	3.61
Reconfigure Existing Structures	1.29	9.67	5.40	0.02	37.65	3.12
Install Conductor & GW	4.46	24.13	31.43	0.10	12.04	2.29
Guard Structure Removal	0.83	5.40	5.73	0.02	39.35	2.90
Restoration	1.16	7.01	6.70	0.02	36.85	3.07
Vault Installation	1.86	10.21	13.09	0.04	4.73	0.95
Duct Bank Installation	1.05	7.13	7.55	0.02	4.11	0.76
Install Underground Cable	2.35	13.79	16.00	0.04	3.48	0.89
Distribution Relocation						
Relocate Existing Conductor	0.46	2.86	3.46	0.01	39.03	2.63
Wood Pole Removal	0.38	2.28	3.09	0.01	22.95	1.79
Install Distribution Underground Cable	1.75	10.86	11.31	0.03	41.42	3.39
Telecommunications Construction						
Control Building Communications Room	0.82	5.13	6.18	0.02	1.10	0.48

Notes:
VOC = volatile organic compounds
CO = carbon monoxide
NOX = nitrogen oxides
SOX = sulfur oxides
PM10 = suspended particulate matter measuring less than 10 microns
PM2.5 = suspended particulate matter measuring less than 2.5 micron
lb/day = pounds per day

Table 2
Construction Emissions Summary
Peak Daily Criteria Pollutant Emissions for Overlapping Project Components

Construction Component	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
Substation Modification						
Substation Modifications	2.42	16.17	21.17	0.06	4.98	1.61
Maximum	**2.42**	**16.17**	**21.17**	**0.06**	**4.98**	**1.61**
Subtransmission Line Construction						
Survey, Marshalling Yard, Tree Trimming and Removal	3.63	22.95	18.28	0.06	53.27	4.77
Roads & Landing Work, Tubular Steel Pole Installation, Vault Installation, Duct Bank Installation, Reconfigure Existing Structures, Wood Guy Stub Pole/LWS Haul	7.92	48.72	51.49	0.15	139.47	12.82
Roads & Landing Work, Tubular Steel Pole Installation, Wood Guy Stub Pole/LWS Haul, Wood Guy Stub Pole/LWS Pole Assembly, Install Wood Poles	5.87	36.27	39.92	0.11	192.66	15.02
Roads & Landing Work, Tubular Steel Pole Installation, Tubular Steel Pole Haul, Tubular Steel Pole Assembly, Tubular Steel Pole Erection	5.34	32.63	35.07	0.10	173.54	14.27
Install Underground Cable	2.35	13.79	16.00	0.04	3.48	0.89
Relocate Groundwire	3.15	17.50	22.21	0.07	109.14	7.41
Guard Structure Installation	1.05	6.40	7.35	0.02	49.75	3.50
Install Conductor and Groundwire	4.46	24.13	31.43	0.10	12.04	2.29
Restoration, Existing Wood Pole Removal, Guard Structure Removal	3.04	19.60	19.87	0.06	115.63	8.96
Maximum	**7.92**	**48.72**	**51.49**	**0.15**	**192.66**	**15.02**
Distribution Relocation						
All	2.59	16.01	17.85	0.06	103.41	7.81
Maximum	**2.59**	**16.01**	**17.85**	**0.06**	**103.41**	**7.81**
Telecommunications Construction						
All	0.82	5.13	6.18	0.02	1.10	0.48
Maximum	**0.82**	**5.13**	**6.18**	**0.02**	**1.10**	**0.48**
Peak Daily Emissions[a]	**13.74**	**86.03**	**96.69**	**0.29**	**302.15**	**24.92**
SCAQMD Mass Daily Thresholds (lb/day) =	**75**	**550**	**100**	**150**	**150**	**55**
Exceed Thresholds (Y/N)?	**N**	**N**	**N**	**N**	**Y**	**N**

[a] Peak daily construction emissions are the sum of highest daily emissions generated during concurrent construction activities associated with the substation modifications; subtransmission line; distribution relocation; and, installation of telecommunication equipment at existing SCE substations.

Table 3
Construction Emissions Summary
Onsite Daily Criteria Pollutant Emissions by Construction Phase

Construction Component	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
Substation Construction						
Substation Modifications	1.02	7.96	9.11	0.02	1.84	0.48
Subtransmission Line Construction						
Marshalling Yard	0.41	2.38	2.85	0.01	6.50	0.45
Tree Trimming and Removal	0.96	4.31	5.21	0.01	0.31	0.28
Guard Structure Installation	0.70	3.67	5.91	0.01	0.32	0.30
Relocate Conductor and Groundwire	0.72	4.55	6.24	0.02	0.33	0.30
Existing Wood Poles and LWS Poles Removal	0.72	4.55	6.24	0.02	0.33	0.30
Tubular Steel Pole Foundations Installation	0.96	6.02	7.54	0.02	0.53	0.39
Tubular Steel Pole Haul	0.15	0.69	1.74	0.00	0.09	0.08
Tubular Steel Pole Assembly	0.43	2.17	3.90	0.01	0.22	0.20
Tubular Steel Pole Erection	0.36	1.75	3.37	0.01	0.18	0.17
Wood Guy Stub Pole/LWS Pole Haul	0.15	0.69	1.74	0.00	0.09	0.08
Wood/LWS Pole Assembly	0.43	2.17	3.90	0.01	0.22	0.20
Install Wood/Wood Guy Stub Pole/LWS Pole	0.95	6.19	7.71	0.02	0.42	0.37
Reconfigure Existing Structures	0.43	2.17	3.90	0.01	0.22	0.20
Install Conductor & GW	3.54	15.79	30.51	0.09	1.28	1.18
Guard Structure Removal	0.49	2.76	4.52	0.01	0.24	0.22
Vault Installation	1.37	6.83	10.01	0.03	3.61	0.58
Duct Bank Installation	0.58	3.90	4.58	0.01	3.03	0.40
Install Underground Cable	1.99	10.72	15.11	0.03	2.60	0.81
Distribution Relocation						
Relocate Existing Conductor	0.20	0.92	2.32	0.01	0.12	0.00
Wood Pole Removal	0.20	0.92	2.32	0.01	0.12	0.11
Install Distribution Underground Cable	1.38	7.82	9.99	0.03	0.44	0.40
Telecommunications Construction						
Control Building Communications Room	0.49	2.32	5.45	0.01	0.29	0.25

Table 4
Construction Emissions Summary
Maximum Daily Onsite Criteria Pollutant Emissions

Construction Component[a]	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
Substation Modification						
Substation Modifications	1.02	7.96	9.11	0.02	1.84	0.48
Maximum	**1.02**	**7.96**	**9.11**	**0.02**	**1.84**	**0.48**
Marshalling Yards						
Marshalling Yard	0.41	2.38	2.85	0.01	6.50	0.45
Maximum	**0.41**	**2.38**	**2.85**	**0.01**	**6.50**	**0.45**
Subtransmission Line Construction[b]						
Tree Trimming and Removal	0.96	4.31	5.21	0.01	0.31	0.28
Guard Structure Installation	0.14	0.73	1.18	0.00	0.06	0.06
Relocate Conductor and Groundwire	0.72	4.55	6.24	0.02	0.33	0.30
Existing Wood Poles and LWS Poles Removal	0.08	0.51	0.69	0.00	0.04	0.03
Tubular Steel Pole Foundations Installation	0.96	6.02	7.54	0.02	0.53	0.39
Tubular Steel Pole Haul	0.03	0.11	0.29	0.00	0.01	0.01
Tubular Steel Pole Assembly	0.43	2.17	3.90	0.01	0.22	0.20
Tubular Steel Pole Erection	0.36	1.75	3.37	0.01	0.18	0.17
Wood Guy Stub Pole/LWS Pole Haul	0.03	0.11	0.29	0.00	0.01	0.01
Wood/LWS Pole Assembly	0.11	0.54	0.97	0.00	0.05	0.05
Install Wood/Wood Guy Stub Pole/LWS Pole	0.24	1.55	1.93	0.00	0.11	0.09
Reconfigure Existing Structures	0.11	0.54	0.97	0.00	0.05	0.05
Install Conductor & GW	1.77	7.89	15.25	0.04	0.64	0.59
Guard Structure Removal	0.07	0.39	0.65	0.00	0.03	0.03
Maximum	**1.77**	**7.89**	**15.25**	**0.04**	**0.64**	**0.59**
Subtransmission Line Construction at Valley Substation						
Vault Installation	1.37	6.83	10.01	0.03	3.61	0.58
Duct Bank Installation	0.58	3.90	4.58	0.01	3.03	0.40
Install Underground Cable	1.99	10.72	15.11	0.03	2.60	0.81
Maximum	**1.99**	**10.72**	**15.11**	**0.03**	**3.61**	**0.81**
Distribution Relocation						
All	1.78	9.66	14.63	0.04	0.67	0.51
Maximum	**1.78**	**9.66**	**14.63**	**0.04**	**0.67**	**0.51**
Telecommunications Construction						
All	0.49	2.32	5.45	0.01	0.29	0.25
Maximum	**0.49**	**2.32**	**5.45**	**0.01**	**0.29**	**0.25**
Peak Daily Construction Emissions - Onsite[b]	**1.99**	**10.72**	**15.11**	**0.04**	**3.61**	**0.81**

[a] The construction phases within a group could all occur at the same time at the same location.

The following Subtransmission Source Line construction activity emissions were divided by the following number of working locations per day:

Guard Structure Installation: 5 structures per day
Wood/LWS Pole Removal: 9 poles per day
TSP Foundations Installation: 1 foundation per day
Wood and LWS Pole Haul: 6 locations per day
Wood and LWS Pole Assembly: 4 poles per day
Wood and LWS Pole Installation: 4 poles per day
TSP Haul: 6 locations per day
TSP Assembly: 1 pole per day
TSP Erection: 1 pole per day
Reconfigure Existing Structures: 4 structures per day
Conductor Installation: 1 pull, and 1 tension site per day
Guard Structure Removal: 7 structures per day
Vault Installation: 1 vault per day
Duct Bank Installation: 1 location per day

[b] Survey, Roadwork and restoration were excluded from the LST analysis because these activities would occur over a distance of approximately 1 mile along the Proposed 115 kV Subtransmission Line, instead of at a single location, each day.

Table 5
Construction Emissions
Localized Significance Threshold Analysis

Pollutant	Maximum Daily Onsite Emissions (lb/day)	Receptor Distance (m)	Allowable Emissions Interpolation[a]					Allowable Exceeded?
			Distance 1 (m)	Emissions 1 (lb/day)	Distance 2 (m)	Emissions 2 (lb/day)	Interpolated Emissions (lb/day)[b]	
Substation Modifications[c]								
CO	7.96	500	200	4,359	500	17,640	17,640	No
NOx	9.11	500	200	335	500	652	652	No
PM10	1.84	500	200	67	500	178	178	No
PM2.5	0.48	500	200	20	500	86	86	No
Marshalling Yards[d]								
CO	2.38	25	25	602	25	602	602	No
NOx	2.85	25	25	118	25	118	118	No
PM10	6.50	25	25	4	25	4	4	Yes
PM2.5	0.45	25	25	3	25	3	3	No
Subtransmission Line Construction[e]								
CO	7.89	5	25	602	25	602	602	No
NOx	15.25	5	25	118	25	118	118	No
PM10	0.64	5	25	4	25	4	4	No
PM2.5	0.59	5	25	3	25	3	3	No
Subtransmission Line Construction at Valley 500/115 kV Substation[c]								
CO	10.72	460	200	4,359	500	17,640	15,869	No
NOx	15.11	460	200	335	500	652	610	No
PM10	3.61	460	200	67	500	178	163	No
PM2.5	0.81	460	200	20	500	86	77	No
Distribution Relocation[e]								
CO	9.66	5	25	602	25	602	602	No
NOx	14.63	5	25	118	25	118	118	No
PM10	0.67	5	25	4	25	4	4	No
PM2.5	0.51	5	25	3	25	3	3	No
Telecommunications Construction[e]								
CO	2.32	5	25	602	25	602	602	No
NOx	5.45	5	25	118	25	118	118	No
PM10	0.29	5	25	4	25	4	4	No
PM2.5	0.25	5	25	3	25	3	3	No

[a] Allowable emissions are from Appendix C to Final Localized Significance Methodology, SCAQMD, revised October 2009, downloaded from http://www.aqmd.gov/ceqa/handbook/LST/LST.html

[b] Interpolated emissions = Emissions 1 + (Receptor distance - Distance 1) x (Emissions 2 - Emissions 1) / (Distance 2 - Distance 1)

[c] Closest sensitive receptor is located approximately 200 meters north of the northern fenceline of Valley Substation. Allowable emissions are for a 5-acre site

[d] Closest sensitive receptor is located approximately 60 meters west of the Perris Staging Yard. Allowable emissions are for a 1-acre site.

[e] Closest senstive receptor is located within 25 meters east of the subtransmission line alignment. Allwable emissions are for a 1-acre site.

Table 6
Construction Emissions Summary
Total Greenhouse Gas Emissions by Construction Phase

Phase	CO2e (MT)
Substation Construction	
Substation Modifications	48.14
Subtransmission Source Line Construction	
Survey	2.41
Marshalling Yard	301.51
Roads and Landing Work	43.18
Tree Trimming and Removal	8.04
Guard Structure Installation	8.45
Relocate Conductor and Groundwire	24.38
Existing Wood Poles and LWS Poles Removal	6.03
Tubular Steel Pole Foundations Installation	85.31
Tubular Steel Pole Haul	3.67
Tubular Steel Pole Assembly	23.56
Tubular Steel Pole Erection	21.53
Wood Guy Stub Pole/LWS Pole Haul	19.60
Wood/LWS Pole Assembly	51.06
Install Wood/Wood Guy Stub Pole/LWS Pole	83.24
Reconfigure Existing Structures	14.52
Install Conductor & GW	363.83
Guard Structure Removal	7.29
Restoration	12.28
Vault Installation	14.72
Duct Bank Installation	7.12
Install Underground Cable	3.46
Distribution Relocation	
Relocate Existing Conductor	89.98
Wood Pole Removal	19.06
Install Distribution Underground Cable	31.38
Telecommunications Construction	
Control Building Communications Room	3.85
Total	**1297.60**

Table 7
Substation Construction Emissions
Substation Modifications

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.00	7.87	8.92	0.02	0.42	0.39	19.5
Onsite Motor Vehicle Exhaust	0.02	0.10	0.19	0.00	0.01	0.01	0.5
Onsite Motor Vehicle Fugitive PM	--	--	--	--	1.40	0.09	
Earthwork Fugitive PM	--	--	--	--	0.01	0.00	
Onsite Total	**1.02**	**7.96**	**9.11**	**0.02**	**1.84**	**0.48**	**20.0**
Offsite Motor Vehicle Exhaust	1.40	8.21	12.05	0.04	0.64	0.51	28.2
Offsite Motor Vehicle Fugitive PM	--	--	--	--	2.50	0.61	
Offsite Total	**1.40**	**8.21**	**12.05**	**0.04**	**3.15**	**1.13**	**28.2**
Total	**2.42**	**16.17**	**21.17**	**0.06**	**4.98**	**1.61**	**48.1**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Skid Steer Loader	80	1	15	7
Backhoe	80	1	15	7
Foundation Auger	80	1	5	7
Boom Truck	300	1	30	7
Lift Truck	200	1	30	7
Concrete Mixer Truck	350	4	5	4

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Skid Steer Loader	80	0.017	0.179	0.131	0.000	0.006	0.006	28.522	0.001	Skid Steer Loaders
Backhoe	80	0.029	0.229	0.196	0.000	0.012	0.011	34.503	0.003	Tractors/Loaders/Backhoes
Foundation Auger	80	0.021	0.311	0.181	0.001	0.005	0.004	51.440	0.002	Bore/Drill Rigs
Boom Truck[c]	300	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Cranes
Lift Truck[c]	200	0.027	0.175	0.186	0.001	0.008	0.007	54.083	0.001	Manlifts
Concrete Mixer Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Concrete Mixers

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.

50 miles per hour, conservative assumption

0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Skid Steer Loader	0.12	1.25	0.92	0.00	0.04	0.04
Backhoe	0.20	1.60	1.37	0.00	0.09	0.08
Foundation Auger	0.14	2.18	1.27	0.00	0.03	0.03
Boom Truck	0.18	0.80	2.03	0.01	0.10	0.09
Lift Truckc	0.19	1.23	1.30	0.00	0.05	0.05
Concrete Mixer Truck	0.18	0.80	2.03	0.01	0.10	0.09
Total	**1.00**	**7.87**	**8.92**	**0.02**	**0.42**	**0.39**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Skid Steer Loader	1.4	0.0	1.4
Backhoe	1.6	0.0	1.6
Foundation Auger	0.8	0.0	0.8
Boom Truck	7.6	0.0	7.6
Lift Truck	5.2	0.0	5.2
Concrete Mixer Truck	2.9	0.0	2.9
Total	**19.5**	**0.0**	**19.5**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
Boom Truck	1	30	N/A	1
Crew Truck	3	40	N/A	1
Flat Bed Truck	1	40	N/A	1
Lift Truck	1	30	N/A	1
Dump Truck	3	15	N/A	1
Water Truck	1	15	N/A	1
Concrete Mixer Truck	4	5	N/A	1
Offsite				
Boom Truck	1	30	N/A	5
Crew Truck	3	40	N/A	5
Flat Bed Truck	1	40	N/A	5
Lift Truck	1	30	N/A	5
Dump Truck	3	15	N/A	180

Table 7
Substation Construction Emissions
Substation Modifications

Water Truck	1	15	N/A	5
Concrete Mixer Truck	4	5	N/A	50
Worker Commute	10	30	N/A	60

[a] Onsite travel assumed to be 1 mile per day.

[a] Offsite truck travel based on location of Staging Area 1 (0.25 miles from Valley Substation) and up to 10 trips per day per vehicle; offsite concrete mixer truck (vendor) based on estimated 50 mile roundtrip distance; offsite worker commute based on estimated 60 mile roundtrip distance.

VMT estimation basis:	Value	Units	Basis
	0.5	miles/roundtrip/haul truck	Based on roundtrip distance from Valley Substation to Staging Area 1
	10	roundtrips/day/haul truck	Assumption
	5	miles/day/haul truck	Calculation
	60	miles/roundtrip/dump truck	Based on roundtrip distance to/from the San Timoteo Sanitary Landfill
	3	roundtrips/day/dump truck	Assumption
	180	miles/day/dump truck	Calculation
	50	miles/roundtrip/vendor trip	Vendor roundtrip distance, assumption
	60	miles/roundtrip/worker commute	Assumption

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
Boom Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Crew Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Flat Bed Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Lift Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Dump Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Concrete Mixer Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Offsite									
Boom Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Crew Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Flat Bed Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Lift Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Dump Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Concrete Mixer Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
Boom Truck	0.00	0.01	0.02	0.00	0.00	0.00
Crew Truck	0.00	0.03	0.03	0.00	0.00	0.00
Flat Bed Truck	0.00	0.01	0.01	0.00	0.00	0.00
Lift Truck	0.00	0.01	0.02	0.00	0.00	0.00
Dump Truck	0.00	0.02	0.05	0.00	0.00	0.00
Water Truck	0.00	0.01	0.02	0.00	0.00	0.00
Concrete Mixer Truck	0.01	0.02	0.06	0.00	0.00	0.00
Onsite Total	**0.02**	**0.10**	**0.19**	**0.00**	**0.01**	**0.01**
Offsite						
Boom Truck	0.01	0.03	0.08	0.00	0.00	0.00
Crew Truck	0.02	0.14	0.15	0.00	0.01	0.00
Flat Bed Truck	0.01	0.05	0.05	0.00	0.00	0.00
Lift Truck	0.01	0.03	0.08	0.00	0.00	0.00
Dump Truck	0.71	3.27	8.24	0.02	0.41	0.34
Water Truck	0.01	0.03	0.08	0.00	0.00	0.00
Concrete Mixer Truck	0.26	1.21	3.05	0.01	0.15	0.12
Worker Commute	0.38	3.45	0.33	0.01	0.06	0.04
Offsite Total	**1.40**	**8.21**	**12.05**	**0.04**	**0.64**	**0.51**
Total	**1.42**	**8.30**	**12.25**	**0.04**	**0.65**	**0.52**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
Boom Truck	0.1	0.0	0.1
Crew Truck	0.2	0.0	0.2
Flat Bed Truck	0.1	0.0	0.1
Lift Truck	0.1	0.0	0.1
Dump Truck	0.1	0.0	0.1
Water Truck	0.0	0.0	0.0
Concrete Mixer Truck	0.0	0.0	0.0
Onsite Total	**0.5**	**0.0**	**0.5**
Offsite			
Boom Truck	0.3	0.0	0.3
Crew Truck	0.8	0.0	0.8
Flat Bed Truck	0.3	0.0	0.3
Lift Truck	0.3	0.0	0.3
Dump Truck	15.5	0.0	15.5
Water Truck	0.1	0.0	0.1
Concrete Mixer Truck	1.9	0.0	1.9
Worker Commute	9.0	0.0	9.0
Offsite Total	**28.2**	**0.0**	**28.2**
Total	**28.6**	**0.0**	**28.6**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

Table 7
Substation Construction Emissions
Substation Modifications

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
Boom Truck	1	Paved	0.8	0.002	0.001	0.00	0.00
Crew Truck	3	Paved	0.8	0.002	0.001	0.00	0.00
Flat Bed Truck	1	Paved	0.8	0.002	0.001	0.00	0.00
Lift Truck	1	Paved	0.8	0.002	0.001	0.00	0.00
Dump Truck	3	Paved	0.8	0.002	0.001	0.00	0.00
Water Truck	1	Paved	0.8	0.002	0.001	0.00	0.00
Concrete Mixer Truck	4	Paved	0.8	0.002	0.001	0.01	0.00
Boom Truck	1	Unpaved - private	0.3	0.506	0.025	0.13	0.01
Crew Truck	3	Unpaved - private	0.3	0.291	0.024	0.22	0.02
Flat Bed Truck	1	Unpaved - private	0.3	0.291	0.024	0.07	0.01
Lift Truck	1	Unpaved - private	0.3	0.291	0.024	0.07	0.01
Dump Truck	3	Unpaved - private	0.3	0.506	0.025	0.38	0.02
Concrete Mixer Truck	4	Unpaved - private	0.3	0.506	0.025	0.51	0.03
Onsite Total						**1.40**	**0.09**
Offsite							
Boom Truck	1	Paved	5	0.002	0.001	0.01	0.00
Crew Truck	3	Paved	5	0.002	0.001	0.03	0.01
Flat Bed Truck	1	Paved	5	0.002	0.001	0.01	0.00
Lift Truck	1	Paved	5	0.002	0.001	0.01	0.00
Dump Truck	3	Paved	180	0.002	0.001	1.13	0.28
Water Truck	1	Paved	5	0.002	0.001	0.01	0.00
Concrete Mixer Truck	4	Paved	50	0.002	0.001	0.42	0.10
Worker Commute	10	Paved	60	0.001	0.000	0.88	0.22
Offsite Total						**2.50**	**0.61**
Total						**3.90**	**0.70**

[a] Assumes 75% onsite vehicle miles travelled (VMT) occur on paved areas within substation perimeter and 25% of VMT occur on unpaved areas within substation perimeter.

[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

c From Table 37

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling[c]	CY/day	5.5	1.36E-03	2.82E-04	0.01	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.01**	**0.00**

a From Table 38

b Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

c Activity level calculation:

Description	Value	Units	Source
Substation equipment foundation, cut	82.44	CY	Table 3.7 Substation Cut and Fill Grading Summary
Activity duration	15	days	Table 3.9-B Substation Construction Equipment and Workforce Estimates
Daily activity level	5.5	CY/day	calculation

Table 8
Subtransmission Line Construction Emissions
Survey

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.0**
Offsite Motor Vehicle Exhaust	0.19	1.67	0.44	0.00	0.03	0.02	2.4
Offsite Motor Vehicle Fugitive PM	--	--	--	--	12.26	1.06	
Offsite Total	**0.19**	**1.67**	**0.44**	**0.00**	**12.30**	**1.09**	**2.4**
Total	**0.19**	**1.67**	**0.44**	**0.00**	**12.30**	**1.09**	**2.4**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
None				

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]
None		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
None	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
None	0.0	0.0	0.0
Total	**0.0**	**0.0**	**0.0**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
1-Ton Truck, 4x4	2	15	N/A	2
Offsite				
1-Ton Truck, 4x4	2	15	N/A	15.4
Worker Commute	4	15	N/A	60

[a] Onsite travel during survey work assumed to be 2 miles roundtrip.

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None									
Offsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Table 8
Subtransmission Line Construction Emissions
Survey

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
1-Ton Truck, 4x4	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
Worker Commute	0.15	1.38	0.13	0.00	0.02	0.01
Offsite Total	**0.19**	**1.67**	**0.44**	**0.00**	**0.03**	**0.02**
Total	**0.19**	**1.67**	**0.44**	**0.00**	**0.03**	**0.02**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
1-Ton Truck, 4x4	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
1-Ton Truck, 4x4	0.6	0.0	0.6
Worker Commute	1.8	0.0	1.8
Offsite Total	**2.4**	**0.0**	**2.4**
Total	**2.4**	**0.0**	**2.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
1-Ton Truck, 4x4							
Onsite Total						**0.00**	**0.00**
Offsite							
1-Ton Truck, 4x4	2	Paved	8.5	0.002	0.001	0.04	0.01
1-Ton Truck, 4x4	2	Unpaved - private	4.2	0.291	0.024	2.45	0.20
1-Ton Truck, 4x4	2	Unpaved - public	2.7	1.745	0.142	9.43	0.77
Worker Commute	4	Paved	60	0.001	0.000	0.35	0.09
Offsite Total						**12.26**	**1.06**
Total						**12.26**	**1.06**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.
b From Table 37
[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 9
Subtransmission Line Construction Emissions
Marshalling Yard

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.39	2.29	2.65	0.01	0.13	0.12	75.4
Onsite Motor Vehicle Exhaust	0.02	0.08	0.19	0.00	0.01	0.01	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	6.36	0.32	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.41**	**2.38**	**2.85**	**0.01**	**6.50**	**0.45**	**75.4**
Offsite Motor Vehicle Exhaust	0.15	1.38	0.13	0.00	0.02	0.01	0.0
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.35	0.09	
Offsite Total	**0.15**	**1.38**	**0.13**	**0.00**	**0.37**	**0.10**	**0.0**
Total (for 4 Marshalling Yards)	**2.23**	**15.03**	**11.92**	**0.04**	**27.49**	**2.21**	**301.51**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Rough Terrain Forklift	125	1	260	6
Boom/Crane Truck	350	1	260	2

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Rough Terrain Forklift	125	0.057	0.344	0.346	0.001	0.017	0.015	79.760	0.005	Forklift
Boom/Crane Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Cranes

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.

50 miles per hour, conservative assumption

0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Rough Terrain Forklift	0.34	2.06	2.07	0.01	0.10	0.09
Boom/Crane Truck	0.05	0.23	0.58	0.00	0.03	0.03
Total	**0.39**	**2.29**	**2.65**	**0.01**	**0.13**	**0.12**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Rough Terrain Forklift	56.4	0.0	56.5
Boom/Crane Truck	18.9	0.0	18.9
Total	**75.3**	**0.0**	**75.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
1-Ton Truck, 4x4	1	260	N/A	1
Boom/Crane Truck	1	260	N/A	1
Water Truck	1	260	N/A	10
Truck, Semi-Tractor	1	260	N/A	1
Offsite				
Worker Commute	4	260	N/A	60

[a] Onsite travel assummed to be 1 mile per day; water truck travel based on 8 hrs/day x 5 MPH x 0.25 usage factor.

[a] Offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Truck, Semi-Tractor	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Offsite									
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
1-Ton Truck, 4x4	0.00	0.01	0.01	0.00	0.00	0.00
Boom/Crane Truck	0.00	0.01	0.02	0.00	0.00	0.00
Water Truck	0.01	0.06	0.15	0.00	0.01	0.01
Truck, Semi-Tractor	0.00	0.01	0.02	0.00	0.00	0.00
Onsite Total	**0.02**	**0.08**	**0.19**	**0.00**	**0.01**	**0.01**
Worker Commute	0.15	1.38	0.13	0.00	0.02	0.01
Offsite Total	**0.15**	**1.38**	**0.13**	**0.00**	**0.02**	**0.01**
Total	**0.17**	**1.46**	**0.33**	**0.00**	**0.03**	**0.02**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Table 9
Subtransmission Line Construction Emissions
Marshalling Yard

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
1-Ton Truck, 4x4	0.3	0.0	0.0
Boom/Crane Truck	0.5	0.0	0.0
Water Truck	5.0	0.0	0.0
Truck, Semi-Tractor	0.5	0.0	0.0
Onsite Total	**6.3**	**0.0**	**0.0**
Worker Commute	31.3	0.0	0.0
Offsite Total	**31.3**	**0.0**	**0.0**
Total	**37.6**	**0.0**	**0.0**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle	PM10 Emission Factor (lb/mi)[a]	PM2.5 Emission Factor (lb/mi)[a]	PM10 Emissions (lb/day)[b]	PM2.5 Emissions (lb/day)[b]
Onsite							
1-Ton Truck, 4x4	1	Unpaved - private	1	0.291	0.024	0.29	0.02
Boom/Crane Truck	1	Unpaved - private	1	0.506	0.025	0.51	0.03
Water Truck	1	Unpaved - private	10	0.506	0.025	5.06	0.25
Truck, Semi-Tractor	1	Unpaved - private	1	0.506	0.025	0.51	0.03
Onsite Total						**6.36**	**0.32**
Offsite							
Worker Commute	4	Paved	60	0.001	0.000	0.35	0.09
Offsite Total						**0.35**	**0.09**
Total						**6.71**	**0.41**

a From Table 37

[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 10
Subtransmission Line Construction Emissions
Roads and Landing Work

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.59	7.71	10.92	0.02	0.54	0.49	34.8
Onsite Motor Vehicle Exhaust	0.00	0.01	0.02	0.00	0.00	0.00	0.1
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	7.39	1.54	
Onsite Total	**1.59**	**7.72**	**10.94**	**0.02**	**7.93**	**2.03**	**34.9**
Offsite Motor Vehicle Exhaust	0.24	1.98	0.65	0.00	0.05	0.04	8.3
Offsite Motor Vehicle Fugitive PM	--	--	--	--	13.46	0.91	
Offsite Total	**0.24**	**1.98**	**0.65**	**0.00**	**13.51**	**0.95**	**8.3**
Total	**1.83**	**9.70**	**11.59**	**0.03**	**21.44**	**2.98**	**43.2**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Backhoe/Front Loader	125	1	39	4
Track Type Dozer	150	1	39	4
Motor Grader	250	1	39	6
Drum Type Compactor	100	1	39	6
Excavator	250	1	39	4

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Backhoe/Front Loader	125	0.045	0.390	0.284	0.001	0.015	0.013	67.625	0.004	Tractors/Loaders/Backhoes
Track Type Dozer	150	0.112	0.546	0.763	0.001	0.043	0.040	86.361	0.010	Rubber Tired Dozers
Motor Grader	250	0.074	0.252	0.561	0.001	0.019	0.018	114.800	0.007	Graders
Drum Type Compactor	100	0.045	0.261	0.294	0.000	0.023	0.021	39.345	0.004	Rollers
Excavator	250	0.062	0.222	0.399	0.001	0.013	0.012	105.841	0.006	Excavators

[a] From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Backhoe/Front Loader	0.18	1.56	1.14	0.00	0.06	0.05
Track Type Dozer	0.45	2.19	3.05	0.00	0.17	0.16
Motor Grader	0.45	1.51	3.37	0.01	0.12	0.11
Drum Type Compactor	0.27	1.57	1.77	0.00	0.14	0.13
Excavator	0.25	0.89	1.60	0.00	0.05	0.05
Total	**1.59**	**7.71**	**10.92**	**0.02**	**0.54**	**0.49**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Backhoe/Front Loader	4.8	0.0	4.8
Track Type Dozer	6.1	0.0	6.1
Motor Grader	12.2	0.0	12.2
Drum Type Compactor	4.2	0.0	4.2
Excavator	7.5	0.0	7.5
Total	**34.7**	**0.0**	**34.8**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number[a]	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
Water Truck	1	39	N/A	1.5
Offsite				
Water Truck	1	39	N/A	12
1-Ton Truck, 4x4	1	39	N/A	12
Lowboy Truck/Trailer	1	39	N/A	12
Worker Commute	5	39	N/A	60

[a] Onsite truck travel based on 3 trips/day x 0.5/roundtrip

[a] Offsite travel assumed to be 12 miles per day, equal to 1/2 total distance of Segment 1 of the Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Offsite									
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						

Table 10
Subtransmission Line Construction Emissions
Roads and Landing Work

Water Truck	0.00	0.01	0.02	0.00	0.00	0.00
Onsite Total	**0.00**	**0.01**	**0.02**	**0.00**	**0.00**	**0.00**
Offsite						
Water Truck	0.02	0.07	0.18	0.00	0.01	0.01
1-Ton Truck, 4x4	0.02	0.11	0.12	0.00	0.00	0.00
Lowboy Truck/Trailer	0.02	0.07	0.18	0.00	0.01	0.01
Worker Commute	0.19	1.73	0.17	0.00	0.03	0.02
Offsite Total	**0.24**	**1.98**	**0.65**	**0.00**	**0.05**	**0.04**
Total	**0.24**	**1.99**	**0.67**	**0.00**	**0.05**	**0.04**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
Water Truck	0.1	0.0	0.1
Onsite Total	**0.1**	**0.0**	**0.1**
Offsite			
Water Truck	0.9	0.0	0.9
1-Ton Truck, 4x4	0.6	0.0	0.6
Lowboy Truck/Trailer	0.9	0.0	0.9
Worker Commute	5.9	0.0	5.9
Offsite Total	**8.3**	**0.0**	**8.3**
Total	**8.4**	**0.0**	**8.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
Water Truck	1	Paved	1.5	0.002	0.001	0.00	0.00
Onsite Total						**0.00**	**0.00**
Offsite							
Water Truck	1	Paved	7.7	0.002	0.001	0.02	0.00
1-Ton Truck, 4x4	1	Paved	7.7	0.002	0.001	0.02	0.00
Lowboy Truck/Trailer	1	Paved	7.7	0.002	0.001	0.02	0.00
1-Ton Truck, 4x4	1	Unpaved - private	1.9	0.291	0.024	0.55	0.05
Lowboy Truck/Trailer	1	Unpaved - private	1.9	0.506	0.025	0.96	0.05
1-Ton Truck, 4x4	1	Unpaved - public	2.4	1.745	0.142	4.19	0.34
Lowboy Truck/Trailer	1	Unpaved - public	2.4	3.027	0.150	7.27	0.36
Worker Commute	5	Paved	60	0.001	0.000	0.44	0.11
Offsite Total						**13.46**	**0.91**
Total						**13.46**	**0.91**

a For Segment 1 of the Proposed Project, 7.7 miles occur on paved roadways and 4.3 miles occur on unpaved roadways (2.4 miles are unpaved public roadways and 1.9 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day. No additional roads&landing work is required along the 3.4 miles associated with Segment 2 of the Proposed Project.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling[c]	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day	10	0.475	0.099	4.75	0.99
Storage Pile Wind Erosion[d]	acres	0.6	4.4	0.92	2.64	0.55
Total					**7.39**	**1.54**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

[c] Based on excavating and backfilling 8.0 acres to 1.5' depth over 14 days

[d] Based on 8.0 acres total over 14 days

Table 11
Subtransmission Line Construction Emissions
Tree Trimming and Removal

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.96	4.31	5.21	0.01	0.31	0.28	5.4
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.96**	**4.31**	**5.21**	**0.01**	**0.31**	**0.28**	**5.4**
Offsite Motor Vehicle Exhaust	0.24	1.95	0.72	0.00	0.06	0.04	2.6
Offsite Motor Vehicle Fugitive PM	--	--	--	--	13.12	1.15	
Offsite Total	**0.24**	**1.95**	**0.72**	**0.00**	**13.18**	**1.19**	**2.6**
Total	**1.20**	**6.25**	**5.92**	**0.02**	**13.49**	**1.48**	**8.0**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Manlift/Bucket Truck	250	1	12	8
Chipper	48	1	12	8
Stump Grinder	30	1	12	4

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Manlift/Bucket Truck[c]	250	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Manlifts
Chipper	48	0.063	0.282	0.241	0.000	0.016	0.015	29.359	0.006	Crushing/Proc. Equipment
Stump Grinder	30	0.063	0.282	0.241	0.000	0.016	0.015	29.359	0.006	Crushing/Proc. Equipment

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.

50 miles per hour, conservative assumption

0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Manlift/Bucket Truck	0.20	0.92	2.32	0.01	0.12	0.11
Chipper	0.51	2.26	1.92	0.00	0.13	0.12
Stump Grinder	0.25	1.13	0.96	0.00	0.06	0.06
Total	**0.96**	**4.31**	**5.21**	**0.01**	**0.31**	**0.28**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Manlift/Bucket Truck	3.5	0.0	3.5
Chipper	1.3	0.0	1.3
Stump Grinder	0.6	0.0	0.6
Total	**5.4**	**0.0**	**5.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number[a]	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
1-Ton Truck, 4x4	1	12	N/A	12
Debris Haul Truck	1	12	N/A	12
Manlift Bucket Truck	1	12	N/A	12
Worker Commute	5	12	N/A	60

[a] Onsite truck travel based on 3 trips/day x 0.5/roundtrip

[a] Offsite travel assumed to be 12 miles per day, equal to 1/2 total distance of Segment 1 of the Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Offsite									
1-Ton Truck, 4x4	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Debris Haul Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Manlift Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Truck, 4x4	0.02	0.07	0.18	0.00	0.01	0.01

Table 11
Subtransmission Line Construction Emissions
Tree Trimming and Removal

Debris Haul Truck	0.02	0.07	0.18	0.00	0.01	0.01
Manlift Bucket Truck	0.02	0.07	0.18	0.00	0.01	0.01
Worker Commute	0.19	1.73	0.17	0.00	0.03	0.02
Offsite Total	**0.24**	**1.95**	**0.72**	**0.00**	**0.06**	**0.04**
Total	**0.24**	**1.95**	**0.72**	**0.00**	**0.06**	**0.04**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
1-Ton Truck, 4x4	0.3	0.0	0.3
Debris Haul Truck	0.3	0.0	0.3
Manlift Bucket Truck	0.3	0.0	0.3
Worker Commute	1.8	0.0	1.8
Offsite Total	**2.6**	**0.0**	**2.6**
Total	**2.6**	**0.0**	**2.6**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None	0	Paved	0				
Onsite Total						**0.00**	**0.00**
Offsite							
1-Ton Truck, 4x4	1	Paved	7.7	0.002	0.001	0.02	0.00
Debris Haul Truck	1	Paved	7.7	0.001	0.000	0.01	0.00
Manlift Bucket Truck	1	Paved	7.7	0.001	0.000	0.01	0.00
1-Ton Truck, 4x4	1	Unpaved - private	1.9	0.291	0.024	0.55	0.05
Debris Haul Truck	1	Unpaved - private	1.9	1.052	0.105	2.00	0.20
Manlift Bucket Truck	1	Unpaved - private	2.4	1.052	0.105	2.53	0.20
1-Ton Truck, 4x4	1	Unpaved - public	2.4	1.052	0.105	2.53	0.20
Debris Haul Truck	1	Unpaved - public	2.4	1.052	0.105	2.53	0.20
Manlift Bucket Truck	1	Unpaved - public	2.4	1.052	0.105	2.53	0.20
Worker Commute	5	Paved	60	0.001	0.000	0.44	0.11
Offsite Total						**13.12**	**1.15**
Total						**13.12**	**1.15**

a For Segment 1 of the Proposed Project, 7.7 miles occur on paved roadways and 4.3 miles occur on unpaved roadways (2.4 miles are unpaved public roadways and 1.9 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day. No additional roads&landing work is required along the 3.4 miles associated with Segment 2 of the Proposed Project.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling[c]	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day	0	0.475	0.099	0.00	0.00
Storage Pile Wind Erosion[d]	acres	0	4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 12
Subtransmission Line Construction Emissions
Guard Structure Installation

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.70	3.67	5.91	0.01	0.32	0.30	5.4
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.70**	**3.67**	**5.91**	**0.01**	**0.32**	**0.30**	**5.4**
Offsite Motor Vehicle Exhaust	0.35	2.73	1.44	0.01	0.09	0.07	3.0
Offsite Motor Vehicle Fugitive PM	--	--	--	--	49.34	3.13	
Offsite Total	**0.35**	**2.73**	**1.44**	**0.01**	**49.43**	**3.20**	**3.0**
Total	**1.05**	**6.40**	**7.35**	**0.02**	**49.75**	**3.50**	**8.4**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	60	1	9	4
Manlift/Bucket Truck	250	1	9	4
Boom/Crane Truck	350	1	9	6
Auger Truck	210	1	9	4

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Compressor Trailer	60	0.039	0.209	0.262	0.000	0.016	0.015	42.426	0.004	Air Compressors
Manlift/Bucket Truck[c]	250	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Manlifts
Boom/Crane Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Cranes
Auger Truck	210	0.074	0.422	0.489	0.001	0.027	0.025	88.250	0.007	Drill Rigs

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.

50 miles per hour, conservative assumption

0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Compressor Trailer	0.16	0.84	1.05	0.00	0.07	0.06
Manlift/Bucket Truck	0.10	0.46	1.16	0.00	0.06	0.05
Boom/Crane Truck	0.15	0.69	1.74	0.00	0.09	0.08
Auger Truck	0.30	1.69	1.96	0.00	0.11	0.10
Total	**0.70**	**3.67**	**5.91**	**0.01**	**0.32**	**0.30**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Compressor Trailer	0.7	0.0	0.7
Manlift/Bucket Truck	1.3	0.0	1.3
Boom/Crane Truck	2.0	0.0	2.0
Auger Truck	1.4	0.0	1.4
Total	**5.4**	**0.0**	**5.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
3/4-Ton Truck, 4x4	1	9	8	15.4
1-Ton Truck, 4x4	1	9	8	15.4
Manlift/Bucket Truck	1	9	4	15.4
Boom/Crane Truck	1	9	6	15.4
Auger Truck	1	9	4	15.4
Extendable Flat Bed Pole Truck	1	9	8	15.4
Worker Commute	6	9	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Manlift/Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Auger Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Extendable Flat Bed Pole Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

Table 12
Subtransmission Line Construction Emissions
Guard Structure Installation

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.02	0.14	0.15	0.00	0.01	0.00
1-Ton Truck, 4x4	0.02	0.14	0.15	0.00	0.01	0.00
Manlift/Bucket Truck	0.02	0.09	0.24	0.00	0.01	0.01
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Auger Truck	0.02	0.09	0.24	0.00	0.01	0.01
Extendable Flat Bed Pole Truck	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.23	2.07	0.20	0.00	0.03	0.02
Offsite Total	**0.35**	**2.73**	**1.44**	**0.01**	**0.09**	**0.07**
Total	**0.35**	**2.73**	**1.44**	**0.01**	**0.09**	**0.07**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	0.2	0.0	0.2
1-Ton Truck, 4x4	0.2	0.0	0.2
Manlift/Bucket Truck	0.3	0.0	0.3
Boom/Crane Truck	0.3	0.0	0.3
Auger Truck	0.3	0.0	0.3
Extendable Flat Bed Pole Truck	0.3	0.0	0.3
Worker Commute	1.6	0.0	1.6
Offsite Total	**3.0**	**0.0**	**3.0**
Total	**3.0**	**0.0**	**3.0**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	1	Paved	8.5	0.002	0.001	0.02	0.00
1-Ton Truck, 4x4	1	Paved	8.5	0.002	0.001	0.02	0.00
Manlift/Bucket Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Boom/Crane Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Auger Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Extendable Flat Bed Pole Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
3/4-Ton Truck, 4x4	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
1-Ton Truck, 4x4	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
Manlift/Bucket Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Boom/Crane Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Auger Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Extendable Flat Bed Pole Truck	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
3/4-Ton Truck, 4x4	1	Unpaved - public	2.7	1.745	0.142	4.71	0.38
1-Ton Truck, 4x4	1	Unpaved - public	2.7	1.745	0.142	4.71	0.38
Manlift/Bucket Truck	1	Unpaved - public	2.7	3.027	0.150	8.17	0.40
Boom/Crane Truck	1	Unpaved - public	2.7	3.027	0.150	8.17	0.40
Auger Truck	1	Unpaved - public	2.7	3.027	0.150	8.17	0.40
Extendable Flat Bed Pole Truck	1	Unpaved - public	2.7	1.745	0.142	4.71	0.38
Worker Commute	6	Paved	60	0.001	0.000	0.53	0.13
Offsite Total						**49.34**	**3.13**
Total						**49.34**	**3.13**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 13
Subtransmission Line Construction Emissions
Relocate Conductor and Groundwire

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	2.15	9.37	18.89	0.05	0.80	0.73	17.8
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**2.15**	**9.37**	**18.89**	**0.05**	**0.80**	**0.73**	**17.8**
Offsite Motor Vehicle Exhaust	1.00	8.13	3.32	0.02	0.24	0.18	6.6
Offsite Motor Vehicle Fugitive PM	--	--	--	--	108.10	6.50	
Offsite Total	**1.00**	**8.13**	**3.32**	**0.02**	**108.35**	**6.68**	**6.6**
Total	**3.15**	**17.50**	**22.21**	**0.07**	**109.14**	**7.41**	**24.4**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Manlift/Bucket Truck	250	2	7	8
Boom/Crane Truck	350	2	7	8
Bull Wheel Puller	350	1	7	6
Sock Line Puller	300	1	7	6
Static Truck/Tensioner	350	1	7	6

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Manlift/Bucket Truck[c]	250	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Manlifts
Boom/Crane Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Cranes
Bull Wheel Puller	350	0.075	0.316	0.534	0.002	0.018	0.017	169.577	0.007	Other Construction Equipment
Sock Line Puller	300	0.075	0.316	0.534	0.002	0.018	0.017	169.577	0.007	Other Construction Equipment
Static Truck/Tensioner	350	0.075	0.316	0.534	0.002	0.018	0.017	169.577	0.007	Other Construction Equipment

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.

50 miles per hour, conservative assumption

0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Manlift/Bucket Truck	0.40	1.84	4.64	0.01	0.23	0.21
Boom/Crane Truck	0.40	1.84	4.64	0.01	0.23	0.21
Bull Wheel Puller	0.45	1.90	3.20	0.01	0.11	0.10
Sock Line Puller	0.45	1.90	3.20	0.01	0.11	0.10
Static Truck/Tensioner	0.45	1.90	3.20	0.01	0.11	0.10
Total	**2.15**	**9.37**	**18.89**	**0.05**	**0.80**	**0.73**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Manlift/Bucket Truck	4.1	0.0	4.1
Boom/Crane Truck	4.1	0.0	4.1
Bull Wheel Puller	3.2	0.0	3.2
Sock Line Puller	3.2	0.0	3.2
Static Truck/Tensioner	3.2	0.0	3.2
Total	**17.8**	**0.0**	**17.8**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				0
Offsite				
1-Ton Truck, 4x4	2	7	4	15.4
Manlift/Bucket Truck	2	7	8	15.4
Boom/Crane Truck	2	7	8	15.4
Bull Wheel Puller	1	7	6	15.4
Sock Line Puller	1	7	6	15.4
Static Truck/Tensioner	1	7	6	15.4
Material Handling Truck	1	7	8	15.4
Lowboy Truck/Trailer	2	7	4	15.4
Worker Commute	20	7	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Manlift/Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Bull Wheel Puller	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Sock Line Puller	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Static Truck/Tensioner	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Table 13
Subtransmission Line Construction Emissions
Relocate Conductor and Groundwire

Offsite						
1-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
Manlift/Bucket Truck	0.04	0.19	0.47	0.00	0.02	0.02
Boom/Crane Truck	0.04	0.19	0.47	0.00	0.02	0.02
Bull Wheel Puller	0.02	0.09	0.24	0.00	0.01	0.01
Sock Line Puller	0.02	0.09	0.24	0.00	0.01	0.01
Static Truck/Tensioner	0.02	0.09	0.24	0.00	0.01	0.01
Material Handling Truck	0.02	0.09	0.24	0.00	0.01	0.01
Lowboy Truck/Trailer	0.04	0.19	0.47	0.00	0.02	0.02
Worker Commute	0.76	6.91	0.67	0.01	0.11	0.07
Offsite Total	**1.00**	**8.13**	**3.32**	**0.02**	**0.24**	**0.18**
Total	**1.00**	**8.13**	**3.32**	**0.02**	**0.24**	**0.18**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
1-Ton Truck, 4x4	0.3	0.0	0.3
Manlift/Bucket Truck	0.4	0.0	0.4
Boom/Crane Truck	0.4	0.0	0.4
Bull Wheel Puller	0.2	0.0	0.2
Sock Line Puller	0.2	0.0	0.2
Static Truck/Tensioner	0.2	0.0	0.2
Material Handling Truck	0.2	0.0	0.2
Lowboy Truck/Trailer	0.4	0.0	0.4
Worker Commute	4.2	0.0	4.2
Offsite Total	**6.6**	**0.0**	**6.6**
Total	**6.6**	**0.0**	**6.6**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None	0						
Onsite Total						**0.00**	**0.00**
Offsite							
1-Ton Truck, 4x4	2	Paved	8.5	0.002	0.001	0.04	0.01
Manlift/Bucket Truck	2	Paved	8.5	0.002	0.001	0.04	0.01
Boom/Crane Truck	2	Paved	8.5	0.002	0.001	0.04	0.01
Bull Wheel Puller	1	Paved	8.5	0.002	0.001	0.02	0.00
Sock Line Puller	1	Paved	8.5	0.002	0.001	0.02	0.00
Static Truck/Tensioner	1	Paved	8.5	0.002	0.001	0.02	0.00
Material Handling Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Lowboy Truck/Trailer	2	Paved	8.5	0.002	0.001	0.04	0.01
1-Ton Truck, 4x4	2	Unpaved - private	4.2	0.291	0.024	2.45	0.20
Manlift/Bucket Truck	2	Unpaved - private	4.2	0.506	0.025	4.25	0.21
Boom/Crane Truck	2	Unpaved - private	4.2	0.506	0.025	4.25	0.21
Bull Wheel Puller	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Sock Line Puller	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
Static Truck/Tensioner	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
Material Handling Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Lowboy Truck/Trailer	2	Unpaved - private	4.2	0.506	0.025	4.25	0.21
1-Ton Truck, 4x4	2	Unpaved - public	2.7	1.745	0.142	9.43	0.77
Manlift/Bucket Truck	2	Unpaved - public	2.7	3.027	0.150	16.35	0.81
Boom/Crane Truck	2	Unpaved - public	2.7	3.027	0.150	16.35	0.81
Bull Wheel Puller	1	Unpaved - public	2.7	3.027	0.150	8.17	0.40
Sock Line Puller	1	Unpaved - public	2.7	1.745	0.142	4.71	0.38
Static Truck/Tensioner	1	Unpaved - public	2.7	1.745	0.142	4.71	0.38
Material Handling Truck	1	Unpaved - public	2.7	3.027	0.150	8.17	0.40
Lowboy Truck/Trailer	2	Unpaved - public	2.7	3.027	0.150	16.35	0.81
Worker Commute	20	Paved	60	0.001	0.000	1.76	0.43
Offsite Total						**108.10**	**6.50**
Total						**108.10**	**6.50**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 14
Subtransmission Line Construction Emissions
Existing Wood Poles and LWS Poles Removal

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.72	4.55	6.24	0.02	0.33	0.30	4.2
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.72**	**4.55**	**6.24**	**0.02**	**0.33**	**0.30**	**4.2**
Offsite Motor Vehicle Exhaust	0.33	2.64	1.21	0.01	0.08	0.06	1.9
Offsite Motor Vehicle Fugitive PM	--	--	--	--	39.02	2.62	
Offsite Total	**0.33**	**2.64**	**1.21**	**0.01**	**39.10**	**2.68**	**1.9**
Total	**1.05**	**7.19**	**7.44**	**0.02**	**39.43**	**2.98**	**6.0**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	60	1	6	4
Backhoe/Front Loader	125	1	6	6
Manlift/Bucket Truck	250	1	6	6
Boom/Crane Truck	350	1	6	6

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Compressor Trailer	60	0.039	0.209	0.262	0.000	0.016	0.015	42.426	0.004	Air Compressors
Backhoe/Front Loader	125	0.045	0.390	0.284	0.001	0.015	0.013	67.625	0.004	Tractors/Loaders/Backhoes
Manlift/Bucket Truck[c]	250	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Manlifts
Boom/Crane Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Cranes

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.

50 miles per hour, conservative assumption

0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Compressor Trailer	0.16	0.84	1.05	0.00	0.07	0.06
Backhoe/Front Loader	0.27	2.34	1.71	0.00	0.09	0.08
Manlift/Bucket Truck	0.15	0.69	1.74	0.00	0.09	0.08
Boom/Crane Truck	0.15	0.69	1.74	0.00	0.09	0.08
Total	**0.72**	**4.55**	**6.24**	**0.02**	**0.33**	**0.30**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Compressor Trailer	0.5	0.0	0.5
Backhoe/Front Loader	1.1	0.0	1.1
Manlift/Bucket Truck	1.3	0.0	1.3
Boom/Crane Truck	1.3	0.0	1.3
Total	**4.2**	**0.0**	**4.2**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
1-Ton Truck, 4x4	2	6	N/A	15.4
Manlift/Bucket Truck	1	6	N/A	15.4
Boom/Crane Truck	1	6	N/A	15.4
Flat Bed Pole Truck	1	6	N/A	15.4
Worker Commute	6	6	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None									
Offsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Manlift/Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Flat Bed Pole Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00

Table 14
Subtransmission Line Construction Emissions
Existing Wood Poles and LWS Poles Removal

Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
Manlift/Bucket Truck	0.02	0.09	0.24	0.00	0.01	0.01
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Flat Bed Pole Truck	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.23	2.07	0.20	0.00	0.03	0.02
Offsite Total	**0.33**	**2.64**	**1.21**	**0.01**	**0.08**	**0.06**
Total	**0.33**	**2.64**	**1.21**	**0.01**	**0.08**	**0.06**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
1-Ton Truck, 4x4	0.2	0.0	0.2
Manlift/Bucket Truck	0.2	0.0	0.2
Boom/Crane Truck	0.2	0.0	0.2
Flat Bed Pole Truck	0.2	0.0	0.2
Worker Commute	1.1	0.0	1.1
Offsite Total	**1.9**	**0.0**	**1.9**
Total	**1.9**	**0.0**	**1.9**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
1-Ton Truck, 4x4	2	Paved	8.5	0.002	0.001	0.04	0.01
Manlift/Bucket Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Boom/Crane Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Flat Bed Pole Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
1-Ton Truck, 4x4	2	Unpaved - private	4.2	0.291	0.024	2.45	0.20
Manlift/Bucket Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Boom/Crane Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Flat Bed Pole Truck	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
1-Ton Truck, 4x4	2	Unpaved - public	2.7	1.745	0.142	9.43	0.77
Manlift/Bucket Truck	1	Unpaved - public	2.7	3.027	0.150	8.17	0.40
Boom/Crane Truck	1	Unpaved - public	2.7	3.027	0.150	8.17	0.40
Flat Bed Pole Truck	1	Unpaved - public	2.7	1.745	0.142	4.71	0.38
Worker Commute	6	Paved	60	0.001	0.000	0.53	0.13
Offsite Total						**39.02**	**2.62**
Total						**39.02**	**2.62**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 15
Subtransmission Line Construction Emissions
Tubular Steel Pole Foundations Installation

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.96	6.02	7.54	0.02	0.40	0.37	47.3
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.13	0.03	
Onsite Total	**0.96**	**6.02**	**7.54**	**0.02**	**0.53**	**0.39**	**47.3**
Offsite Motor Vehicle Exhaust	0.55	3.59	3.82	0.01	0.21	0.17	38.1
Offsite Motor Vehicle Fugitive PM	--	--	--	--	48.08	2.76	
Offsite Total	**0.55**	**3.59**	**3.82**	**0.01**	**48.29**	**2.92**	**38.1**
Total	**1.51**	**9.61**	**11.36**	**0.03**	**48.82**	**3.32**	**85.3**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Backhoe/Front Loader	125	1	60	6
Boom/Crane Truck	350	1	60	4
Auger Truck	210	1	60	6
Concrete Mixer Truck	350	3	60	2

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Backhoe/Front Loader	125	0.045	0.390	0.284	0.001	0.015	0.013	67.625	0.004	Tractors/Loaders/Backhoes
Boom/Crane Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Cranes
Auger Truck	210	0.074	0.422	0.489	0.001	0.027	0.025	88.250	0.007	Drill Rigs
Concrete Mixer Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Concrete Mixers

[a] From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.

50 miles per hour, conservative assumption

0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Backhoe/Front Loader	0.27	2.34	1.71	0.00	0.09	0.08
Boom/Crane Truck	0.10	0.46	1.16	0.00	0.06	0.05
Auger Truck	0.44	2.53	2.93	0.01	0.16	0.15
Concrete Mixer Truck	0.15	0.69	1.74	0.00	0.09	0.08
Total	**0.96**	**6.02**	**7.54**	**0.02**	**0.40**	**0.37**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Backhoe/Front Loader	11.0	0.0	11.1
Boom/Crane Truck	8.7	0.0	8.7
Auger Truck	14.4	0.0	14.4
Concrete Mixer Truck	13.1	0.0	13.1
Total	**47.2**	**0.0**	**47.3**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number[a]	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
3/4-Ton Truck, 4x4	1	60	N/A	15.4
Boom/Crane Truck	1	60	N/A	15.4
Auger Truck	1	60	N/A	15.4
Water Truck	1	60	N/A	15.4
Dump Truck	1	60	N/A	15.4
Material Handling Truck	1	60	N/A	15.4
Concrete Mixer Truck	3	60	N/A	50
Worker Commute	6	60	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance; offsite concrete mixer truck (vendor) based on estimated 50 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None									
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Auger Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Dump Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Concrete Mixer Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

Table 15
Subtransmission Line Construction Emissions
Tubular Steel Pole Foundations Installation

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.02	0.14	0.15	0.00	0.01	0.00
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Auger Truck	0.02	0.09	0.24	0.00	0.01	0.01
Water Truck	0.02	0.09	0.24	0.00	0.01	0.01
Dump Truck	0.02	0.09	0.24	0.00	0.01	0.01
Material Handling Truck	0.02	0.09	0.24	0.00	0.01	0.01
Concrete Mixer Truck	0.20	0.91	2.29	0.01	0.12	0.09
Worker Commute	0.23	2.07	0.20	0.00	0.03	0.02
Offsite Total	**0.55**	**3.59**	**3.82**	**0.01**	**0.21**	**0.17**
Total	**0.55**	**3.59**	**3.82**	**0.01**	**0.21**	**0.17**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	1.2	0.0	1.2
Boom/Crane Truck	1.8	0.0	1.8
Auger Truck	1.8	0.0	1.8
Water Truck	1.8	0.0	1.8
Dump Truck	1.8	0.0	1.8
Material Handling Truck	1.8	0.0	1.8
Concrete Mixer Truck	17.2	0.0	17.2
Worker Commute	10.8	0.0	10.9
Offsite Total	**38.0**	**0.0**	**38.1**
Total	**38.0**	**0.0**	**38.1**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	1	Paved	8.5	0.002	0.001	0.02	0.00
Boom/Crane Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Auger Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Water Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Dump Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Material Handling Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Concrete Mixer Truck	3	Paved	50	0.002	0.001	0.31	0.08
3/4-Ton Truck, 4x4	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
Boom/Crane Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Auger Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Dump Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Material Handling Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
3/4-Ton Truck, 4x4	1	Unpaved - public	2.7	1.745	0.142	4.71	0.38
Boom/Crane Truck	1	Unpaved - public	2.7	3.027	0.150	8.17	0.40
Auger Truck	1	Unpaved - public	2.7	3.027	0.150	8.17	0.40
Dump Truck	1	Unpaved - public	2.7	3.027	0.150	8.17	0.40
Material Handling Truck	1	Unpaved - public	2.7	3.027	0.150	8.17	0.40
Worker Commute	6	Paved	60	0.001	0.000	0.53	0.13
Offsite Total						**48.08**	**2.76**
Total						**48.08**	**2.76**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling[c]	CY/day	95	1.36E-03	2.82E-04	0.13	0.03
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.13**	**0.03**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

[c] Based on excavating one foundation per day at max. 95 CY per foundation

Table 16
Subtransmission Line Construction Emissions
Tubular Steel Pole Haul

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.15	0.69	1.74	0.00	0.09	0.08	2.0
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.15**	**0.69**	**1.74**	**0.00**	**0.09**	**0.08**	**2.0**
Offsite Motor Vehicle Exhaust	0.22	1.76	0.67	0.00	0.05	0.03	1.7
Offsite Motor Vehicle Fugitive PM	--	--	--	--	22.58	1.58	
Offsite Total	**0.22**	**1.76**	**0.67**	**0.00**	**22.62**	**1.61**	**1.7**
Total	**0.37**	**2.45**	**2.41**	**0.01**	**22.71**	**1.69**	**3.7**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Boom/Crane Truck	350	1	9	6

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Boom/Crane Truck	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Cranes

[a] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.
50 miles per hour, conservative assumption
0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10
PM2.5 Fraction= 0.920
From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5
and PM 2.5 Significance Thresholds, SCAQMD, October 2006,
http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Boom/Crane Truck	0.15	0.69	1.74	0.00	0.09	0.08
Total	**0.15**	**0.69**	**1.74**	**0.00**	**0.09**	**0.08**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Boom/Crane Truck	2.0	0.0	2.0
Total	**2.0**	**0.0**	**2.0**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x
days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				0
Offsite				
3/4-Ton Truck, 4x4	1	9	N/A	15.4
Boom/Crane Truck	1	9	N/A	15.4
Flat Bed Pole Truck	1	9	N/A	15.4
Worker Commute	4	9	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance; offsite concrete mixer truck (vendor) based on estimated 50 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None									
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Flat Bed Pole Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.02	0.14	0.15	0.00	0.01	0.00
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Flat Bed Pole Truck	0.02	0.14	0.15	0.00	0.01	0.00
Worker Commute	0.15	1.38	0.13	0.00	0.02	0.01

Table 16
Subtransmission Line Construction Emissions
Tubular Steel Pole Haul

Offsite Total	**0.22**	**1.76**	**0.67**	**0.00**	**0.05**	**0.03**
Total	**0.22**	**1.76**	**0.67**	**0.00**	**0.05**	**0.03**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	0.2	0.0	0.2
Boom/Crane Truck	0.3	0.0	0.3
Flat Bed Pole Truck	0.2	0.0	0.2
Worker Commute	1.1	0.0	1.1
Offsite Total	**1.7**	**0.0**	**1.7**
Total	**1.7**	**0.0**	**1.7**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None	0						
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	1	Paved	8.5	0.002	0.001	0.02	0.00
Boom/Crane Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Flat Bed Pole Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
3/4-Ton Truck, 4x4	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
Boom/Crane Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Flat Bed Pole Truck	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
3/4-Ton Truck, 4x4	1	Unpaved - public	2.7	1.745	0.142	4.71	0.38
Boom/Crane Truck	1	Unpaved - public	2.7	3.027	0.150	8.17	0.40
Flat Bed Pole Truck	1	Unpaved - public	2.7	1.745	0.142	4.71	0.38
Worker Commute	4	Paved	60	0.001	0.000	0.35	0.09
Offsite Total						**22.58**	**1.58**
Total						**22.58**	**1.58**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 17
Subtransmission Line Construction Emissions
Tubular Steel Pole Assembly

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.43	2.17	3.90	0.01	0.22	0.20	12.2
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.43**	**2.17**	**3.90**	**0.01**	**0.22**	**0.20**	**12.2**
Offsite Motor Vehicle Exhaust	0.43	3.52	1.34	0.01	0.09	0.07	11.4
Offsite Motor Vehicle Fugitive PM	--	--	--	--	45.15	3.15	
Offsite Total	**0.43**	**3.52**	**1.34**	**0.01**	**45.25**	**3.22**	**11.4**
Total	**0.86**	**5.69**	**5.24**	**0.02**	**45.46**	**3.42**	**23.6**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	60	1	30	6
Boom/Crane Truck	350	1	30	8

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Compressor Trailer	60	0.039	0.209	0.262	0.000	0.016	0.015	42.426	0.004	Air Compressors
Boom/Crane Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Cranes

[a] From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.

50 miles per hour, conservative assumption

0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Compressor Trailer	0.23	1.25	1.57	0.00	0.10	0.09
Boom/Crane Truck	0.20	0.92	2.32	0.01	0.12	0.11
Total	**0.43**	**2.17**	**3.90**	**0.01**	**0.22**	**0.20**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Compressor Trailer	3.5	0.0	3.5
Boom/Crane Truck	8.7	0.0	8.7
Total	**12.2**	**0.0**	**12.2**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Vehicle[a]
Onsite				
None				0
Offsite				
3/4-Ton Truck, 4x4	2	30	N/A	15.4
1-Ton Truck, 4x4	2	30	N/A	15.4
Material Handling Truck	1	30	N/A	15.4
Boom/Crane Truck	1	30	N/A	15.4
Worker Commute	8	30	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance; offsite concrete mixer truck (vendor) based on estimated 50 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

[a] From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01

Table 17
Subtransmission Line Construction Emissions
Tubular Steel Pole Assembly

1-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
Material Handling Truck	0.02	0.09	0.24	0.00	0.01	0.01
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.30	2.76	0.27	0.01	0.05	0.03
Offsite Total	**0.43**	**3.52**	**1.34**	**0.01**	**0.09**	**0.07**
Total	**0.43**	**3.52**	**1.34**	**0.01**	**0.09**	**0.07**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	1.2	0.0	1.2
1-Ton Truck, 4x4	1.2	0.0	1.2
Material Handling Truck	0.9	0.0	0.9
Boom/Crane Truck	0.9	0.0	0.9
Worker Commute	7.2	0.0	7.2
Offsite Total	**11.4**	**0.0**	**11.4**
Total	**11.4**	**0.0**	**11.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None	0						
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	2	Paved	8.5	0.002	0.001	0.04	0.01
1-Ton Truck, 4x4	2	Paved	8.5	0.002	0.001	0.04	0.01
Material Handling Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Boom/Crane Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
3/4-Ton Truck, 4x4	2	Unpaved - private	4.2	0.291	0.024	2.45	0.20
1-Ton Truck, 4x4	2	Unpaved - private	4.2	0.291	0.024	2.45	0.20
Material Handling Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Boom/Crane Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
3/4-Ton Truck, 4x4	2	Unpaved - public	2.7	1.745	0.142	9.43	0.77
1-Ton Truck, 4x4	2	Unpaved - public	2.7	1.745	0.142	9.43	0.77
Material Handling Truck	1	Unpaved - public	2.7	3.027	0.150	8.17	0.40
Boom/Crane Truck	1	Unpaved - public	2.7	3.027	0.150	8.17	0.40
Worker Commute	8	Paved	60	0.001	0.000	0.70	0.17
Offsite Total						**45.15**	**3.15**
Total						**45.15**	**3.15**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 18
Subtransmission Line Construction Emissions
Tubular Steel Pole Erection

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.36	1.75	3.37	0.01	0.18	0.17	11.0
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.36**	**1.75**	**3.37**	**0.01**	**0.18**	**0.17**	**11.0**
Offsite Motor Vehicle Exhaust	0.41	3.43	1.11	0.01	0.08	0.06	10.5
Offsite Motor Vehicle Fugitive PM	--	--	--	--	34.84	2.64	
Offsite Total	**0.41**	**3.43**	**1.11**	**0.01**	**34.92**	**2.69**	**10.5**
Total	**0.77**	**5.18**	**4.48**	**0.02**	**35.10**	**2.86**	**21.5**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	60	1	30	4
Boom/Crane Truck	350	1	30	8

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Compressor Trailer	60	0.039	0.209	0.262	0.000	0.016	0.015	42.426	0.004	Air Compressors
Boom/Crane Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Cranes

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.

50 miles per hour, conservative assumption

0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Compressor Trailer	0.16	0.84	1.05	0.00	0.07	0.06
Boom/Crane Truck	0.20	0.92	2.32	0.01	0.12	0.11
Total	**0.36**	**1.75**	**3.37**	**0.01**	**0.18**	**0.17**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Compressor Trailer	2.3	0.0	2.3
Boom/Crane Truck	8.7	0.0	8.7
Total	**11.0**	**0.0**	**11.0**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				0
Offsite				
3/4-Ton Truck, 4x4	2	30	N/A	15.4
1-Ton Truck, 4x4	2	30	N/A	15.4
Boom/Crane Truck	1	30	N/A	15.4
Worker Commute	8	30	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance; offsite concrete mixer truck (vendor) based on estimated 50 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
1-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.30	2.76	0.27	0.01	0.05	0.03
Offsite Total	**0.41**	**3.43**	**1.11**	**0.01**	**0.08**	**0.06**
Total	**0.41**	**3.43**	**1.11**	**0.01**	**0.08**	**0.06**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0

Table 18
Subtransmission Line Construction Emissions
Tubular Steel Pole Erection

Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	1.2	0.0	1.2
1-Ton Truck, 4x4	1.2	0.0	1.2
Boom/Crane Truck	0.9	0.0	0.9
Worker Commute	7.2	0.0	7.2
Offsite Total	**10.5**	**0.0**	**10.5**
Total	**10.5**	**0.0**	**10.5**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None	0						
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	2	Paved	8.5	0.002	0.001	0.04	0.01
1-Ton Truck, 4x4	2	Paved	8.5	0.002	0.001	0.04	0.01
Boom/Crane Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
3/4-Ton Truck, 4x4	2	Unpaved - private	4.2	0.291	0.024	2.45	0.20
1-Ton Truck, 4x4	2	Unpaved - private	4.2	0.291	0.024	2.45	0.20
Boom/Crane Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
3/4-Ton Truck, 4x4	2	Unpaved - public	2.7	1.745	0.142	9.43	0.77
1-Ton Truck, 4x4	2	Unpaved - public	2.7	1.745	0.142	9.43	0.77
Boom/Crane Truck	1	Unpaved - public	2.7	3.027	0.150	8.17	0.40
Worker Commute	8	Paved	60	0.001	0.000	0.70	0.17
Offsite Total						**34.84**	**2.64**
Total						**34.84**	**2.64**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 19
Subtransmission Line Construction Emissions
Wood Guy Stub Pole/LWS Pole Haul

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.15	0.69	1.74	0.00	0.09	0.08	10.2
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.15**	**0.69**	**1.74**	**0.00**	**0.09**	**0.08**	**10.2**
Offsite Motor Vehicle Exhaust	0.21	1.71	0.75	0.00	0.05	0.04	9.4
Offsite Motor Vehicle Fugitive PM	--	--	--	--	22.58	1.58	
Offsite Total	**0.21**	**1.71**	**0.75**	**0.00**	**22.63**	**1.61**	**9.4**
Total	**0.36**	**2.40**	**2.49**	**0.01**	**22.72**	**1.69**	**19.6**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Boom/Crane Truck	350	1	47	6

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Boom/Crane Truck[a]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Cranes

[a] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.
50 miles per hour, conservative assumption
0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10
PM2.5 Fraction= 0.920
From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Boom/Crane Truck	0.15	0.69	1.74	0.00	0.09	0.08
Total	**0.15**	**0.69**	**1.74**	**0.00**	**0.09**	**0.08**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Boom/Crane Truck	10.2	0.0	10.2
Total	**10.2**	**0.0**	**10.2**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
3/4-Ton Truck, 4x4	1	47	N/A	15.4
Boom/Crane Truck	1	47	N/A	15.4
Flat Bed Pole Truck	1	47	N/A	15.4
Worker Commute	4	47	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance; offsite concrete mixer truck (vendor) based on estimated 50 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Flat Bed Pole Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.02	0.14	0.15	0.00	0.01	0.00
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Flat Bed Pole Truck	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.15	1.38	0.13	0.00	0.02	0.01
Offsite Total	**0.21**	**1.71**	**0.75**	**0.00**	**0.05**	**0.04**
Total	**0.21**	**1.71**	**0.75**	**0.00**	**0.05**	**0.04**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]

Table 19
Subtransmission Line Construction Emissions
Wood Guy Stub Pole/LWS Pole Haul

Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	0.9	0.0	0.9
Boom/Crane Truck	1.4	0.0	1.4
Flat Bed Pole Truck	1.4	0.0	1.4
Worker Commute	5.7	0.0	5.7
Offsite Total	**9.4**	**0.0**	**9.4**
Total	**9.4**	**0.0**	**9.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	1	Paved	8.5	0.002	0.001	0.02	0.00
Boom/Crane Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Flat Bed Pole Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
3/4-Ton Truck, 4x4	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
Boom/Crane Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Flat Bed Pole Truck	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
3/4-Ton Truck, 4x4	1	Unpaved - public	2.7	1.745	0.142	4.71	0.38
Boom/Crane Truck	1	Unpaved - public	2.7	3.027	0.150	8.17	0.40
Flat Bed Pole Truck	1	Unpaved - public	2.7	1.745	0.142	4.71	0.38
Worker Commute	4	Paved	60	0.001	0.000	0.35	0.09
Offsite Total						**22.58**	**1.58**
Total						**22.58**	**1.58**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.
b From Table 37
[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 20
Subtransmission Line Construction Emissions
Wood/LWS Pole Assembly

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.43	2.17	3.90	0.01	0.22	0.20	26.4
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.43**	**2.17**	**3.90**	**0.01**	**0.22**	**0.20**	**26.4**
Offsite Motor Vehicle Exhaust	0.43	3.52	1.34	0.01	0.09	0.07	24.7
Offsite Motor Vehicle Fugitive PM	--	--	--	--	45.15	3.15	
Offsite Total	**0.43**	**3.52**	**1.34**	**0.01**	**45.25**	**3.22**	**24.7**
Total	**0.86**	**5.69**	**5.24**	**0.02**	**45.46**	**3.42**	**51.1**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	60	1	65	6
Boom/Crane Truck	350	1	65	8

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Compressor Trailer	60	0.039	0.209	0.262	0.000	0.016	0.015	42.426	0.004	Air Compressors
Boom/Crane Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Cranes

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5
and PM 2.5 Significance Thresholds, SCAQMD, October 2006,
http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.

50 miles per hour, conservative assumption

0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Compressor Trailer	0.23	1.25	1.57	0.00	0.10	0.09
Boom/Crane Truck	0.20	0.92	2.32	0.01	0.12	0.11
Total	**0.43**	**2.17**	**3.90**	**0.01**	**0.22**	**0.20**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Compressor Trailer	7.5	0.0	7.5
Boom/Crane Truck	18.9	0.0	18.9
Total	**26.4**	**0.0**	**26.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
3/4-Ton Truck, 4x4	2	65	N/A	15.4
1-Ton Truck, 4x4	2	65	N/A	15.4
Material Handling Truck	1	65	N/A	15.4
Boom/Crane Truck	1	65	N/A	15.4
Worker Commute	8	65	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance; offsite concrete mixer truck (vendor) bsaed on estimated 50 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
1-Ton Truck, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
Material Handling Truck	0.02	0.09	0.24	0.00	0.01	0.01
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.30	2.76	0.27	0.01	0.05	0.03
Offsite Total	**0.43**	**3.52**	**1.34**	**0.01**	**0.09**	**0.07**
Total	**0.43**	**3.52**	**1.34**	**0.01**	**0.09**	**0.07**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			

Table 20
Subtransmission Line Construction Emissions
Wood/LWS Pole Assembly

None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	2.6	0.0	2.6
1-Ton Truck, 4x4	2.6	0.0	2.6
Material Handling Truck	1.9	0.0	1.9
Boom/Crane Truck	1.9	0.0	1.9
Worker Commute	15.7	0.0	15.7
Offsite Total	**24.7**	**0.0**	**24.7**
Total	**24.7**	**0.0**	**24.7**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	2	Paved	8.5	0.002	0.001	0.04	0.01
1-Ton Truck, 4x4	2	Paved	8.5	0.002	0.001	0.04	0.01
Material Handling Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Boom/Crane Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
3/4-Ton Truck, 4x4	2	Unpaved - private	4.2	0.291	0.024	2.45	0.20
1-Ton Truck, 4x4	2	Unpaved - private	4.2	0.291	0.024	2.45	0.20
Material Handling Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Boom/Crane Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
3/4-Ton Truck, 4x4	2	Unpaved - public	2.7	1.745	0.142	9.43	0.77
1-Ton Truck, 4x4	2	Unpaved - public	2.7	1.745	0.142	9.43	0.77
Material Handling Truck	1	Unpaved - public	2.7	3.027	0.150	8.17	0.40
Boom/Crane Truck	1	Unpaved - public	2.7	3.027	0.150	8.17	0.40
Worker Commute	8	Paved	60	0.001	0.000	0.70	0.17
Offsite Total						**45.15**	**3.15**
Total						**45.15**	**3.15**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 21
Subtransmission Line Construction Emissions
Install Wood/Wood Guy Stub Pole/LWS Pole

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.95	6.19	7.71	0.02	0.40	0.37	58.9
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.02	0.00	
Onsite Total	**0.95**	**6.19**	**7.71**	**0.02**	**0.42**	**0.37**	**58.9**
Offsite Motor Vehicle Exhaust	0.35	2.68	1.53	0.01	0.10	0.08	24.3
Offsite Motor Vehicle Fugitive PM	--	--	--	--	53.70	3.16	
Offsite Total	**0.35**	**2.68**	**1.53**	**0.01**	**53.80**	**3.24**	**24.3**
Total	**1.30**	**8.87**	**9.24**	**0.03**	**54.22**	**3.61**	**83.2**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Backhoe/Front Loader	125	1	70	8
Manlift/Bucket Truck	250	1	70	6
Boom/Crane Truck	350	1	70	6
Auger Truck	210	1	70	4

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Backhoe/Front Loader	125	0.045	0.390	0.284	0.001	0.015	0.013	67.625	0.004	Tractors/Loaders/Backhoes
Manlift/Bucket Truck[c]	250	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Manlifts
Boom/Crane Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Cranes
Auger Truck	210	0.074	0.422	0.489	0.001	0.027	0.025	88.250	0.007	Drill Rigs

[a] From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.

50 miles per hour, conservative assumption

0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Backhoe/Front Loader	0.36	3.12	2.28	0.01	0.12	0.11
Manlift/Bucket Truck	0.15	0.69	1.74	0.00	0.09	0.08
Boom/Crane Truck	0.15	0.69	1.74	0.00	0.09	0.08
Auger Truck	0.30	1.69	1.96	0.00	0.11	0.10
Total	**0.95**	**6.19**	**7.71**	**0.02**	**0.40**	**0.37**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Backhoe/Front Loader	17.2	1.0E-03	17.2
Manlift/Bucket Truck	15.2	2.2E-04	15.2
Boom/Crane Truck	15.2	2.2E-04	15.2
Auger Truck	11.2	8.5E-04	11.2
Total	**58.8**	**0.0**	**58.9**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
1-Ton Truck, 4x4	1	70	N/A	15.4
Manlift/Bucket Truck	1	70	N/A	15.4
Boom/Crane Truck	1	70	N/A	15.4
Auger Truck	1	70	N/A	15.4
Material Handling Truck	1	70	N/A	15.4
Extendable Flat Bed Pole Truck	1	70	N/A	15.4
Worker Commute	6	70	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance; offsite concrete mixer truck (vendor) bsaed on estimated 50 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Manlift/Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Auger Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Extendable Flat Bed Pole Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

[a] From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Truck, 4x4	0.02	0.14	0.15	0.00	0.01	0.00
Manlift/Bucket Truck	0.02	0.09	0.24	0.00	0.01	0.01
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Auger Truck	0.02	0.09	0.24	0.00	0.01	0.01
Material Handling Truck	0.02	0.09	0.24	0.00	0.01	0.01
Extendable Flat Bed Pole Truck	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.23	2.07	0.20	0.00	0.03	0.02

Table 21
Subtransmission Line Construction Emissions
Install Wood/Wood Guy Stub Pole/LWS Pole

Offsite Total	**0.35**	**2.68**	**1.53**	**0.01**	**0.10**	**0.08**
Total	**0.35**	**2.68**	**1.53**	**0.01**	**0.10**	**0.08**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
1-Ton Truck, 4x4	1.4	0.0	1.4
Manlift/Bucket Truck	2.1	0.0	2.1
Boom/Crane Truck	2.1	0.0	2.1
Auger Truck	2.1	0.0	2.1
Material Handling Truck	2.1	0.0	2.1
Extendable Flat Bed Pole Truck	2.1	0.0	2.1
Worker Commute	12.7	0.0	12.7
Offsite Total	**24.3**	**0.0**	**24.3**
Total	**24.3**	**0.0**	**24.3**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
1-Ton Truck, 4x4	1	Paved	8.5	0.002	0.001	0.02	0.00
Manlift/Bucket Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Boom/Crane Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Auger Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Material Handling Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Extendable Flat Bed Pole Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
1-Ton Truck, 4x4	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
Manlift/Bucket Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Boom/Crane Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Auger Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Material Handling Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Extendable Flat Bed Pole Truck	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
1-Ton Truck, 4x4	1	Unpaved - public	2.7	1.745	0.142	4.71	0.38
Manlift/Bucket Truck	1	Unpaved - public	2.7	3.027	0.150	8.17	0.40
Boom/Crane Truck	1	Unpaved - public	2.7	3.027	0.150	8.17	0.40
Auger Truck	1	Unpaved - public	2.7	3.027	0.150	8.17	0.40
Material Handling Truck	1	Unpaved - public	2.7	3.027	0.150	8.17	0.40
Extendable Flat Bed Pole Truck	1	Unpaved - public	2.7	1.745	0.142	4.71	0.38
Worker Commute	6	Paved	60	0.001	0.000	0.53	0.13
Offsite Total						**53.70**	**3.16**
Total						**53.70**	**3.16**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day	14	1.36E-03	2.82E-04	0.02	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.02**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

[c] Based on excavating 3.5 ft. diameter x 10 ft. deep per pole x 274 poles = 976 CY over 69 days

Table 22
Subtransmission Line Construction Emissions
Reconfigure Existing Structures

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.43	2.17	3.90	0.01	0.22	0.20	5.3
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.43**	**2.17**	**3.90**	**0.01**	**0.22**	**0.20**	**5.3**
Offsite Motor Vehicle Exhaust	0.86	7.50	1.50	0.02	0.15	0.10	9.2
Offsite Motor Vehicle Fugitive PM	--	--	--	--	37.28	2.81	
Offsite Total	**0.86**	**7.50**	**1.50**	**0.02**	**37.43**	**2.92**	**9.2**
Total	**1.29**	**9.67**	**5.40**	**0.02**	**37.65**	**3.12**	**14.5**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	60	1	13	6
Boom/Crane Truck	350	1	13	8

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Compressor Trailer	60	0.039	0.209	0.262	0.000	0.016	0.015	42.426	0.004	Air Compressors
Boom/Crane Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Cranes

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.

50 miles per hour, conservative assumption

0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Compressor Trailer	0.23	1.25	1.57	0.00	0.10	0.09
Boom/Crane Truck	0.20	0.92	2.32	0.01	0.12	0.11
Total	**0.43**	**2.17**	**3.90**	**0.01**	**0.22**	**0.20**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Compressor Trailer	1.5	0.0	1.5
Boom/Crane Truck	3.8	0.0	3.8
Total	**5.3**	**0.0**	**5.3**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				0
Offsite				
3/4-Ton Truck, 4x4	2	13	N/A	12
1-Ton Truck, 4x4	2	13	N/A	12
Material Handling Truck	1	13	N/A	12
Boom/Crane Truck	1	13	N/A	12
Worker Commute	20	13	N/A	60

[a] Offsite travel assumed to be 12 miles per day, equal to 1/2 total distance of Segment 1 of the Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.03	0.22	0.24	0.00	0.01	0.01
1-Ton Truck, 4x4	0.03	0.22	0.24	0.00	0.01	0.01
Material Handling Truck	0.02	0.07	0.18	0.00	0.01	0.01
Boom/Crane Truck	0.02	0.07	0.18	0.00	0.01	0.01
Worker Commute	0.76	6.91	0.67	0.01	0.11	0.07
Offsite Total	**0.86**	**7.50**	**1.50**	**0.02**	**0.15**	**0.10**
Total	**0.86**	**7.50**	**1.50**	**0.02**	**0.15**	**0.10**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 22
Subtransmission Line Construction Emissions
Reconfigure Existing Structures

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	0.4	0.0	0.4
1-Ton Truck, 4x4	0.4	0.0	0.4
Material Handling Truck	0.3	0.0	0.3
Boom/Crane Truck	0.3	0.0	0.3
Worker Commute	7.8	0.0	7.8
Offsite Total	**9.2**	**0.0**	**9.2**
Total	**9.2**	**0.0**	**9.2**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None	0						
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	2	Paved	7.7	0.002	0.001	0.03	0.01
1-Ton Truck, 4x4	2	Paved	7.7	0.002	0.001	0.03	0.01
Material Handling Truck	1	Paved	7.7	0.002	0.001	0.02	0.00
Boom/Crane Truck	1	Paved	7.7	0.002	0.001	0.02	0.00
3/4-Ton Truck, 4x4	2	Unpaved - private	1.9	0.291	0.024	1.11	0.09
1-Ton Truck, 4x4	2	Unpaved - private	1.9	0.291	0.024	1.11	0.09
Material Handling Truck	1	Unpaved - private	1.9	0.506	0.025	0.96	0.05
Boom/Crane Truck	1	Unpaved - private	1.9	0.506	0.025	0.96	0.05
3/4-Ton Truck, 4x4	2	Unpaved - public	2.4	1.745	0.142	8.38	0.68
1-Ton Truck, 4x4	2	Unpaved - public	2.4	1.745	0.142	8.38	0.68
Material Handling Truck	1	Unpaved - public	2.4	3.027	0.150	7.27	0.36
Boom/Crane Truck	1	Unpaved - public	2.4	3.027	0.150	7.27	0.36
Worker Commute	20	Paved	60	0.001	0.000	1.76	0.43
Offsite Total						**37.28**	**2.81**
Total						**37.28**	**2.81**

a For Segment 1 of the Proposed Project, 7.7 miles occur on paved roadways and 4.3 miles occur on unpaved roadways (2.4 miles are unpaved public roadways and 1.9 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day. Existing structures would not be reconfigured along Segment 2 of the Proposed Project.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 23
Subtransmission Line Construction Emissions
Install Conductor & GW

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	3.54	15.79	30.51	0.09	1.28	1.18	308.4
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**3.54**	**15.79**	**30.51**	**0.09**	**1.28**	**1.18**	**308.4**
Offsite Motor Vehicle Exhaust	0.92	8.35	0.92	0.02	0.14	0.09	55.4
Offsite Motor Vehicle Fugitive PM	--	--	--	--	10.62	1.02	
Offsite Total	**0.92**	**8.35**	**0.92**	**0.02**	**10.76**	**1.11**	**55.4**
Total	**4.46**	**24.13**	**31.43**	**0.10**	**12.04**	**2.29**	**363.8**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Backhoe/Front Loader	125	1	75	2
Manlift/Bucket Truck	250	4	75	8
Boom/Crane Truck	350	1	75	8
Boom Truck (guard)	350	4	75	2
Wire Truck/Trailer	350	2	75	6
Sock Line Puller	300	1	75	6
Bull Wheel Puller	350	1	75	6
Static Truck/Tensioner	350	1	75	6

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Backhoe/Front Loader	125	0.045	0.390	0.284	0.001	0.015	0.013	67.625	0.004	Tractors/Loaders/Backhoes
Manlift/Bucket Truck[c]	250	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Manlifts
Boom/Crane Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Cranes
Boom Truck (guard)[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Cranes
Wire Truck/Trailer	350	0.075	0.316	0.534	0.002	0.018	0.017	169.577	0.007	Other Construction Equipment
Sock Line Puller	300	0.075	0.316	0.534	0.002	0.018	0.017	169.577	0.007	Other Construction Equipment
Bull Wheel Puller	350	0.075	0.316	0.534	0.002	0.018	0.017	169.577	0.007	Other Construction Equipment
Static Truck/Tensioner	350	0.075	0.316	0.534	0.002	0.018	0.017	169.577	0.007	Other Construction Equipment

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5
and PM 2.5 Significance Thresholds, SCAQMD, October 2006,
http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.

50 miles per hour, conservative assumption

0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Backhoe/Front Loader	0.09	0.78	0.57	0.00	0.03	0.03
Manlift/Bucket Truck	0.80	3.68	9.28	0.02	0.47	0.43
Boom/Crane Truck	0.20	0.92	2.32	0.01	0.12	0.11

Table 23
Subtransmission Line Construction Emissions
Install Conductor & GW

Boom Truck (guard)	0.20	0.92	2.32	0.01	0.12	0.11
Wire Truck/Trailer	0.90	3.80	6.41	0.02	0.22	0.20
Sock Line Puller	0.45	1.90	3.20	0.01	0.11	0.10
Bull Wheel Puller	0.45	1.90	3.20	0.01	0.11	0.10
Static Truck/Tensioner	0.45	1.90	3.20	0.01	0.11	0.10
Total	**3.54**	**15.79**	**30.51**	**0.09**	**1.28**	**1.18**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Backhoe/Front Loader	4.6	0.0	4.6
Manlift/Bucket Truck	87.0	0.0	87.1
Boom/Crane Truck	21.8	0.0	21.8
Boom Truck (guard)	21.8	0.0	21.8
Wire Truck/Trailer	69.2	0.0	69.3
Sock Line Puller	34.6	0.0	34.6
Bull Wheel Puller	34.6	0.0	34.6
Static Truck/Tensioner	34.6	0.0	34.6
Total	**308.2**	**0.0**	**308.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				0
Offsite				
1-Ton Truck, 4x4	3	75	4	0.4
Manlift/Bucket Truck	4	75	8	0.4
Boom/Crane Truck	1	75	8	0.4
Boom Truck (guard)	4	75	2	0.4
Dump Truck	1	75	2	0.4
Wire Truck/Trailer	2	75	6	0.4
Sock Line Puller	1	75	6	0.4
Bull Wheel Puller	1	75	6	0.4
Static Truck/Tensioner	1	75	6	0.4
Material Handling Truck	1	75	8	0.4
Lowboy Truck/Trailer	2	75	4	0.4
Worker Commute	24	75	N/A	60

[a] Offsite travel assumed to be 0.2 miles per day x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 23
Subtransmission Line Construction Emissions
Install Conductor & GW

Offsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Manlift/Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom Truck (guard)	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Dump Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Wire Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Sock Line Puller	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Bull Wheel Puller	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Static Truck/Tensioner	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Truck, 4x4	0.00	0.01	0.01	0.00	0.00	0.00
Manlift/Bucket Truck	0.00	0.01	0.02	0.00	0.00	0.00
Boom/Crane Truck	0.00	0.00	0.01	0.00	0.00	0.00
Boom Truck (guard)	0.00	0.01	0.02	0.00	0.00	0.00
Dump Truck	0.00	0.00	0.01	0.00	0.00	0.00
Wire Truck/Trailer	0.00	0.00	0.01	0.00	0.00	0.00
Sock Line Puller	0.00	0.00	0.01	0.00	0.00	0.00
Bull Wheel Puller	0.00	0.00	0.01	0.00	0.00	0.00
Static Truck/Tensioner	0.00	0.00	0.01	0.00	0.00	0.00
Material Handling Truck	0.00	0.00	0.01	0.00	0.00	0.00
Lowboy Truck/Trailer	0.00	0.00	0.01	0.00	0.00	0.00
Worker Commute	0.91	8.29	0.80	0.02	0.14	0.09
Offsite Total	**0.92**	**8.35**	**0.92**	**0.02**	**0.14**	**0.09**
Total	**0.92**	**8.35**	**0.92**	**0.02**	**0.14**	**0.09**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
1-Ton Truck, 4x4	0.1	0.0	0.1
Manlift/Bucket Truck	0.2	0.0	0.2
Boom/Crane Truck	0.1	0.0	0.1
Boom Truck (guard)	0.2	0.0	0.2
Dump Truck	0.1	0.0	0.1
Wire Truck/Trailer	0.1	0.0	0.1
Sock Line Puller	0.1	0.0	0.1
Bull Wheel Puller	0.1	0.0	0.1

Table 23
Subtransmission Line Construction Emissions
Install Conductor & GW

Static Truck/Tensioner	0.1	0.0	0.1
Material Handling Truck	0.1	0.0	0.1
Lowboy Truck/Trailer	0.1	0.0	0.1
Worker Commute	54.2	0.0	54.3
Offsite Total	**55.4**	**0.0**	**55.4**
Total	**55.4**	**0.0**	**55.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x
days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None	0						
Onsite Total						**0.00**	**0.00**
Offsite							
1-Ton Truck, 4x4	3	Paved	0.2	0.002	0.001	0.00	0.00
Manlift/Bucket Truck	4	Paved	0.2	0.002	0.001	0.00	0.00
Boom/Crane Truck	1	Paved	0.2	0.002	0.001	0.00	0.00
Boom Truck (guard)	4	Paved	0.2	0.001	0.000	0.00	0.00
Dump Truck	1	Paved	0.2	0.002	0.001	0.00	0.00
Wire Truck/Trailer	2	Paved	0.2	0.002	0.001	0.00	0.00
Sock Line Puller	1	Paved	0.2	0.002	0.001	0.00	0.00
Bull Wheel Puller	1	Paved	0.2	0.002	0.001	0.00	0.00
Static Truck/Tensioner	1	Paved	0.2	0.002	0.001	0.00	0.00
Material Handling Truck	1	Paved	0.2	0.002	0.001	0.00	0.00
Lowboy Truck/Trailer	2	Paved	0.2	0.002	0.001	0.00	0.00
1-Ton Truck, 4x4	3	Unpaved - public	0.2	1.745	0.142	1.05	0.09
Manlift/Bucket Truck	4	Unpaved - public	0.2	3.027	0.150	2.42	0.12
Boom/Crane Truck	1	Unpaved - public	0.2	3.027	0.150	0.61	0.03
Boom Truck (guard)							
Dump Truck	1	Unpaved - public	0.2	3.027	0.150	0.61	0.03
Wire Truck/Trailer	2	Unpaved - public	0.2	1.745	0.142	0.70	0.06
Sock Line Puller	1	Unpaved - public	0.2	1.745	0.142	0.35	0.03
Bull Wheel Puller	1	Unpaved - public	0.2	3.027	0.150	0.61	0.03
Static Truck/Tensioner	1	Unpaved - public	0.2	1.745	0.142	0.35	0.03
Material Handling Truck	1	Unpaved - public	0.2	3.027	0.150	0.61	0.03
Lowboy Truck/Trailer	2	Unpaved - public	0.2	3.027	0.150	1.21	0.06
Worker Commute	24	Paved	60	0.001	0.000	2.11	0.52
Offsite Total						**10.62**	**1.02**
Total						**10.62**	**1.02**

[a] Assumes distance travelled on unpaved roadways is 1/2 total distance (0.2 miles/day) x two trips per day

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Table 23
Subtransmission Line Construction Emissions
Install Conductor & GW

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 24
Subtransmission Line Construction Emissions
Guard Structure Removal

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.49	2.76	4.52	0.01	0.24	0.22	4.5
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.49**	**2.76**	**4.52**	**0.01**	**0.24**	**0.22**	**4.5**
Offsite Motor Vehicle Exhaust	0.33	2.64	1.21	0.01	0.08	0.06	2.8
Offsite Motor Vehicle Fugitive PM	--	--	--	--	39.02	2.62	
Offsite Total	**0.33**	**2.64**	**1.21**	**0.01**	**39.10**	**2.68**	**2.8**
Total	**0.83**	**5.40**	**5.73**	**0.02**	**39.35**	**2.90**	**7.3**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	60	1	9	4
Backhoe/Front Loader	125	1	9	2
Manlift/Bucket Truck	250	1	9	4
Boom/Crane Truck	350	1	9	6

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Compressor Trailer	60	0.039	0.209	0.262	0.000	0.016	0.015	42.426	0.004	Air Compressors
Backhoe/Front Loader	125	0.045	0.390	0.284	0.001	0.015	0.013	67.625	0.004	Tractors/Loaders/Backhoes
Manlift/Bucket Truck[c]	250	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Manlifts
Boom/Crane Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Cranes

[a] From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.

50 miles per hour, conservative assumption

0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Compressor Trailer	0.16	0.84	1.05	0.00	0.07	0.06
Backhoe/Front Loader	0.09	0.78	0.57	0.00	0.03	0.03
Manlift/Bucket Truck	0.10	0.46	1.16	0.00	0.06	0.05
Boom/Crane Truck	0.15	0.69	1.74	0.00	0.09	0.08
Total	**0.49**	**2.76**	**4.52**	**0.01**	**0.24**	**0.22**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Compressor Trailer	0.7	0.0	0.7
Backhoe/Front Loader	0.6	0.0	0.6
Manlift/Bucket Truck	1.3	0.0	1.3
Boom/Crane Truck	2.0	0.0	2.0
Total	**4.5**	**0.0**	**4.5**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
3/4-Ton Truck, 4x4	1	9	N/A	15.4
1-Ton Truck, 4x4	1	9	N/A	15.4
Manlift/Bucket Truck	1	9	N/A	15.4
Boom/Crane Truck	1	9	N/A	15.4
Extendable Flat Bed Pole Truck	1	9	N/A	15.4
Worker Commute	6	9	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite									
3/4-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Manlift/Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Extendable Flat Bed Pole Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
3/4-Ton Truck, 4x4	0.02	0.14	0.15	0.00	0.01	0.00
1-Ton Truck, 4x4	0.02	0.14	0.15	0.00	0.01	0.00
Manlift/Bucket Truck	0.02	0.09	0.24	0.00	0.01	0.01
Boom/Crane Truck	0.02	0.09	0.24	0.00	0.01	0.01
Extendable Flat Bed Pole Truck	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.23	2.07	0.20	0.00	0.03	0.02
Offsite Total	**0.33**	**2.64**	**1.21**	**0.01**	**0.08**	**0.06**
Total	**0.33**	**2.64**	**1.21**	**0.01**	**0.08**	**0.06**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 24
Subtransmission Line Construction Emissions
Guard Structure Removal

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
3/4-Ton Truck, 4x4	0.2	0.0	0.2
1-Ton Truck, 4x4	0.2	0.0	0.2
Manlift/Bucket Truck	0.3	0.0	0.3
Boom/Crane Truck	0.3	0.0	0.3
Extendable Flat Bed Pole Truck	0.3	0.0	0.3
Worker Commute	1.6	0.0	1.6
Offsite Total	**2.8**	**0.0**	**2.8**
Total	**2.8**	**0.0**	**2.8**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
3/4-Ton Truck, 4x4	1	Paved	8.5	0.002	0.001	0.02	0.00
1-Ton Truck, 4x4	1	Paved	8.5	0.002	0.001	0.02	0.00
Manlift/Bucket Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Boom/Crane Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Extendable Flat Bed Pole Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
3/4-Ton Truck, 4x4	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
1-Ton Truck, 4x4	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
Manlift/Bucket Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Boom/Crane Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Extendable Flat Bed Pole Truck	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
3/4-Ton Truck, 4x4	1	Unpaved - public	2.7	1.745	0.142	4.71	0.38
1-Ton Truck, 4x4	1	Unpaved - public	2.7	1.745	0.142	4.71	0.38
Manlift/Bucket Truck	1	Unpaved - public	2.7	3.027	0.150	8.17	0.40
Boom/Crane Truck	1	Unpaved - public	2.7	3.027	0.150	8.17	0.40
Extendable Flat Bed Pole Truck	1	Unpaved - public	2.7	1.745	0.142	4.71	0.38
Worker Commute	6	Paved	60	0.001	0.000	0.53	0.13
Offsite Total						**39.02**	**2.62**
Total						**39.02**	**2.62**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 25
Subtransmission Line Construction Emissions
Restoration

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.81	4.12	5.68	0.01	0.26	0.24	7.6
Onsite Motor Vehicle Exhaust	0.00	0.01	0.02	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.51	0.03	
Earthwork Fugitive PM	--	--	--	--	2.85	0.59	
Onsite Total	**0.81**	**4.12**	**5.70**	**0.01**	**3.62**	**0.86**	**7.6**
Offsite Motor Vehicle Exhaust	0.35	2.89	1.01	0.01	0.08	0.05	4.6
Offsite Motor Vehicle Fugitive PM	--	--	--	--	33.16	2.15	
Offsite Total	**0.35**	**2.89**	**1.01**	**0.01**	**33.23**	**2.21**	**4.6**
Total	**1.16**	**7.01**	**6.70**	**0.02**	**36.85**	**3.07**	**12.3**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Backhoe/Front Loader	125	1	15	4
Motor Grader	250	1	15	6
Drum Type Compactor	100	1	15	4

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Backhoe/Front Loader	125	0.045	0.390	0.284	0.001	0.015	0.013	67.625	0.004	Tractors/Loaders/Backhoes
Motor Grader	250	0.074	0.252	0.561	0.001	0.019	0.018	114.800	0.007	Graders
Drum Type Compactor	100	0.045	0.261	0.294	0.000	0.023	0.021	39.345	0.004	Rollers

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Backhoe/Front Loader	0.18	1.56	1.14	0.00	0.06	0.05
Motor Grader	0.45	1.51	3.37	0.01	0.12	0.11
Drum Type Compactor	0.18	1.05	1.18	0.00	0.09	0.08
Total	**0.81**	**4.12**	**5.68**	**0.01**	**0.26**	**0.24**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Backhoe/Front Loader	1.8	0.0	1.8
Motor Grader	4.7	0.0	4.7
Drum Type Compactor	1.1	0.0	1.1
Total	**7.6**	**0.0**	**7.6**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
Water Truck	1	15	2	1
Offsite				
1-Ton Crew Cab, 4x4	2	15	4	15.4
Water Truck	1	15	6	15.4
Lowboy Truck/Trailer	1	15	4	15.4
Worker Commute	7	15	N/A	60

[a] Onsite travel assumed to be 1 mile per day

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance; offsite concrete mixer truck (vendor) bsaed on estimated 50 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Offsite									
1-Ton Crew Cab, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
Water Truck	0.00	0.01	0.02	0.00	0.00	0.00
Onsite Total	**0.00**	**0.01**	**0.02**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Crew Cab, 4x4	0.04	0.28	0.30	0.00	0.01	0.01
Water Truck	0.02	0.09	0.24	0.00	0.01	0.01
Lowboy Truck/Trailer	0.02	0.09	0.24	0.00	0.01	0.01
Worker Commute	0.27	2.42	0.23	0.00	0.04	0.03
Offsite Total	**0.35**	**2.89**	**1.01**	**0.01**	**0.08**	**0.05**
Total	**0.35**	**2.90**	**1.02**	**0.01**	**0.08**	**0.06**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
Water Truck	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
1-Ton Crew Cab, 4x4	0.6	0.0	0.6
Water Truck	0.4	0.0	0.4
Lowboy Truck/Trailer	0.4	0.0	0.4
Worker Commute	3.2	0.0	3.2

Table 25
Subtransmission Line Construction Emissions
Restoration

Offsite Total	**4.6**	**0.0**	**4.6**
Total	**4.7**	**0.0**	**4.7**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
Water Truck	1	Unpaved - private	1	0.506	0.025	0.51	0.03
Onsite Total						**0.51**	**0.03**
Offsite							
1-Ton Crew Cab, 4x4	2	Paved	8.5	0.002	0.001	0.04	0.01
Water Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Lowboy Truck/Trailer	1	Paved	8.5	0.002	0.001	0.02	0.00
1-Ton Crew Cab, 4x4	2	Unpaved - private	4.2	0.291	0.024	2.45	0.20
Water Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Lowboy Truck/Trailer	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
1-Ton Crew Cab, 4x4	2	Unpaved - public	2.7	1.745	0.142	9.43	0.77
Water Truck	1	Unpaved - public	2.7	3.027	0.150	8.17	0.40
Lowboy Truck/Trailer	1	Unpaved - public	2.7	3.027	0.150	8.17	0.40
Worker Commute	7	Paved	60	0.001	0.000	0.62	0.15
Offsite Total						**33.16**	**2.15**
Total						**33.66**	**2.18**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day	6	0.475	0.099	2.85	0.59
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**2.85**	**0.59**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 26
Subtransmission Line Construction Emissions
Vault Installation

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.36	6.77	9.91	0.02	0.41	0.38	9.7
Onsite Motor Vehicle Exhaust	0.01	0.06	0.09	0.00	0.00	0.00	0.1
Onsite Motor Vehicle Fugitive PM	--	--	--	--	3.13	0.18	
Earthwork Fugitive PM	--	--	--	--	0.07	0.01	
Onsite Total	**1.37**	**6.83**	**10.01**	**0.03**	**3.61**	**0.58**	**9.8**
Offsite Motor Vehicle Exhaust	0.49	3.38	3.09	0.01	0.18	0.14	4.9
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.95	0.23	
Offsite Total	**0.49**	**3.38**	**3.09**	**0.01**	**1.12**	**0.37**	**4.9**
Total	**1.86**	**10.21**	**13.09**	**0.04**	**4.73**	**0.95**	**14.7**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Backhoe/Front Loader	125	1	9	8
Excavator	250	1	9	6
Crane (L)	500	1	9	6
Concrete Mixer Truck	350	3	9	2

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Backhoe/Front Loader	125	0.045	0.390	0.284	0.001	0.015	0.013	67.625	0.004	Tractors/Loaders/Backhoes
Excavator	250	0.062	0.222	0.399	0.001	0.013	0.012	105.841	0.006	Excavators
Crane (L)	500	0.080	0.272	0.584	0.001	0.021	0.019	120.128	0.007	Cranes
Concrete Mixer Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Concrete Mixers

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10
PM2.5 Fraction= 0.920
From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.
50 miles per hour, conservative assumption
0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Backhoe/Front Loader	0.36	3.12	2.28	0.01	0.12	0.11
Excavator	0.37	1.33	2.39	0.01	0.08	0.07
Crane (L)	0.48	1.63	3.50	0.01	0.13	0.12
Concrete Mixer Truck	0.15	0.69	1.74	0.00	0.09	0.08
Total	**1.36**	**6.77**	**9.91**	**0.02**	**0.41**	**0.38**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Backhoe/Front Loader	2.2	0.0	2.2
Excavator	2.6	0.0	2.6
Crane (L)	2.9	0.0	2.9
Concrete Mixer Truck	2.0	0.0	2.0
Total	**9.7**	**0.0**	**9.7**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
1-Ton Truck, 4x4	2	9	N/A	0.6
Dump Truck	2	9	N/A	0.6
Water Truck	1	9	N/A	0.6
Concrete Mixer Truck	3	9	N/A	0.6
Lowboy Truck/Trailer	1	9	N/A	0.6
Material Handling Truck	1	9	N/A	0.6
Flat Bed Truck/Trailer	3	9	N/A	0.6
Offsite				
1-Ton Truck, 4x4	2	9	N/A	5
Dump Truck	2	9	N/A	5
Water Truck	1	9	N/A	5
Concrete Mixer Truck	3	9	N/A	50
Lowboy Truck/Trailer	1	9	N/A	5
Material Handling Truck	1	9	N/A	5
Flat Bed Truck/Trailer	3	9	N/A	5
Worker Commute	6	9	N/A	60

[a] Assumes onsite vehicle miles travelled would occur on unpaved areas based on length of underground subtransmission line (1,500 ft) x two trips per day during vault installation (3000 ft / 5,280 ft/mile = 0.6 miles/day).

[a] Offsite truck travel based on location of Staging Area 1 (0.25 miles from Valley Substation) and up to 10 haul trips per day; offsite worker commute based on estimated 60 mile roundtrip distance.

VMT estimation basis:	Value	Units	Basis
	0.5	miles/roundtrip/haul truck	Based on roundtrip distance from Valley Substation to Staging Area 1
	10	roundtrips/day/haul truck	Assumption
	5	miles/day/haul truck	Calculation
	50	miles/roundtrip/vendor trip	Vendor roundtrip distance, assumption
	60	miles/roundtrip/worker commute	Assumption

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Dump Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Concrete Mixer Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Material Handling Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Flat Bed Truck/Trailer	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Offsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Dump Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Concrete Mixer Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05

Table 26
Subtransmission Line Construction Emissions
Vault Installation

Material Handling Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Flat Bed Truck/Trailer	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
1-Ton Truck, 4x4	0.00	0.01	0.01	0.00	0.00	0.00
Dump Truck	0.00	0.01	0.02	0.00	0.00	0.00
Water Truck	0.00	0.00	0.01	0.00	0.00	0.00
Concrete Mixer Truck	0.00	0.01	0.03	0.00	0.00	0.00
Lowboy Truck/Trailer	0.00	0.00	0.01	0.00	0.00	0.00
Material Handling Truck	0.00	0.01	0.01	0.00	0.00	0.00
Flat Bed Truck/Trailer	0.00	0.02	0.02	0.00	0.00	0.00
Onsite Total	**0.01**	**0.06**	**0.09**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Truck, 4x4	0.01	0.09	0.10	0.00	0.00	0.00
Dump Truck	0.01	0.06	0.15	0.00	0.01	0.01
Water Truck	0.01	0.03	0.08	0.00	0.00	0.00
Concrete Mixer Truck	0.20	0.91	2.29	0.01	0.12	0.09
Lowboy Truck/Trailer	0.01	0.03	0.08	0.00	0.00	0.00
Material Handling Truck	0.01	0.05	0.05	0.00	0.00	0.00
Flat Bed Truck/Trailer	0.02	0.14	0.15	0.00	0.01	0.00
Worker Commute	0.23	2.07	0.20	0.00	0.03	0.02
Offsite Total	**0.49**	**3.38**	**3.09**	**0.01**	**0.18**	**0.14**
Total	**0.50**	**3.43**	**3.18**	**0.01**	**0.18**	**0.14**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
1-Ton Truck, 4x4	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0
Concrete Mixer Truck	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0
Material Handling Truck	0.0	0.0	0.0
Flat Bed Truck/Trailer	0.0	0.0	0.0
Onsite Total	**0.1**	**0.0**	**0.1**
Offsite			
1-Ton Truck, 4x4	0.1	0.0	0.1
Dump Truck	0.2	0.0	0.2
Water Truck	0.1	0.0	0.1
Concrete Mixer Truck	2.6	0.0	2.6
Lowboy Truck/Trailer	0.1	0.0	0.1
Material Handling Truck	0.1	0.0	0.1
Flat Bed Truck/Trailer	0.2	0.0	0.2
Worker Commute	1.6	0.0	1.6
Offsite Total	**4.9**	**0.0**	**4.9**
Total	**5.0**	**0.0**	**5.0**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
1-Ton Truck, 4x4	2	Unpaved - private	0.6	0.291	0.024	0.33	0.03
Dump Truck	2	Unpaved - private	0.6	0.506	0.025	0.57	0.03
Water Truck	1	Unpaved - private	0.6	0.506	0.025	0.29	0.01
Concrete Mixer Truck	3	Unpaved - private	0.6	0.506	0.025	0.86	0.04
Lowboy Truck/Trailer	1	Unpaved - private	0.6	0.506	0.025	0.29	0.01
Material Handling Truck	1	Unpaved - private	0.6	0.506	0.025	0.29	0.01
Flat Bed Truck/Trailer	3	Unpaved - private	0.6	0.291	0.024	0.50	0.04
Onsite Total						**3.13**	**0.18**
Offsite							
1-Ton Truck, 4x4	2	Paved	5	0.002	0.001	0.02	0.01
Dump Truck	2	Paved	5	0.002	0.001	0.02	0.01
Water Truck	1	Paved	5	0.002	0.001	0.01	0.00
Concrete Mixer Truck	3	Paved	50	0.002	0.001	0.31	0.08
Lowboy Truck/Trailer	1	Paved	5	0.002	0.001	0.01	0.00
Material Handling Truck	1	Paved	5	0.002	0.001	0.01	0.00
Flat Bed Truck/Trailer	3	Paved	5	0.002	0.001	0.03	0.01
Worker Commute	6	Paved	60	0.001	0.000	0.53	0.13
Offsite Total						**0.95**	**0.23**
Total						**4.07**	**0.41**

[a] Assumes onsite vehicle miles travelled would occur on unpaved areas based on length of underground subtransmission line (1,500 ft) x two trips per day during vault installation (3000 ft / 5,280 ft/mile = 0.6 miles/day).
[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]
c From Table 37

144.0

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling[c]	CY/day	48	1.36E-03	2.82E-04	0.07	0.01
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.07**	**0.01**

a From Table 38
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]
[c] Based on 48 CY per vault

Table 27
Subtransmission Line Construction Emissions
Duct Bank Installation

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.57	3.86	4.50	0.01	0.24	0.22	3.4
Onsite Motor Vehicle Exhaust	0.01	0.04	0.09	0.00	0.00	0.00	0.1
Onsite Motor Vehicle Fugitive PM	--	--	--	--	2.65	0.15	
Earthwork Fugitive PM	--	--	--	--	0.13	0.03	
Onsite Total	**0.58**	**3.90**	**4.58**	**0.01**	**3.03**	**0.40**	**3.4**
Offsite Motor Vehicle Exhaust	0.47	3.22	2.97	0.01	0.17	0.13	3.7
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.91	0.22	
Offsite Total	**0.47**	**3.22**	**2.97**	**0.01**	**1.09**	**0.36**	**3.7**
Total	**1.05**	**7.13**	**7.55**	**0.02**	**4.11**	**0.76**	**7.1**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Compressor Trailer	60	1	7	4
Backhoe/Front Loader	125	1	7	6
Concrete Mixer Truck	350	3	7	2

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Compressor Trailer	60	0.039	0.209	0.262	0.000	0.016	0.015	42.426	0.004	Air Compressors
Backhoe/Front Loader	125	0.045	0.390	0.284	0.001	0.015	0.013	67.625	0.004	Tractors/Loaders/Backhoes
Concrete Mixer Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Concrete Mixers

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5
and PM 2.5 Significance Thresholds, SCAQMD, October 2006,
http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.

50 miles per hour, conservative assumption

0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Compressor Trailer	0.16	0.84	1.05	0.00	0.07	0.06
Backhoe/Front Loader	0.27	2.34	1.71	0.00	0.09	0.08
Concrete Mixer Truck	0.15	0.69	1.74	0.00	0.09	0.08
Total	**0.57**	**3.86**	**4.50**	**0.01**	**0.24**	**0.22**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Compressor Trailer	0.5	0.0	0.5
Backhoe/Front Loader	1.3	0.0	1.3
Concrete Mixer Truck	1.5	0.0	1.5
Total	**3.4**	**0.0**	**3.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
1-Ton Truck, 4x4	2	7	N/A	0.6
Dump Truck	2	7	N/A	0.6
Pipe Truck/Trailer	1	7	N/A	0.6
Water Truck	1	7	N/A	0.6
Concrete Mixer Truck	3	7	N/A	0.6
Lowboy Truck/Trailer	1	7	N/A	0.6
Offsite				
1-Ton Truck, 4x4	2	7	N/A	5
Dump Truck	2	7	N/A	5
Pipe Truck/Trailer	1	7	N/A	5
Water Truck	1	7	N/A	5
Concrete Mixer Truck	3	7	N/A	50
Lowboy Truck/Trailer	1	7	N/A	5
Worker Commute	6	7	N/A	60

[a] Assumes onsite vehicle miles travelled would occur on unpaved areas based on length of underground subtransmission line (1,500 ft) x two trips per day during vault installation (3000 ft / 5,280 ft/mile = 0.6 miles/day).

[a] Offsite truck travel based on location of Staging Area 1 (0.25 miles from Valley Substation) and up to 10 haul trips per day; offsite concrete mixer truck (vendor) based on estimated 50 mile roundtrip distance; offsite worker commute based on estimated 60 mile roundtrip distance.

VMT estimation basis:	Value	Units	Basis
	0.5	miles/roundtrip/haul truck	Based on roundtrip distance from Valley Substation to Staging Area 1
	10	roundtrips/day/haul truck	Assumption
	5	miles/day/haul truck	Calculation
	60	miles/roundtrip/dump truck	Based on roundtrip distance to/from the San Timoteo Sanitary Landfill
	3	roundtrips/day/dump truck	Assumption
	180	miles/day/dump truck	Calculation
	50	miles/roundtrip/vendor trip	Vendor roundtrip distance, assumption
	60	miles/roundtrip/worker commute	Assumption

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Dump Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Pipe Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Concrete Mixer Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Offsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Dump Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Pipe Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Water Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Concrete Mixer Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Table 27
Subtransmission Line Construction Emissions
Duct Bank Installation

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
1-Ton Truck, 4x4	0.00	0.01	0.01	0.00	0.00	0.00
Dump Truck	0.00	0.01	0.02	0.00	0.00	0.00
Pipe Truck/Trailer	0.00	0.00	0.01	0.00	0.00	0.00
Water Truck	0.00	0.00	0.01	0.00	0.00	0.00
Concrete Mixer Truck	0.00	0.01	0.03	0.00	0.00	0.00
Lowboy Truck/Trailer	0.00	0.00	0.01	0.00	0.00	0.00
Onsite Total	**0.01**	**0.04**	**0.09**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Truck, 4x4	0.01	0.09	0.10	0.00	0.00	0.00
Dump Truck	0.01	0.06	0.15	0.00	0.01	0.01
Pipe Truck/Trailer	0.01	0.03	0.08	0.00	0.00	0.00
Water Truck	0.01	0.03	0.08	0.00	0.00	0.00
Concrete Mixer Truck	0.20	0.91	2.29	0.01	0.12	0.09
Lowboy Truck/Trailer	0.01	0.03	0.08	0.00	0.00	0.00
Worker Commute	0.23	2.07	0.20	0.00	0.03	0.02
Offsite Total	**0.47**	**3.22**	**2.97**	**0.01**	**0.17**	**0.13**
Total	**0.48**	**3.26**	**3.05**	**0.01**	**0.18**	**0.14**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
1-Ton Truck, 4x4	0.0	0.0	0.0
Dump Truck	0.0	0.0	0.0
Pipe Truck/Trailer	0.0	0.0	0.0
Water Truck	0.0	0.0	0.0
Concrete Mixer Truck	0.0	0.0	0.0
Lowboy Truck/Trailer	0.0	0.0	0.0
Onsite Total	**0.1**	**0.0**	**0.1**
Offsite			
1-Ton Truck, 4x4	0.1	0.0	0.1
Dump Truck	0.1	0.0	0.1
Pipe Truck/Trailer	0.1	0.0	0.1
Water Truck	0.1	0.0	0.1
Concrete Mixer Truck	2.0	0.0	2.0
Lowboy Truck/Trailer	0.1	0.0	0.1
Worker Commute	1.3	0.0	1.3
Offsite Total	**3.7**	**0.0**	**3.7**
Total	**3.8**	**0.0**	**3.8**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
1-Ton Truck, 4x4	2	Unpaved - private	0.6	0.291	0.024	0.35	0.03
Dump Truck	2	Unpaved - private	0.6	0.506	0.025	0.61	0.03
Pipe Truck/Trailer	1	Unpaved - private	0.6	0.291	0.024	0.17	0.01
Water Truck	1	Unpaved - private	0.6	0.506	0.025	0.30	0.02
Concrete Mixer Truck	3	Unpaved - private	0.6	0.506	0.025	0.91	0.05
Lowboy Truck/Trailer	1	Unpaved - private	0.6	0.506	0.025	0.30	0.02
Onsite Total						**2.65**	**0.15**
Offsite							
1-Ton Truck, 4x4	2	Paved	5	0.002	0.001	0.02	0.01
Dump Truck	2	Paved	5	0.002	0.001	0.02	0.01
Pipe Truck/Trailer	1	Paved	5	0.002	0.001	0.01	0.00
Water Truck	1	Paved	5	0.002	0.001	0.01	0.00
Concrete Mixer Truck	3	Paved	50	0.002	0.001	0.31	0.08
Lowboy Truck/Trailer	1	Paved	5	0.002	0.001	0.01	0.00
Worker Commute	6	Paved	60	0.001	0.000	0.53	0.13
Offsite Total						**0.91**	**0.22**
Total						**3.56**	**0.37**

[a] Assumes onsite vehicle miles travelled would occur on unpaved areas based on length of underground subtransmission line (1,500 ft) x two trips per day during duct bank installation (3000 ft / 5,280 ft/mile = 0.6 miles/day).
[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]
c From Table 37

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling[c]	CY/day	98	1.36E-03	2.82E-04	0.13	0.03
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.13**	**0.03**

a From Table 38
[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]
[c] Based on 490 CY over 5 days

Table 28
Subtransmission Line Construction Emissions
Install Underground Cable

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.98	10.68	15.03	0.03	0.74	0.68	2.8
Onsite Motor Vehicle Exhaust	0.01	0.03	0.07	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	1.86	0.12	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**1.99**	**10.72**	**15.11**	**0.03**	**2.60**	**0.81**	**2.8**
Offsite Motor Vehicle Exhaust	0.36	3.07	0.90	0.01	0.08	0.05	0.6
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.80	0.02	
Offsite Total	**0.36**	**3.07**	**0.90**	**0.01**	**0.87**	**0.08**	**0.6**
Total	**2.35**	**13.79**	**16.00**	**0.04**	**3.48**	**0.89**	**3.5**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Manlift/Bucket Truck	250	1	2	6
Boom/Crane Truck	350	1	2	6
Wire Truck/Trailer	350	2	2	6
Pulling Rig	350	1	2	6
Static Truck/Tensioner	350	1	2	6

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Manlift/Bucket Truck[c]	250	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Manlifts
Boom/Crane Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Manlifts
Wire Truck/Trailer	350	0.070	0.388	0.481	0.001	0.024	0.022	88.540	0.006	Manlifts
Pulling Rig	350	0.070	0.388	0.481	0.001	0.024	0.022	88.540	0.006	Manlifts
Static Truck/Tensioner	350	0.070	0.388	0.481	0.001	0.024	0.022	88.540	0.006	Manlifts

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.

50 miles per hour, conservative assumption

0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Manlift/Bucket Truck	0.15	0.69	1.74	0.00	0.09	0.08
Boom/Crane Truck	0.15	0.69	1.74	0.00	0.09	0.08
Wire Truck/Trailer	0.84	4.65	5.78	0.01	0.28	0.26
Pulling Rig	0.42	2.33	2.89	0.01	0.14	0.13
Static Truck/Tensioner	0.42	2.33	2.89	0.01	0.14	0.13
Total	**1.98**	**10.68**	**15.03**	**0.03**	**0.74**	**0.68**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Manlift/Bucket Truck	0.4	0.0	0.4
Boom/Crane Truck	0.4	0.0	0.4
Wire Truck/Trailer	1.0	0.0	1.0
Pulling Rig	0.5	0.0	0.5
Static Truck/Tensioner	0.5	0.0	0.5
Total	**2.8**	**0.0**	**2.8**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
1-Ton Truck, 4x4	2	2	N/A	0.6
Manlift/Bucket Truck	1	2	N/A	0.6
Boom/Crane Truck	1	2	N/A	0.6
Wire Truck/Trailer	2	2	N/A	0.6
Pulling Rig	1	2	N/A	0.6
Material Handling Truck	1	2	N/A	0.6
Static Truck/Tensioner	1	2	N/A	0.6
Offsite				
1-Ton Truck, 4x4	2	2	4	5
Manlift/Bucket Truck	1	2	6	5
Boom/Crane Truck	1	2	6	5
Wire Truck/Trailer	2	2	6	5
Pulling Rig	1	2	6	5
Material Handling Truck	1	2	8	5
Static Truck/Tensioner	1	2	6	5
Worker Commute	8	2	N/A	60

[a] Assumes onsite vehicle miles travelled would occur on unpaved areas based on length of underground subtransmission line (1,500 ft) x two trips per day during vault installation (3000 ft / 5,280 ft/mile = 0.6 miles/day).

[a] Offsite truck travel based on location of Staging Area 1 (0.25 miles from Valley Substation) and up to 10 haul trips per day; offsite worker commute based on estimated 60 mile roundtrip distance.

VMT estimation basis:	Value	Units	Basis
	0.5	miles/roundtrip/haul truck	Based on roundtrip distance from Valley Substation to Staging Area 1
	10	roundtrips/day/haul truck	Assumption
	5	miles/day/haul truck	Calculation
	60	miles/roundtrip/worker commute	Assumption

Table 28
Subtransmission Line Construction Emissions
Install Underground Cable

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Manlift/Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Wire Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Pulling Rig	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Static Truck/Tensioner	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Offsite									
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Manlift/Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Boom/Crane Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Wire Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Pulling Rig	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Material Handling Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Static Truck/Tensioner	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
1-Ton Truck, 4x4	0.00	0.01	0.01	0.00	0.00	0.00
Manlift/Bucket Truck	0.00	0.00	0.01	0.00	0.00	0.00
Boom/Crane Truck	0.00	0.00	0.01	0.00	0.00	0.00
Wire Truck/Trailer	0.00	0.01	0.02	0.00	0.00	0.00
Pulling Rig	0.00	0.00	0.01	0.00	0.00	0.00
Material Handling Truck	0.00	0.00	0.01	0.00	0.00	0.00
Static Truck/Tensioner	0.00	0.00	0.01	0.00	0.00	0.00
Onsite Total	**0.01**	**0.03**	**0.07**	**0.00**	**0.00**	**0.00**
Offsite						
1-Ton Truck, 4x4	0.01	0.09	0.10	0.00	0.00	0.00
Manlift/Bucket Truck	0.01	0.03	0.08	0.00	0.00	0.00
Boom/Crane Truck	0.01	0.03	0.08	0.00	0.00	0.00
Wire Truck/Trailer	0.01	0.06	0.15	0.00	0.01	0.01
Pulling Rig	0.01	0.03	0.08	0.00	0.00	0.00
Material Handling Truck	0.01	0.03	0.08	0.00	0.00	0.00
Static Truck/Tensioner	0.01	0.03	0.08	0.00	0.00	0.00
Worker Commute	0.30	2.76	0.27	0.01	0.05	0.03
Offsite Total	**0.36**	**3.07**	**0.90**	**0.01**	**0.08**	**0.05**
Total	**0.37**	**3.10**	**0.97**	**0.01**	**0.08**	**0.06**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
1-Ton Truck, 4x4	0.0	0.0	0.0
Manlift/Bucket Truck	0.0	0.0	0.0
Boom/Crane Truck	0.0	0.0	0.0
Wire Truck/Trailer	0.0	0.0	0.0
Pulling Rig	0.0	0.0	0.0
Material Handling Truck	0.0	0.0	0.0
Static Truck/Tensioner	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
1-Ton Truck, 4x4	0.0	0.0	0.0
Manlift/Bucket Truck	0.0	0.0	0.0
Boom/Crane Truck	0.0	0.0	0.0
Wire Truck/Trailer	0.0	0.0	0.0
Pulling Rig	0.0	0.0	0.0
Material Handling Truck	0.0	0.0	0.0
Static Truck/Tensioner	0.0	0.0	0.0
Worker Commute	0.5	0.0	0.5
Offsite Total	**0.6**	**0.0**	**0.6**
Total	**0.7**	**0.0**	**0.7**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
1-Ton Truck, 4x4	2	Unpaved - private	0.6	0.291	0.024	0.33	0.03
Manlift/Bucket Truck	1	Unpaved - private	0.6	0.506	0.025	0.29	0.01
Boom/Crane Truck	1	Unpaved - private	0.6	0.506	0.025	0.29	0.01
Wire Truck/Trailer	2	Unpaved - private	0.6	0.291	0.024	0.33	0.03
Pulling Rig	1	Unpaved - private	0.6	0.291	0.024	0.17	0.01
Material Handling Truck	1	Unpaved - private	0.6	0.506	0.025	0.29	0.01
Static Truck/Tensioner	1	Unpaved - private	0.6	0.291	0.024	0.17	0.01
Onsite Total						**1.86**	**0.12**
Offsite							
1-Ton Truck, 4x4	2	Paved	5	0.002	0.001	0.02	0.01
Manlift/Bucket Truck	1	Paved	5	0.002	0.001	0.01	0.00
Boom/Crane Truck	1	Paved	5	0.002	0.001	0.01	0.00
Wire Truck/Trailer	2	Paved	5	0.002	0.001	0.02	0.01
Pulling Rig	1	Paved	5	0.002	0.001	0.01	0.00
Material Handling Truck	1	Paved	5	0.002	0.001	0.01	0.00

Table 28
Subtransmission Line Construction Emissions
Install Underground Cable

Static Truck/Tensioner	1	Paved	5	0.002	0.001	0.01	0.00
Worker Commute	8	Paved	60	0.001	0.000	0.70	0.17
Offsite Total						**0.80**	**0.02**
Total						**2.65**	**0.15**

[a] Assumes onsite vehicle miles travelled would occur on unpaved areas based on length of underground subtransmission line (1,500 ft) x two trips per day during UG cable installation (3000 ft / 5,280 ft/mile = 0.6 miles/day).

[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

c From Table 37

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 29
Distribution Relocation Emissions
Relocate Existing Conductor

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.20	0.92	2.32	0.01	0.12	0.00	48.5
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.20**	**0.92**	**2.32**	**0.01**	**0.12**	**0.00**	**48.5**
Offsite Motor Vehicle Exhaust	0.26	1.95	1.14	0.01	0.07	0.05	41.5
Offsite Motor Vehicle Fugitive PM	--	--	--	--	38.85	2.58	
Offsite Total	**0.26**	**1.95**	**1.14**	**0.01**	**38.92**	**2.63**	**41.5**
Total	**0.46**	**2.86**	**3.46**	**0.01**	**39.03**	**2.63**	**90.0**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Bucket Truck	300	1	167	8

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Bucket Truck	300	0.025	0.115	0.290	0.001	0.015	0.000	79.944	0.001	Manlifts

[a] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.
50 miles per hour, conservative assumption
0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10
PM2.5 Fraction= 0.920
From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5
and PM 2.5 Significance Thresholds, SCAQMD, October 2006,
http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Bucket Truck	0.20	0.92	2.32	0.01	0.12	0.00
Total	**0.20**	**0.92**	**2.32**	**0.01**	**0.12**	**0.00**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Bucket Truck	48.4	0.0	48.5
Total	**48.4**	**0.0**	**48.5**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x
days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
Foreman Truck	1	167	N/A	15.4
Reel Truck	1	167	N/A	15.4
Bucket Truck	1	167	N/A	15.4
Arrow Board Truck	1	167	N/A	15.4
Flat Bed Truck/Trailer	1	167	N/A	15.4
Worker Commute	4	167	N/A	60

[a] Offsite travel assumed to be 15.4 miles per day, equal to 1/2 total distance of Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None									
Offsite									
Foreman Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Reel Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Arrow Board Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Flat Bed Truck/Trailer	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
Foreman Truck	0.02	0.14	0.15	0.00	0.01	0.00
Reel Truck	0.02	0.09	0.24	0.00	0.01	0.01
Bucket Truck	0.02	0.09	0.24	0.00	0.01	0.01
Arrow Board Truck	0.02	0.09	0.24	0.00	0.01	0.01
Flat Bed Truck/Trailer	0.02	0.14	0.15	0.00	0.01	0.00
Worker Commute	0.15	1.38	0.13	0.00	0.02	0.01
Offsite Total	**0.26**	**1.95**	**1.14**	**0.01**	**0.07**	**0.05**

Table 29
Distribution Relocation Emissions
Relocate Existing Conductor

Total	**0.26**	**1.95**	**1.14**	**0.01**	**0.07**	**0.05**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
Foreman Truck	3.3	0.0	3.3
Reel Truck	4.9	0.0	4.9
Bucket Truck	4.9	0.0	4.9
Arrow Board Truck	4.9	0.0	4.9
Flat Bed Truck/Trailer	3.3	0.0	3.3
Worker Commute	20.1	0.0	20.1
Offsite Total	**41.5**	**0.0**	**41.5**
Total	**41.5**	**0.0**	**41.5**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
Foreman Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Reel Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Bucket Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Arrow Board Truck	1	Paved	8.5	0.002	0.001	0.02	0.00
Flat Bed Truck/Trailer	1	Paved	8.5	0.002	0.001	0.02	0.00
Foreman Truck	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
Reel Truck	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
Bucket Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Arrow Board Truck	1	Unpaved - private	4.2	0.506	0.025	2.12	0.11
Flat Bed Truck/Trailer	1	Unpaved - private	4.2	0.291	0.024	1.22	0.10
Foreman Truck	1	Unpaved - public	2.7	1.745	0.142	4.71	0.38
Reel Truck	1	Unpaved - public	2.7	1.745	0.142	4.71	0.38
Bucket Truck	1	Unpaved - public	2.7	3.027	0.150	8.17	0.40
Arrow Board Truck	1	Unpaved - public	2.7	3.027	0.150	8.17	0.40
Flat Bed Truck/Trailer	1	Unpaved - public	2.7	1.745	0.142	4.71	0.38
Worker Commute	4	Paved	60	0.001	0.000	0.35	0.09
Offsite Total						**38.85**	**2.58**
Total						**38.85**	**2.58**

a Of the 15.4 mile alignment, 8.5 miles occur on paved roadways and 6.9 miles occur on unpaved roadways (2.7 miles are unpaved public roadways and 4.2 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 30
Distribution Relocation Emissions
Wood Pole Removal

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.20	0.92	2.32	0.01	0.12	0.11	11.9
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.20**	**0.92**	**2.32**	**0.01**	**0.12**	**0.11**	**11.9**
Offsite Motor Vehicle Exhaust	0.18	1.36	0.77	0.00	0.05	0.04	7.2
Offsite Motor Vehicle Fugitive PM	--	--	--	--	22.78	1.65	
Offsite Total	**0.18**	**1.36**	**0.77**	**0.00**	**22.83**	**1.68**	**7.2**
Total	**0.38**	**2.28**	**3.09**	**0.01**	**22.95**	**1.79**	**19.1**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Lineman/Boom Truck	300	1	41	8

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Lineman/Boom Truck	300	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Manlifts

[a] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.
50 miles per hour, conservative assumption
0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10
PM2.5 Fraction= 0.920
From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Lineman/Boom Truck	0.20	0.92	2.32	0.01	0.12	0.11
Total	**0.20**	**0.92**	**2.32**	**0.01**	**0.12**	**0.11**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Lineman/Boom Truck	11.9	0.0	11.9
Total	**11.9**	**0.0**	**11.9**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
Foreman Truck	1	41	8	12
Lineman/Boom Truck	1	41	8	12
Flat Bed Truck/Trailer	1	41	8	12
Arrowhead Trailer	1	41	8	12
Worker Commute	3	41	N/A	60

[a] Offsite travel assumed to be 12 miles per day, equal to 1/2 total distance of Segment 1 of the Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None									
Offsite									
Foreman Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Lineman/Boom Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Flat Bed Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Arrowhead Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite						
Foreman Truck	0.02	0.11	0.12	0.00	0.00	0.00
Lineman/Boom Truck	0.02	0.07	0.18	0.00	0.01	0.01
Flat Bed Truck/Trailer	0.02	0.07	0.18	0.00	0.01	0.01
Arrowhead Trailer	0.02	0.07	0.18	0.00	0.01	0.01
Worker Commute	0.11	1.04	0.10	0.00	0.02	0.01
Offsite Total	**0.18**	**1.36**	**0.77**	**0.00**	**0.05**	**0.04**
Total	**0.18**	**1.36**	**0.77**	**0.00**	**0.05**	**0.04**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Table 30
Distribution Relocation Emissions
Wood Pole Removal

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
Foreman Truck	0.6	0.0	0.6
Lineman/Boom Truck	0.9	0.0	0.9
Flat Bed Truck/Trailer	0.9	0.0	0.9
Arrowhead Trailer	0.9	0.0	0.9
Worker Commute	3.7	0.0	3.7
Offsite Total	**7.2**	**0.0**	**7.2**
Total	**7.2**	**0.0**	**7.2**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
Foreman Truck	1	Paved	7.7	0.002	0.001	0.02	0.00
Lineman/Boom Truck	1	Paved	7.7	0.002	0.001	0.02	0.00
Flat Bed Truck/Trailer	1	Paved	7.7	0.002	0.001	0.02	0.00
Arrowhead Trailer	1	Paved	7.7	0.002	0.001	0.02	0.00
Foreman Truck	1	Unpaved - private	1.9	0.291	0.024	0.55	0.05
Lineman/Boom Truck	1	Unpaved - private	1.9	0.291	0.024	0.55	0.05
Flat Bed Truck/Trailer	1	Unpaved - private	1.9	0.291	0.024	0.55	0.05
Arrowhead Trailer	1	Unpaved - private	1.9	0.506	0.025	0.96	0.05
Foreman Truck	1	Unpaved - public	2.4	1.745	0.142	4.19	0.34
Lineman/Boom Truck	1	Unpaved - public	2.4	1.745	0.142	4.19	0.34
Flat Bed Truck/Trailer	1	Unpaved - public	2.4	1.745	0.142	4.19	0.34
Arrowhead Trailer	1	Unpaved - public	2.4	3.027	0.150	7.27	0.36
Worker Commute	3	Paved	60	0.001	0.000	0.26	0.06
Offsite Total						**22.78**	**1.65**
Total						**22.78**	**1.65**

a For Segment 1 of the Proposed Project, 7.7 miles occur on paved roadways and 4.3 miles occur on unpaved roadways (2.4 miles are unpaved public roadways and 1.9 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day. No additional wood pole removal work is required along the 3.4 miles associated with Segment 2 of the Proposed Project.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 31
Distribution Relocation Emissions
Install Distribution Underground Cable

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	1.38	7.82	9.99	0.03	0.44	0.40	24.4
Onsite Motor Vehicle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.00	0.00	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**1.38**	**7.82**	**9.99**	**0.03**	**0.44**	**0.40**	**24.4**
Offsite Motor Vehicle Exhaust	0.38	3.04	1.32	0.01	0.09	0.07	7.0
Offsite Motor Vehicle Fugitive PM	--	--	--	--	40.90	2.92	
Offsite Total	**0.38**	**3.04**	**1.32**	**0.01**	**40.99**	**2.99**	**7.0**
Total	**1.75**	**10.86**	**11.31**	**0.03**	**41.42**	**3.39**	**31.4**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Reel Truck	300	1	20	8
Rodder Truck	35	1	20	8
Concrete Mixer Truck	350	1	20	8
Backhoe/Front Loader	125	1	20	8

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Reel Truck	300	0.075	0.316	0.534	0.002	0.018	0.017	169.577	0.007	Other Construction Equipment
Rodder Truck	35	0.027	0.156	0.140	0.000	0.007	0.007	18.669	0.002	Other Construction Equipment
Concrete Mixer Truck[c]	350	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Concrete Mixers
Backhoe/Front Loader	125	0.045	0.390	0.284	0.001	0.015	0.013	67.625	0.004	Tractors/Loaders/Backhoes

a From Table 34

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction= 0.920

From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

[c] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.

50 miles per hour, conservative assumption

0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Reel Truck	0.60	2.53	4.27	0.01	0.15	0.14
Rodder Truck	0.22	1.25	1.12	0.00	0.06	0.05
Concrete Mixer Truck	0.20	0.92	2.32	0.01	0.12	0.11
Backhoe/Front Loader	0.36	3.12	2.28	0.01	0.12	0.11
Total	**1.38**	**7.82**	**9.99**	**0.03**	**0.44**	**0.40**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Reel Truck	12.3	0.0	12.3
Rodder Truck	1.4	0.0	1.4
Concrete Mixer Truck	5.8	0.0	5.8
Backhoe/Front Loader	4.9	0.0	4.9
Total	**24.4**	**0.0**	**24.4**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
None				
Offsite				
Crew Truck	1	20	8	12
Foreman Truck	1	20	8	12
Reel Truck	1	20	8	12
Rodder Truck	1	20	8	12
Concrete Mixer Truck	1	20	N/A	12
1-Ton Truck, 4x4	1	20	N/A	12
Lowboy Truck/Trailer	1	20	N/A	12
Worker Commute	7	20	N/A	60

[a] Offsite travel assumed to be 12 miles per day, equal to 1/2 total distance of Segment 1 of the Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
None									
Offsite									
Crew Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Foreman Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Reel Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Rodder Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Concrete Mixer Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
1-Ton Truck, 4x4	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Lowboy Truck/Trailer	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						
None	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Table 31
Distribution Relocation Emissions
Install Distribution Underground Cable

Offsite						
Crew Truck	0.02	0.11	0.12	0.00	0.00	0.00
Foreman Truck	0.02	0.11	0.12	0.00	0.00	0.00
Reel Truck	0.02	0.07	0.18	0.00	0.01	0.01
Rodder Truck	0.02	0.07	0.18	0.00	0.01	0.01
Concrete Mixer Truck	0.02	0.07	0.18	0.00	0.01	0.01
1-Ton Truck, 4x4	0.02	0.11	0.12	0.00	0.00	0.00
Lowboy Truck/Trailer	0.02	0.07	0.18	0.00	0.01	0.01
Worker Commute	0.27	2.42	0.23	0.00	0.04	0.03
Offsite Total	**0.38**	**3.04**	**1.32**	**0.01**	**0.09**	**0.07**
Total	**0.38**	**3.04**	**1.32**	**0.01**	**0.09**	**0.07**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
None	0.0	0.0	0.0
Onsite Total	**0.0**	**0.0**	**0.0**
Offsite			
Crew Truck	0.3	0.0	0.3
Foreman Truck	0.3	0.0	0.3
Reel Truck	0.5	0.0	0.5
Rodder Truck	0.5	0.0	0.5
Concrete Mixer Truck	0.5	0.0	0.5
1-Ton Truck, 4x4	0.3	0.0	0.3
Lowboy Truck/Trailer	0.5	0.0	0.5
Worker Commute	4.2	0.0	4.2
Offsite Total	**7.0**	**0.0**	**7.0**
Total	**7.0**	**0.0**	**7.0**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle[a]	PM10 Emission Factor (lb/mi)[b]	PM2.5 Emission Factor (lb/mi)[b]	PM10 Emissions (lb/day)[c]	PM2.5 Emissions (lb/day)[c]
Onsite							
None							
Onsite Total						**0.00**	**0.00**
Offsite							
Crew Truck	1	Paved	7.7	0.002	0.001	0.02	0.00
Foreman Truck	1	Paved	7.7	0.002	0.001	0.02	0.00
Reel Truck	1	Paved	7.7	0.002	0.001	0.02	0.00
Rodder Truck	1	Paved	7.7	0.002	0.001	0.02	0.00
Concrete Mixer Truck	1	Paved	7.7	0.002	0.001	0.02	0.00
1-Ton Truck, 4x4	1	Paved	7.7	0.002	0.001	0.02	0.00
Lowboy Truck/Trailer	1	Paved	7.7	0.002	0.001	0.02	0.00
Crew Truck	1	Unpaved - private	1.9	0.291	0.024	0.55	0.05
Foreman Truck	1	Unpaved - private	1.9	0.291	0.024	0.55	0.05
Reel Truck	1	Unpaved - private	1.9	0.291	0.024	0.55	0.05
Rodder Truck	1	Unpaved - private	1.9	0.291	0.024	0.55	0.05
Concrete Mixer Truck	1	Unpaved - private	1.9	0.506	0.025	0.96	0.05
1-Ton Truck, 4x4	1	Unpaved - private	1.9	0.291	0.024	0.55	0.05
Lowboy Truck/Trailer	1	Unpaved - private	1.9	0.506	0.025	0.96	0.05
Crew Truck	1	Unpaved - public	2.4	1.745	0.142	4.19	0.34
Foreman Truck	1	Unpaved - public	2.4	1.745	0.142	4.19	0.34
Reel Truck	1	Unpaved - public	2.4	1.745	0.142	4.19	0.34
Rodder Truck	1	Unpaved - public	2.4	1.745	0.142	4.19	0.34
Concrete Mixer Truck	1	Unpaved - public	2.4	3.027	0.150	7.27	0.36
1-Ton Truck, 4x4	1	Unpaved - public	2.4	1.745	0.142	4.19	0.34
Lowboy Truck/Trailer	1	Unpaved - public	2.4	3.027	0.150	7.27	0.36
Worker Commute	7	Paved	60	0.001	0.000	0.62	0.15
Offsite Total						**40.90**	**2.92**
Total						**40.90**	**2.92**

a For Segment 1 of the Proposed Project, 7.7 miles occur on paved roadways and 4.3 miles occur on unpaved roadways (2.4 miles are unpaved public roadways and 1.9 miles are unpaved private roadways). Daily VMT per vehicle assumes 1/2 total distance of Proposed Project x 2 trips per day. No additional UG cable is required along the 3.4 miles associated with Segment 2 of the Proposed Project.

b From Table 37

[c] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 32
Telecommunications Construction
Control Building Communications Room

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT)
Construction Equipment Exhaust	0.40	1.84	4.64	0.01	0.23	0.21	2.3
Onsite Motor Vehicle Exhaust	0.09	0.48	0.81	0.00	0.04	0.03	0.4
Onsite Motor Vehicle Fugitive PM	--	--	--	--	0.02	0.01	
Earthwork Fugitive PM	--	--	--	--	0.00	0.00	
Onsite Total	**0.49**	**2.32**	**5.45**	**0.01**	**0.29**	**0.25**	**2.7**
Offsite Motor Vehicle Exhaust	0.33	2.81	0.73	0.01	0.06	0.05	1.1
Offsite Motor Vehicle Fugitive PM	--	--	--	--	0.74	0.18	
Offsite Total	**0.33**	**2.81**	**0.73**	**0.01**	**0.81**	**0.23**	**1.1**
Total	**0.82**	**5.13**	**6.18**	**0.02**	**1.10**	**0.48**	**3.9**

Construction Equipment Summary

Equipment	Horse-power	Number	Days Used	Hours Used/ Day
Bucket Truck	300	2	4	8

Construction Equipment Exhaust Emission Factors

Equipment	Horse-power	VOC (lb/hr)[a]	CO (lb/hr)[a]	NOX (lb/hr)[a]	SOX (lb/hr)[a]	PM10 (lb/hr)[a]	PM2.5 (lb/hr)[b]	CO2 (lb/hr)[a]	CH4 (lb/hr)[a]	Category
Bucket Truck	300	0.025	0.115	0.290	0.001	0.015	0.013	79.944	0.001	Manlifts

[a] Equipment powered by on-road vehicle power take-off (PTO) were estimated by multiplying the on-road emission factor times 35 miles per hour, adjusted based on default load factor of 0.38.
50 miles per hour, conservative assumption
0.38 Default Load Factor, CalEEMod User's Guide Appendix D, Table 3-3

[b] Diesel PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10
PM2.5 Fraction= 0.920
From Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006, http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html

Construction Equipment Daily Criteria Pollutant Exhaust Emissions

Equipment	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Bucket Truck	0.40	1.84	4.64	0.01	0.23	0.21
Total	**0.40**	**1.84**	**4.64**	**0.01**	**0.23**	**0.21**

[a] Emissions [lb/day] = number x hours/day x emission factor [lb/hr]

Construction Equipment Total Greenhouse Gas Emissions

Equipment	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Bucket Truck	2.3	0.0	2.3
Total	**2.3**	**0.0**	**2.3**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x hours/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 34

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Usage

Vehicle	Number	Days Used	Hours Used/ Day	Miles/ Day/ Veh.[a]
Onsite				
Bucket Truck	2	4	8	20
Crew Truck	1	4	8	20
Van	2	2	2	5
Offsite				
Bucket Truck	2	4	8	12
Crew Truck	1	4	8	12
Van	2	2	6	12
Worker Commute	7	4	N/A	60

[a] Onsite travel based hours of operation x 10 mph x 25% usage factor.

[a] Offsite travel assumed to be 12 miles per day, equal to 1/2 total distance of Segment 1 of the Proposed Project x 2 trips/day; offsite worker commute based on estimated 60 mile roundtrip distance.

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Onsite									
Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Crew Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Van	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05
Offsite									
Bucket Truck	HHDT	1.32E-03	6.05E-03	1.53E-02	3.93E-05	7.68E-04	6.24E-04	4.21E+00	6.18E-05
Crew Truck	Delivery	1.40E-03	9.23E-03	9.79E-03	2.75E-05	4.01E-04	3.18E-04	2.85E+00	6.20E-05
Van	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05
Worker Commute	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Onsite						

Table 32
Telecommunications Construction
Control Building Communications Room

Bucket Truck	0.05	0.24	0.61	0.00	0.03	0.02
Crew Truck	0.03	0.18	0.20	0.00	0.01	0.01
Van	0.01	0.06	0.01	0.00	0.00	0.00
Onsite Total	**0.09**	**0.48**	**0.81**	**0.00**	**0.04**	**0.03**
Offsite						
Bucket Truck	0.03	0.15	0.37	0.00	0.02	0.01
Crew Truck	0.02	0.11	0.12	0.00	0.00	0.00
Van	0.02	0.14	0.01	0.00	0.00	0.00
Worker Commute	0.27	2.42	0.23	0.00	0.04	0.03
Offsite Total	**0.33**	**2.81**	**0.73**	**0.01**	**0.06**	**0.05**
Total	**0.42**	**3.30**	**1.54**	**0.01**	**0.10**	**0.08**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Total Greenhouse Gas Emissions

Vehicle	CO2 (MT)[a]	CH4 (MT)[a]	CO2e (MT)[b]
Onsite			
Bucket Truck	0.3	0.0	0.3
Crew Truck	0.1	0.0	0.1
Van	0.0	0.0	0.0
Onsite Total	**0.4**	**0.0**	**0.4**
Offsite			
Bucket Truck	0.2	0.0	0.2
Crew Truck	0.1	0.0	0.1
Van	0.0	0.0	0.0
Worker Commute	0.8	0.0	0.8
Offsite Total	**1.1**	**0.0**	**1.1**
Total	**1.5**	**0.0**	**1.5**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle	PM10 Emission Factor (lb/mi)[a]	PM2.5 Emission Factor (lb/mi)[a]	PM10 Emissions (lb/day)[b]	PM2.5 Emissions (lb/day)[b]
Onsite							
Bucket Truck	2	Paved	20	0.002	0.001	0.08	0.02
Crew Truck	1	Paved	20	0.002	0.001	0.04	0.01
Van	2	Paved	5	0.002	0.001	0.02	0.01
Onsite Total						**0.02**	**0.01**
Offsite							
Bucket Truck	2	Paved	12	0.002	0.001	0.05	0.01
Crew Truck	1	Paved	12	0.002	0.001	0.03	0.01
Van	2	Paved	12	0.002	0.001	0.05	0.01
Worker Commute	7	Paved	60	0.001	0.000	0.62	0.15
Offsite Total						**0.74**	**0.18**
Total						**0.76**	**0.19**

a From Table 37

[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Earthwork Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM10 Emission Factor[a]	PM2.5 Emission Factor[a]	PM10 (lb/day)[b]	PM2.5 (lb/day)[b]
Soil Handling	CY/day		1.36E-03	2.82E-04	0.00	0.00
Bulldozing, Scraping and Grading	hr/day		0.475	0.099	0.00	0.00
Storage Pile Wind Erosion	acres		4.4	0.92	0.00	0.00
Total					**0.00**	**0.00**

a From Table 38

[b] Emissions [lb/day] = Emission factor [lb/activity unit] x Activity unit [units/day]

Table 33
Operational Emissions

Emissions Summary

Source	VOC (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO2e (MT/yr)
Motor Vehicle Exhaust	0.04	0.35	0.03	0.00	0.01	0.00	0
Motor Vehicle Fugitive PM	--	--	--	--	26.28	2.15	--
SF6 Leakage	--	--	--	--	--	--	9
Total	**0.04**	**0.35**	**0.03**	**0.00**	**26.28**	**2.16**	**10**
SCAQMD CEQA Thresholds	55	550	55	150	150	55	
Would the Proposed Project Exceed the Thresholds (Y/N)?	N	N	N	N	N	N	

Motor Vehicle Usage

Vehicle	Number	Days Used/ Year	Miles/ Day/ Veh.
Subtransmission Line Inspection	1	2	60

Motor Vehicle Exhaust Emission Factors

Vehicle	Category	VOC (lb/mi)[a]	CO (lb/mi)[a]	NOX (lb/mi)[a]	SOX (lb/mi)[a]	PM10 (lb/mi)[a]	PM2.5 (lb/mi)[b]	CO2 (lb/mi)[a]	CH4 (lb/mi)[a]
Subtransmission Line Inspection	Passenger	6.33E-04	5.76E-03	5.57E-04	1.07E-05	9.39E-05	6.13E-05	1.11E+00	5.62E-05

a From Table 35 or Table 36

Motor Vehicle Daily Criteria Pollutant Exhaust Emissions

Vehicle	VOC (lb/day)[a]	CO (lb/day)[a]	NOX (lb/day)[a]	SOX (lb/day)[a]	PM10 (lb/day)[a]	PM2.5 (lb/day)[a]
Subtransmission Line Inspection	0.04	0.35	0.03	0.00	0.01	0.00
Total	**0.04**	**0.35**	**0.03**	**0.00**	**0.01**	**0.00**

[a] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

Motor Vehicle Annual Greenhouse Gas Emissions

Vehicle	CO2 (MT/yr)[a]	CH4 (MT/yr)[a]	CO2e (MT/yr)[b]
Subtransmission Line Inspection	0.1	0.0	0.1
Total	**0.1**	**0.0**	**0.1**

[a] Emissions [metric tons, MT] = emission factor [lb/hr] x miles/day x Number x days used x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 35 and Table 36

[b] CO_2-equivalent (CO_2e) emission factors are CO_2 emissions plus 21 x CH_4 emissions, based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008, http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

Motor Vehicle Fugitive Particulate Matter Emissions

Vehicle	Number	Road Type	Miles/ Day/ Vehicle	PM10 Emission Factor (lb/mi)[a]	PM2.5 Emission Factor (lb/mi)[a]	PM10 Emissions (lb/day)[b]	PM2.5 Emissions (lb/day)[b]
Subtransmission Line Inspection	1	Paved	45	0.002	0.001	0.09	0.02
Subtransmission Line Inspection	1	Unpaved - publ	15	1.745	0.142	26.18	2.13
Total						**26.28**	**2.15**

a From Table 37

[b] Emissions [lb/day] = number x miles/day x emission factor [lb/mi]

SF6 Leakage Greenhouse Gas Emissions

Item	Value	Units
Total SF6	180	pounds
SF6 Leakage Rate	0.5	%/year
SF6 Emissions	0.9	pounds
SF6 Global Warming Potential[a]	23,200	
CO2e Emissions[b]	**9**	**MT/yr**

[a] Based on Table C.1 from California Climate Action Registry General Reporting Protocol, Version 3.0, April 2008.
http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

[b] CO_2e emissions [metric tons] = SF_6 emissions [lb] x Global warming potential [lb CO_2e/lb SF_6] x 453.6 [g/lb] / 1,000,000 [g/MT]

Table 34
SCAB Emission Factors (Diesel)

CY 2018

Air Basin	SC

		(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)
Equipment	**MaxHP**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**CO2**	**CH4**
Aerial Lifts	15	0.0067	0.0352	0.0421	0.0001	0.0016	5.8	0.0006
	25	0.0095	0.0312	0.0577	0.0001	0.0026	7.3	0.0009
	50	0.0224	0.1005	0.1017	0.0002	0.0062	13.1	0.0020
	120	0.0218	0.1547	0.1711	0.0003	0.0113	25.4	0.0020
	500	0.0560	0.2601	0.5904	0.0014	0.0180	142.0	0.0051
	750	0.1030	0.4701	1.0954	0.0026	0.0330	256.6	0.0093
Aerial Lifts Composite		0.0215	0.1161	0.1435	0.0003	0.0079	23.2	0.0019
Air Compressors	15	0.0065	0.0304	0.0405	0.0001	0.0022	4.8	0.0006
	25	0.0138	0.0431	0.0792	0.0001	0.0040	9.6	0.0012
	50	0.0345	0.1429	0.1233	0.0002	0.0087	14.9	0.0031
	120	0.0336	0.2066	0.2248	0.0004	0.0170	31.3	0.0030
	175	0.0457	0.3331	0.3381	0.0007	0.0179	59.0	0.0041
	250	0.0498	0.1769	0.4355	0.0010	0.0137	87.5	0.0045
	500	0.0842	0.3004	0.6777	0.0015	0.0230	154.6	0.0076
	750	0.1307	0.4643	1.0761	0.0024	0.0360	238.9	0.0118
	1000	0.1973	0.6948	2.4851	0.0033	0.0644	324.4	0.0178
Air Compressors Composite		0.0388	0.2088	0.2625	0.0005	0.0164	42.4	0.0035
Bore/Drill Rigs	15	0.0080	0.0421	0.0503	0.0001	0.0020	6.9	0.0007
	25	0.0129	0.0439	0.0813	0.0001	0.0030	10.7	0.0012
	50	0.0136	0.1475	0.1265	0.0003	0.0023	20.7	0.0012
	120	0.0206	0.3112	0.1808	0.0006	0.0048	51.4	0.0019
	175	0.0317	0.5030	0.1941	0.0011	0.0061	94.1	0.0029
	250	0.0359	0.2285	0.1667	0.0014	0.0046	125.5	0.0032
	500	0.0591	0.3676	0.2691	0.0020	0.0075	207.6	0.0053
	750	0.1170	0.7264	0.5351	0.0041	0.0148	410.3	0.0106
	1000	0.1860	1.0966	2.8078	0.0062	0.0482	619.2	0.0168
Bore/Drill Rigs Composite		0.0360	0.3342	0.2784	0.0012	0.0066	110.0	0.0032
Cement and Mortar Mixers	15	0.0049	0.0257	0.0307	0.0001	0.0012	4.2	0.0004
	25	0.0154	0.0503	0.0928	0.0001	0.0042	11.7	0.0014
Cement and Mortar Mixers Composite		0.0058	0.0278	0.0359	0.0001	0.0015	4.8	0.0005
Concrete/Industrial Saws	25	0.0133	0.0453	0.0838	0.0001	0.0031	11.0	0.0012
	50	0.0366	0.1690	0.1593	0.0003	0.0098	20.1	0.0033
	120	0.0434	0.3109	0.3267	0.0006	0.0224	49.5	0.0039
	175	0.0675	0.5777	0.5539	0.0012	0.0274	106.9	0.0061
Concrete/Industrial Saws Composite		0.0403	0.2568	0.2640	0.0005	0.0174	39.0	0.0036
Cranes	50	0.0431	0.1686	0.1347	0.0002	0.0101	15.5	0.0039
	120	0.0426	0.2325	0.2573	0.0004	0.0204	33.4	0.0038
	175	0.0502	0.3179	0.3354	0.0006	0.0189	53.6	0.0045
	250	0.0525	0.1682	0.4114	0.0008	0.0141	74.8	0.0047
	500	0.0801	0.2725	0.5835	0.0012	0.0212	120.1	0.0072
	750	0.1357	0.4582	1.0164	0.0020	0.0363	202.1	0.0122
	9999	0.4950	1.5963	5.2251	0.0065	0.1431	647.4	0.0447
Cranes Composite		0.0675	0.2708	0.5275	0.0009	0.0212	85.8	0.0061
Crawler Tractors	50	0.0542	0.1924	0.1494	0.0002	0.0121	16.6	0.0049
	120	0.0631	0.3121	0.3728	0.0005	0.0299	43.9	0.0057
	175	0.0847	0.4887	0.5692	0.0009	0.0319	80.8	0.0076
	250	0.0889	0.2788	0.6957	0.0012	0.0257	110.8	0.0080
	500	0.1307	0.4803	0.9755	0.0017	0.0369	172.9	0.0118
	750	0.2354	0.8597	1.7953	0.0031	0.0671	309.9	0.0212
	1000	0.3588	1.3454	3.8260	0.0044	0.1109	439.0	0.0324
Crawler Tractors Composite		0.0790	0.3593	0.5309	0.0008	0.0305	76.1	0.0071
Crushing/Proc. Equipment	50	0.0633	0.2822	0.2406	0.0004	0.0161	29.4	0.0057
	120	0.0567	0.3673	0.3788	0.0007	0.0278	55.5	0.0051
	175	0.0839	0.6350	0.5987	0.0013	0.0317	111.6	0.0076
	250	0.0924	0.3290	0.7526	0.0018	0.0240	163.1	0.0083

Table 34
SCAB Emission Factors (Diesel)

CY 2018

Air Basin	SC

Equipment	MaxHP	(lb/hr) ROG	(lb/hr) CO	(lb/hr) NOX	(lb/hr) SOX	(lb/hr) PM	(lb/hr) CO2	(lb/hr) CH4
	500	0.1359	0.4823	1.0142	0.0024	0.0349	249.2	0.0123
	750	0.2130	0.7582	1.6302	0.0039	0.0550	392.8	0.0192
	9999	0.5544	1.8389	6.3966	0.0088	0.1646	872.3	0.0500
Crushing/Proc. Equipment Composite		0.0740	0.4221	0.4889	0.0010	0.0275	88.2	0.0067
Dumpers/Tenders	25	0.0061	0.0209	0.0389	0.0001	0.0015	5.1	0.0006
Dumpers/Tenders Composite		0.0061	0.0209	0.0389	0.0001	0.0015	5.1	0.0006
Excavators	25	0.0132	0.0452	0.0836	0.0001	0.0031	11.0	0.0012
	50	0.0312	0.1681	0.1335	0.0002	0.0074	16.7	0.0028
	120	0.0462	0.3347	0.2952	0.0006	0.0193	49.1	0.0042
	175	0.0550	0.4429	0.3381	0.0008	0.0176	74.9	0.0050
	250	0.0623	0.2217	0.3991	0.0012	0.0135	105.8	0.0056
	500	0.0893	0.3128	0.5257	0.0015	0.0190	155.9	0.0081
	750	0.1483	0.5182	0.8925	0.0026	0.0318	258.4	0.0134
Excavators Composite		0.0566	0.3441	0.3456	0.0009	0.0166	79.8	0.0051
Forklifts	50	0.0153	0.0960	0.0787	0.0001	0.0038	9.8	0.0014
	120	0.0177	0.1412	0.1164	0.0002	0.0072	20.8	0.0016
	175	0.0262	0.2216	0.1553	0.0004	0.0083	37.4	0.0024
	250	0.0293	0.1040	0.1730	0.0006	0.0059	51.4	0.0026
	500	0.0416	0.1422	0.2289	0.0007	0.0083	74.0	0.0038
Forklifts Composite		0.0248	0.1450	0.1458	0.0004	0.0068	36.3	0.0022
Generator Sets	15	0.0082	0.0429	0.0569	0.0001	0.0029	6.8	0.0007
	25	0.0154	0.0525	0.0966	0.0001	0.0047	11.8	0.0014
	50	0.0328	0.1510	0.1572	0.0003	0.0092	20.4	0.0030
	120	0.0428	0.3131	0.3456	0.0006	0.0222	52.0	0.0039
	175	0.0539	0.4885	0.5021	0.0011	0.0225	94.7	0.0049
	250	0.0572	0.2622	0.6507	0.0016	0.0183	141.7	0.0052
	500	0.0843	0.4077	0.9228	0.0022	0.0277	224.7	0.0076
	750	0.1387	0.6582	1.5287	0.0036	0.0453	362.7	0.0125
	9999	0.3488	1.3972	5.0262	0.0070	0.1186	699.4	0.0315
Generator Sets Composite		0.0318	0.1858	0.2507	0.0005	0.0128	40.7	0.0029
Graders	50	0.0451	0.1913	0.1537	0.0002	0.0105	18.4	0.0041
	120	0.0574	0.3427	0.3550	0.0006	0.0266	50.0	0.0052
	175	0.0706	0.4865	0.4670	0.0009	0.0257	82.7	0.0064
	250	0.0744	0.2520	0.5609	0.0013	0.0192	114.8	0.0067
	500	0.0947	0.3465	0.6663	0.0015	0.0240	153.1	0.0085
	750	0.2017	0.7329	1.4554	0.0033	0.0516	324.0	0.0182
Graders Composite		0.0700	0.3877	0.4814	0.0010	0.0237	88.5	0.0063
Off-Highway Tractors	120	0.1082	0.4588	0.6288	0.0007	0.0520	62.5	0.0098
	175	0.1076	0.5392	0.7464	0.0010	0.0421	87.0	0.0097
	250	0.0851	0.2575	0.6833	0.0010	0.0274	87.0	0.0077
	750	0.3450	1.3950	2.7523	0.0038	0.1089	378.9	0.0311
	1000	0.5230	2.1858	5.3907	0.0055	0.1685	543.1	0.0472
Off-Highway Tractors Composite		0.1088	0.4510	0.8199	0.0011	0.0386	101.0	0.0098
Off-Highway Trucks	175	0.0656	0.5031	0.3966	0.0009	0.0209	83.4	0.0059
	250	0.0695	0.2382	0.4442	0.0012	0.0150	111.1	0.0063
	500	0.1105	0.3721	0.6474	0.0018	0.0234	181.6	0.0100
	750	0.1796	0.6033	1.0774	0.0030	0.0385	294.6	0.0162
	1000	0.2706	0.8897	2.8944	0.0042	0.0741	416.7	0.0244
Off-Highway Trucks Composite		0.1076	0.3758	0.7020	0.0018	0.0240	173.5	0.0097
Other Construction Equipment	15	0.0078	0.0412	0.0491	0.0001	0.0019	6.7	0.0007
	25	0.0106	0.0363	0.0672	0.0001	0.0025	8.8	0.0010
	50	0.0275	0.1562	0.1402	0.0002	0.0072	18.7	0.0025
	120	0.0403	0.3413	0.3050	0.0006	0.0186	53.9	0.0036
	175	0.0406	0.3908	0.2987	0.0008	0.0145	71.0	0.0037
	500	0.0749	0.3164	0.5338	0.0017	0.0184	169.6	0.0068

Table 34
SCAB Emission Factors (Diesel)

CY 2018

Air Basin	SC

Equipment	MaxHP	(lb/hr) ROG	(lb/hr) CO	(lb/hr) NOX	(lb/hr) SOX	(lb/hr) PM	(lb/hr) CO2	(lb/hr) CH4
Other Construction Equipment Composite		0.0422	0.2363	0.2987	0.0008	0.0121	81.7	0.0038
Other General Industrial Equipmen	15	0.0044	0.0260	0.0311	0.0001	0.0012	4.3	0.0004
	25	0.0124	0.0422	0.0780	0.0001	0.0029	10.2	0.0011
	50	0.0366	0.1543	0.1246	0.0002	0.0089	14.5	0.0033
	120	0.0488	0.2853	0.3031	0.0005	0.0233	41.4	0.0044
	175	0.0557	0.3778	0.3740	0.0007	0.0205	64.0	0.0050
	250	0.0590	0.1909	0.4580	0.0010	0.0148	90.4	0.0053
	500	0.1110	0.3559	0.7901	0.0017	0.0275	177.0	0.0100
	750	0.1838	0.5867	1.3378	0.0029	0.0459	291.8	0.0166
	1000	0.2579	0.8251	2.9158	0.0038	0.0780	373.3	0.0233
Other General Industrial Equipmen Composite		0.0742	0.3062	0.5498	0.0011	0.0224	101.5	0.0067
Other Material Handling Equipment	50	0.0506	0.2129	0.1733	0.0003	0.0124	20.2	0.0046
	120	0.0473	0.2776	0.2959	0.0005	0.0228	40.5	0.0043
	175	0.0700	0.4783	0.4752	0.0009	0.0260	81.4	0.0063
	250	0.0623	0.2032	0.4893	0.0011	0.0158	96.7	0.0056
	500	0.0791	0.2560	0.5698	0.0013	0.0198	127.8	0.0071
	9999	0.3592	1.0893	3.8567	0.0049	0.1029	494.5	0.0324
Other Material Handling Equipment Composite		0.0700	0.2998	0.5371	0.0010	0.0216	94.2	0.0063
Pavers	25	0.0151	0.0513	0.0957	0.0002	0.0038	12.4	0.0014
	50	0.0645	0.2127	0.1694	0.0002	0.0145	18.7	0.0058
	120	0.0687	0.3243	0.4139	0.0005	0.0338	46.2	0.0062
	175	0.0910	0.5091	0.6432	0.0010	0.0360	85.6	0.0082
	250	0.1050	0.3335	0.8779	0.0015	0.0327	129.6	0.0095
	500	0.1177	0.4592	0.9464	0.0015	0.0359	155.6	0.0106
Pavers Composite		0.0748	0.3347	0.4163	0.0006	0.0279	52.0	0.0067
Paving Equipment	25	0.0102	0.0347	0.0642	0.0001	0.0024	8.4	0.0009
	50	0.0548	0.1798	0.1444	0.0002	0.0124	16.0	0.0049
	120	0.0537	0.2540	0.3248	0.0004	0.0267	36.4	0.0048
	175	0.0709	0.3983	0.5047	0.0008	0.0283	67.4	0.0064
	250	0.0642	0.2046	0.5493	0.0009	0.0200	81.6	0.0058
Paving Equipment Composite		0.0571	0.2759	0.3707	0.0005	0.0249	46.0	0.0052
Plate Compactors	15	0.0033	0.0176	0.0210	0.0000	0.0008	2.9	0.0003
Plate Compactors Composite		0.0033	0.0176	0.0210	0.0000	0.0008	2.9	0.0003
Pressure Washers	15	0.0039	0.0206	0.0272	0.0001	0.0014	3.3	0.0004
	25	0.0063	0.0213	0.0392	0.0001	0.0019	4.8	0.0006
	50	0.0113	0.0597	0.0706	0.0001	0.0036	9.5	0.0010
	120	0.0111	0.0922	0.1019	0.0002	0.0058	16.1	0.0010
Pressure Washers Composite		0.0067	0.0375	0.0469	0.0001	0.0024	6.3	0.0006
Pumps	15	0.0067	0.0312	0.0417	0.0001	0.0023	5.0	0.0006
	25	0.0186	0.0581	0.1068	0.0002	0.0054	13.0	0.0017
	50	0.0400	0.1781	0.1785	0.0003	0.0109	22.9	0.0036
	120	0.0451	0.3180	0.3508	0.0006	0.0234	52.0	0.0041
	175	0.0564	0.4894	0.5035	0.0011	0.0234	93.5	0.0051
	250	0.0578	0.2525	0.6269	0.0015	0.0181	134.3	0.0052
	500	0.0925	0.4231	0.9583	0.0023	0.0295	230.3	0.0083
	750	0.1554	0.6995	1.6259	0.0038	0.0494	380.7	0.0140
	9999	0.4703	1.8298	6.5705	0.0091	0.1573	903.7	0.0424
Pumps Composite		0.0305	0.1815	0.2205	0.0004	0.0126	33.1	0.0028
Rollers	15	0.0049	0.0257	0.0307	0.0001	0.0012	4.2	0.0004
	25	0.0107	0.0366	0.0678	0.0001	0.0025	8.9	0.0010
	50	0.0442	0.1699	0.1448	0.0002	0.0106	17.3	0.0040
	120	0.0454	0.2614	0.2942	0.0005	0.0227	39.3	0.0041
	175	0.0599	0.4089	0.4381	0.0008	0.0237	72.1	0.0054
	250	0.0623	0.2205	0.5446	0.0011	0.0183	102.1	0.0056
	500	0.0842	0.3270	0.6900	0.0014	0.0243	146.1	0.0076

Table 34
SCAB Emission Factors (Diesel)

CY 2018

Air Basin	SC

Equipment	MaxHP	(lb/hr) ROG	(lb/hr) CO	(lb/hr) NOX	(lb/hr) SOX	(lb/hr) PM	(lb/hr) CO2	(lb/hr) CH4
Rollers Composite		0.0455	0.2591	0.2991	0.0005	0.0194	44.7	0.0041
Rough Terrain Forklifts	50	0.0437	0.2197	0.1830	0.0003	0.0110	22.6	0.0039
	120	0.0398	0.2787	0.2646	0.0005	0.0182	41.7	0.0036
	175	0.0608	0.4823	0.4050	0.0009	0.0215	83.3	0.0055
	250	0.0659	0.2337	0.4719	0.0013	0.0158	113.9	0.0059
	500	0.0961	0.3355	0.6315	0.0017	0.0228	171.1	0.0087
Rough Terrain Forklifts Composite		0.0425	0.3001	0.2814	0.0005	0.0185	46.9	0.0038
Rubber Tired Dozers	175	0.1118	0.5463	0.7633	0.0010	0.0431	86.4	0.0101
	250	0.1261	0.3762	0.9924	0.0014	0.0404	122.4	0.0114
	500	0.1688	0.6895	1.2991	0.0017	0.0525	176.7	0.0152
	750	0.2549	1.0352	1.9955	0.0027	0.0797	266.0	0.0230
	1000	0.3993	1.6730	4.0068	0.0040	0.1271	394.8	0.0360
Rubber Tired Dozers Composite		0.1563	0.5882	1.2135	0.0016	0.0492	159.5	0.0141
Rubber Tired Loaders	25	0.0136	0.0465	0.0861	0.0001	0.0032	11.3	0.0012
	50	0.0495	0.2133	0.1728	0.0003	0.0116	20.8	0.0045
	120	0.0440	0.2678	0.2749	0.0005	0.0205	39.3	0.0040
	175	0.0592	0.4153	0.3937	0.0008	0.0216	70.9	0.0053
	250	0.0631	0.2159	0.4764	0.0011	0.0162	99.4	0.0057
	500	0.0960	0.3506	0.6739	0.0016	0.0242	158.1	0.0087
	750	0.1979	0.7178	1.4257	0.0033	0.0506	323.8	0.0179
	1000	0.2610	0.9451	2.9720	0.0040	0.0792	396.1	0.0235
Rubber Tired Loaders Composite		0.0574	0.2981	0.3889	0.0008	0.0200	72.4	0.0052
Scrapers	120	0.0922	0.4460	0.5446	0.0007	0.0441	62.6	0.0083
	175	0.1053	0.5972	0.7145	0.0011	0.0402	98.8	0.0095
	250	0.1137	0.3551	0.9043	0.0016	0.0334	139.7	0.0103
	500	0.1640	0.6113	1.2458	0.0021	0.0472	214.4	0.0148
	750	0.2846	1.0543	2.2093	0.0037	0.0826	370.4	0.0257
Scrapers Composite		0.1424	0.5615	1.0700	0.0018	0.0436	175.1	0.0129
Signal Boards	15	0.0048	0.0251	0.0300	0.0001	0.0012	4.1	0.0004
	50	0.0433	0.1978	0.1881	0.0003	0.0115	24.1	0.0039
	120	0.0464	0.3334	0.3506	0.0006	0.0238	53.5	0.0042
	175	0.0637	0.5520	0.5315	0.0012	0.0257	103.1	0.0057
	250	0.0768	0.3240	0.7540	0.0019	0.0225	170.3	0.0069
Signal Boards Composite		0.0095	0.0611	0.0686	0.0001	0.0033	11.1	0.0009
Skid Steer Loaders	25	0.0117	0.0388	0.0721	0.0001	0.0032	9.2	0.0011
	50	0.0176	0.1357	0.1192	0.0002	0.0043	17.0	0.0016
	120	0.0165	0.1788	0.1314	0.0003	0.0063	28.5	0.0015
Skid Steer Loaders Composite		0.0168	0.1431	0.1200	0.0002	0.0049	20.2	0.0015
Surfacing Equipment	50	0.0211	0.0828	0.0760	0.0001	0.0052	9.4	0.0019
	120	0.0446	0.2716	0.3102	0.0005	0.0223	42.5	0.0040
	175	0.0425	0.3120	0.3390	0.0006	0.0171	57.2	0.0038
	250	0.0489	0.1906	0.4678	0.0010	0.0153	90.0	0.0044
	500	0.0747	0.3367	0.6881	0.0014	0.0233	147.5	0.0067
	750	0.1189	0.5277	1.1129	0.0023	0.0372	231.5	0.0107
Surfacing Equipment Composite		0.0616	0.2793	0.5364	0.0011	0.0194	110.7	0.0056
Sweepers/Scrubbers	15	0.0083	0.0486	0.0580	0.0001	0.0023	8.0	0.0007
	25	0.0158	0.0539	0.0997	0.0002	0.0037	13.1	0.0014
	50	0.0348	0.1984	0.1693	0.0003	0.0091	21.0	0.0031
	120	0.0431	0.3324	0.2963	0.0006	0.0194	50.1	0.0039
	175	0.0644	0.5356	0.4189	0.0010	0.0225	92.7	0.0058
	250	0.0596	0.2147	0.4051	0.0012	0.0136	108.1	0.0054
Sweepers/Scrubbers Composite		0.0454	0.3299	0.2873	0.0006	0.0167	52.4	0.0041
Tractors/Loaders/Backhoes	25	0.0128	0.0436	0.0808	0.0001	0.0031	10.6	0.0012
	50	0.0332	0.1893	0.1562	0.0003	0.0081	20.2	0.0030
	120	0.0290	0.2285	0.1959	0.0004	0.0122	34.5	0.0026

Table 34
SCAB Emission Factors (Diesel)

CY 2018

Air Basin	SC

Equipment	MaxHP	ROG (lb/hr)	CO (lb/hr)	NOX (lb/hr)	SOX (lb/hr)	PM (lb/hr)	CO2 (lb/hr)	CH4 (lb/hr)
	175	0.0446	0.3898	0.2844	0.0008	0.0146	67.6	0.0040
	250	0.0609	0.2323	0.3978	0.0013	0.0134	114.5	0.0055
	500	0.1193	0.4516	0.7161	0.0026	0.0257	230.0	0.0108
	750	0.1795	0.6773	1.1022	0.0039	0.0390	345.0	0.0162
Tractors/Loaders/Backhoes Composite		0.0342	0.2432	0.2222	0.0005	0.0126	44.6	0.0031
Trenchers	15	0.0066	0.0345	0.0412	0.0001	0.0016	5.6	0.0006
	25	0.0265	0.0904	0.1674	0.0003	0.0062	22.0	0.0024
	50	0.0761	0.2432	0.1978	0.0003	0.0170	22.0	0.0069
	120	0.0640	0.3000	0.3934	0.0005	0.0318	43.3	0.0058
	175	0.1004	0.5627	0.7351	0.0011	0.0405	96.0	0.0091
	250	0.1189	0.3884	1.0303	0.0017	0.0388	148.7	0.0107
	500	0.1542	0.6379	1.2963	0.0020	0.0494	207.6	0.0139
	750	0.2923	1.2002	2.5035	0.0039	0.0942	391.4	0.0264
Trenchers Composite		0.0708	0.2913	0.3413	0.0005	0.0262	39.2	0.0064
Welders	15	0.0056	0.0261	0.0348	0.0001	0.0019	4.1	0.0005
	25	0.0108	0.0336	0.0619	0.0001	0.0031	7.5	0.0010
	50	0.0375	0.1560	0.1406	0.0002	0.0096	17.3	0.0034
	120	0.0265	0.1694	0.1859	0.0003	0.0136	26.3	0.0024
	175	0.0469	0.3602	0.3692	0.0007	0.0189	65.5	0.0042
	250	0.0412	0.1566	0.3887	0.0009	0.0119	79.4	0.0037
	500	0.0550	0.2131	0.4831	0.0011	0.0159	111.8	0.0050
Welders Composite		0.0258	0.1252	0.1295	0.0002	0.0089	17.1	0.0023

Source: File offroadEF07_25.xls, downloaded from http://www.aqmd.gov/ceqa/handbook/offroad/offroad.html

0.667 load correction factor

Table 35

Highest (Most Conservative) EMFAC2007 (version 2.3) Emission Factors for On-Road Passenger Vehicles & Delivery Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)

Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:

Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)

The following emission factors were compiled by running the California Air Resources Board's EMFAC2007 (version 2.3) Burden Model, taking the weighted average of vehicle types and simplifying into two categories: **Passenger Vehicles & Delivery Trucks.**

These emission factors can be used to calculate on-road mobile source emissions for the vehicle categories listed in the tables below, by use of the following equation:

Emissions (pounds per day) = N x TL x EF

where N = number of trips, TL = trip length (miles/day), and EF = emission factor (pounds per mile)

This methodology replaces the old EMFAC emission factors in Tables A-9-5-J-1 through A-9-5-L in Appendix A9 of the current SCAQMD CEQA Handbook. All the emission factors account for the emissions from start, running and idling exhaust. In addition, the ROG emission factors include diurnal, hot soak, running and resting emissions, and the PM10 & PM2.5 emission factors include tire and brake wear.

Scenario Year: **2018**

All model years in the range 1972 to 2016

Passenger Vehicles (pounds/mile)	
CO	0.00575800
NOx	0.00055658
ROG	0.00063254
SOx	0.00001071
PM10	0.00009392
PM2.5	0.00006131
CO2	1.10677664
CH4	0.00005623

Delivery Trucks (pounds/mile)	
CO	0.00923234
NOx	0.00979416
ROG	0.00139856
SOx	0.00002749
PM10	0.00040110
PM2.5	0.00031792
CO2	2.84646835
CH4	0.00006203

Source: File onroadEF07_26.xls, downloaded from http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html

Table 36
Highest (Most Conservative) EMFAC2007 (version 2.3)
Emission Factors for On-Road Heavy-Heavy-Duty Diesel Trucks
Projects in the SCAQMD (Scenario Years 2007 - 2026)
Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:
Heavy-Heavy-Duty Diesel Trucks (33,001 to 60,000 pounds)

The following emission factors were compiled by running the California Air Resources Board's EMFAC2007 (version 2.3) Burden Model and extracting the **Heavy-Heavy-Duty Diesel Truck (HHDT)** Emission Factors.

These emission factors can be used to calculate on-road mobile source emissions for the vehicle/emission categories listed in the tables below, by use of the following equation:

Emissions (pounds per day) = N x TL x EF

where N = number of trips, TL = trip length (miles/day), and EF = emission factor (pounds per mile)

The **HHDT-DSL** vehicle/emission category accounts for all emissions from heavy-heavy-duty diesel trucks, including start, running and idling exhaust. In addition, ROG emission factors account for diurnal, hot soak, running and resting emissions, and the PM10 & PM2.5 emission factors account for tire and brake wear.

The **HHDT-DSL, Exh** vehicle/emission category includes only the exhaust portion of PM10 & PM2.5 emissions from heavy-heavy-duty diesel trucks.

Scenario Year: **2018**

All model years in the range 1972 to 2016

HHDT-DSL (pounds/mile)	
CO	**0.00604721**
NOx	**0.01526414**
ROG	**0.00131697**
SOx	**0.00003934**
PM10	**0.00076808**
PM2.5	**0.00062383**
CO2	**4.20756838**
CH4	**0.00006182**

HHDT-DSL, Exh (pounds/mile)	
PM10	**0.00062758**
PM2.5	**0.00057700**

Source: File onroadEFHHDT07_26.xls, downloaded from http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html

Table 37
Motor Vehicle Entrained Road Dust Emission Factors

Vehicle Type	Surface	Silt Content (s, %)[a]	Average Weight (W) (tons)[b]	Un-controlled PM10 Emission Factor (lb/VMT)[c]	Un-controlled PM2.5 Emission Factor (lb/VMT)[c]	Control Efficiency (%)[d]	Controlled PM10 Emission Factor (lb/VMT)[e]	Controlled PM2.5 Emission Factor (lb/VMT)[e]
1/2-Ton Truck, 4x4	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
1/2-Ton Truck, 4x4	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
1/2-Ton Truck, 4x4	Unpaved - public	11	5	1.75E+00	1.42E-01	0%	1.75E+00	1.42E-01
1-Ton Truck, 4x4	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
1-Ton Truck, 4x4	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
1-Ton Truck, 4x4	Unpaved - public	11	5	1.75E+00	1.42E-01	0%	1.75E+00	1.42E-01
1-Ton Crew Cab, 4x4	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
1-Ton Crew Cab, 4x4	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
1-Ton Crew Cab, 4x4	Unpaved - public	11	5	1.75E+00	1.42E-01	0%	1.75E+00	1.42E-01
3/4-Ton Truck, 4x4	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
3/4-Ton Truck, 4x4	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
3/4-Ton Truck, 4x4	Unpaved - public	11	5	1.75E+00	1.42E-01	0%	1.75E+00	1.42E-01
Arrow Board Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Arrow Board Truck	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Arrow Board Truck	Unpaved - public	11	17	3.03E+00	1.50E-01	0%	3.03E+00	1.50E-01
Arrowhead Trailer	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Arrowhead Trailer	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Arrowhead Trailer	Unpaved - public	11	17	3.03E+00	1.50E-01	0%	3.03E+00	1.50E-01
Auger Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Auger Truck	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Auger Truck	Unpaved - public	11	17	3.03E+00	1.50E-01	0%	3.03E+00	1.50E-01
Boom Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Boom Truck	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Boom Truck	Unpaved - public	11	17	3.03E+00	1.50E-01	0%	3.03E+00	1.50E-01
Boom/Crane Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Boom/Crane Truck	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Boom/Crane Truck	Unpaved - public	11	17	3.03E+00	1.50E-01	0%	3.03E+00	1.50E-01
Bull Wheel Puller	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Bull Wheel Puller	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Bull Wheel Puller	Unpaved - public	11	17	3.03E+00	1.50E-01	0%	3.03E+00	1.50E-01
Bucket Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Bucket Truck	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Bucket Truck	Unpaved - public	11	17	3.03E+00	1.50E-01	0%	3.03E+00	1.50E-01
Carry-all Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Carry-all Truck	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Carry-all Truck	Unpaved - public	11	17	3.03E+00	1.50E-01	0%	3.03E+00	1.50E-01
Concrete Mixer Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Concrete Mixer Truck	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Concrete Mixer Truck	Unpaved - public	11	17	3.03E+00	1.50E-01	0%	3.03E+00	1.50E-01
Crew Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Crew Truck	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Crew Truck	Unpaved - public	11	5	1.75E+00	1.42E-01	0%	1.75E+00	1.42E-01
Crewcab Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Crewcab Truck	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Crewcab Truck	Unpaved - public	11	5	1.75E+00	1.42E-01	0%	1.75E+00	1.42E-01
Crushed Rock Delivery Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Crushed Rock Delivery Truck	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Crushed Rock Delivery Truck	Unpaved - public	11	17	3.03E+00	1.50E-01	0%	3.03E+00	1.50E-01
Dump Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Dump Truck	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Dump Truck	Unpaved - public	11	17	3.03E+00	1.50E-01	0%	3.03E+00	1.50E-01
Delivery Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Delivery Truck	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Delivery Truck	Unpaved - public	11	17	3.03E+00	1.50E-01	0%	3.03E+00	1.50E-01
Dump Truck (Trash)	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Dump Truck (Trash)	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Dump Truck (Trash)	Unpaved - public	11	17	3.03E+00	1.50E-01	0%	3.03E+00	1.50E-01
Extendable Flat Bed Pole Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Extendable Flat Bed Pole Truck	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Extendable Flat Bed Pole Truck	Unpaved - public	11	5	1.75E+00	1.42E-01	0%	1.75E+00	1.42E-01
Truck, Semi-Tractor	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Truck, Semi-Tractor	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Truck, Semi-Tractor	Unpaved - public	11	17	3.03E+00	1.50E-01	0%	3.03E+00	1.50E-01
Flat Bed Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Flat Bed Truck	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Flat Bed Truck	Unpaved - public	11	5	1.75E+00	1.42E-01	0%	1.75E+00	1.42E-01
Flat Bed Truck/Trailer	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Flat Bed Truck/Trailer	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Flat Bed Truck/Trailer	Unpaved - public	11	5	1.75E+00	1.42E-01	0%	1.75E+00	1.42E-01
Flat Bed Pole Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Flat Bed Pole Truck	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Flat Bed Pole Truck	Unpaved - public	11	5	1.75E+00	1.42E-01	0%	1.75E+00	1.42E-01
Foreman Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Foreman Truck	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Foreman Truck	Unpaved - public	11	5	1.75E+00	1.42E-01	0%	1.75E+00	1.42E-01
Lift Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Lift Truck	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Lift Truck	Unpaved - public	11	5	1.75E+00	1.42E-01	0%	1.75E+00	1.42E-01
Lineman/Boom Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Lineman/Boom Truck	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02

Table 37
Motor Vehicle Entrained Road Dust Emission Factors

Vehicle Type	Surface	Silt Content (s, %)[a]	Average Weight (W) (tons)[b]	Un-controlled PM10 Emission Factor (lb/VMT)[c]	Un-controlled PM2.5 Emission Factor (lb/VMT)[c]	Control Efficiency (%)[d]	Controlled PM10 Emission Factor (lb/VMT)[e]	Controlled PM2.5 Emission Factor (lb/VMT)[e]
Lineman/Boom Truck	Unpaved - public	11	5	1.75E+00	1.42E-01	0%	1.75E+00	1.42E-01
Low Bed Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Low Bed Truck	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Low Bed Truck	Unpaved - public	11	5	1.75E+00	1.42E-01	0%	1.75E+00	1.42E-01
Lowboy Truck/Trailer	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Lowboy Truck/Trailer	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Lowboy Truck/Trailer	Unpaved - public	11	17	3.03E+00	1.50E-01	0%	3.03E+00	1.50E-01
Manlift/Bucket Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Manlift/Bucket Truck	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Manlift/Bucket Truck	Unpaved - public	11	17	3.03E+00	1.50E-01	0%	3.03E+00	1.50E-01
Maintenance Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Maintenance Truck	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Maintenance Truck	Unpaved - public	11	5	1.75E+00	1.42E-01	0%	1.75E+00	1.42E-01
Material Handling Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Material Handling Truck	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Material Handling Truck	Unpaved - public	11	17	3.03E+00	1.50E-01	0%	3.03E+00	1.50E-01
Pipe Truck/Trailer	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Pipe Truck/Trailer	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Pipe Truck/Trailer	Unpaved - public	11	5	1.75E+00	1.42E-01	0%	1.75E+00	1.42E-01
Pulling Rig	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Pulling Rig	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Pulling Rig	Unpaved - public	11	5	1.75E+00	1.42E-01	0%	1.75E+00	1.42E-01
Pumper/Tanker Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Pumper/Tanker Truck	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Pumper/Tanker Truck	Unpaved - public	11	17	3.03E+00	1.50E-01	0%	3.03E+00	1.50E-01
Reel Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Reel Truck	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Reel Truck	Unpaved - public	11	5	1.75E+00	1.42E-01	0%	1.75E+00	1.42E-01
Rodder Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Rodder Truck	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Rodder Truck	Unpaved - public	11	5	1.75E+00	1.42E-01	0%	1.75E+00	1.42E-01
Sock Line Puller	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Sock Line Puller	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Sock Line Puller	Unpaved - public	11	5	1.75E+00	1.42E-01	0%	1.75E+00	1.42E-01
Splice Lab Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Splice Lab Truck	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Splice Lab Truck	Unpaved - public	11	5	1.75E+00	1.42E-01	0%	1.75E+00	1.42E-01
Splicing Lab	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Splicing Lab	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Splicing Lab	Unpaved - public	11	5	1.75E+00	1.42E-01	0%	1.75E+00	1.42E-01
Splicing Rig	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Splicing Rig	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Splicing Rig	Unpaved - public	11	5	1.75E+00	1.42E-01	0%	1.75E+00	1.42E-01
Static Truck/Tensioner	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Static Truck/Tensioner	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Static Truck/Tensioner	Unpaved - public	11	5	1.75E+00	1.42E-01	0%	1.75E+00	1.42E-01
Tool Trailer	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Tool Trailer	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Tool Trailer	Unpaved - public	11	5	1.75E+00	1.42E-01	0%	1.75E+00	1.42E-01
Troubleman Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Troubleman Truck	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Troubleman Truck	Unpaved - public	11	5	1.75E+00	1.42E-01	0%	1.75E+00	1.42E-01
Truck, Semi Tractor	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Truck, Semi Tractor	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Truck, Semi Tractor	Unpaved - public	11	17	3.03E+00	1.50E-01	0%	3.03E+00	1.50E-01
Van	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Van	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Van	Unpaved - public	11	5	1.75E+00	1.42E-01	0%	1.75E+00	1.42E-01
Water Truck	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Water Truck	Unpaved - private	11	17	3.03E+00	1.50E-01	83%	5.06E-01	2.50E-02
Water Truck	Unpaved - public	11	17	3.03E+00	1.50E-01	0%	3.03E+00	1.50E-01
Wire Truck/Trailer	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Wire Truck/Trailer	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Wire Truck/Trailer	Unpaved - public	11	5	1.75E+00	1.42E-01	0%	1.75E+00	1.42E-01
Worker Commute	Paved	0.24	2.4	1.47E-03	3.60E-04	0%	1.47E-03	3.60E-04
Worker Commute	Unpaved - private	11	2.4	1.25E+00	1.37E-01	83%	2.10E-01	2.29E-02
Worker Commute	Unpaved - public	11	2.4	1.25E+00	1.37E-01	0%	1.25E+00	1.37E-01
Subtransmission Line Inspection	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Subtransmission Line Inspection	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Subtransmission Line Inspection	Unpaved - public	11	5	1.75E+00	1.42E-01	0%	1.75E+00	1.42E-01
Substation Site Visit	Paved	0.24	3.4	2.09E-03	5.13E-04	0%	2.09E-03	5.13E-04
Substation Site Visit	Unpaved - private	11	5	1.75E+00	1.42E-01	83%	2.91E-01	2.37E-02
Substation Site Visit	Unpaved - public	11	5	1.75E+00	1.42E-01	0%	1.75E+00	1.42E-01

[a] Paved road silt content from ARB Emission Inventory Methodology 7.9, Entrained Paved Road Dust (1997) for local roads, http://www.arb.ca.gov/ei/areasrc/fullpdf/full7-9.pdf
Unpaved road moisture content obtained from the WRAP Handbook, (2006) Table 6.2 Typcial Silt Content Values of Surface Material of Public Unpaved Roads

[b] Average paved on-road vehicle weight in Riverside County from ARB Emission Inventory Methodology 7.9, Entrained Paved Road Dust (1997)
Unpaved worker commuting weight on access road assumed to be same as paved road weight
Unpaved weight for other trucks is based on upper limit of 33,000 lbs for medium heavy-duty trucks.

Table 37
Motor Vehicle Entrained Road Dust Emission Factors

Vehicle Type	Surface	Silt Content (s, %)[a]	Average Weight (W) (tons)[b]	Un-controlled PM10 Emission Factor (lb/VMT)[c]	Un-controlled PM2.5 Emission Factor (lb/VMT)[c]	Control Efficiency (%)[d]	Controlled PM10 Emission Factor (lb/VMT)[e]	Controlled PM2.5 Emission Factor (lb/VMT)[e]

[c] Equations:

$EF(paved) = k_p (sL)^{0.91} (W)^{1.02}$ Ref: AP-42, Section 13.2.1, "Paved Roads," January 2011

$EF (unpaved) = k (s/12)^a (W/3)^b$ Ref: AP-42, Section 13.2.2, "Unpaved Roads," November 2006

[d] Control efficiency, for private unpaved roads only, based on SCAQMD Fugitive Dust Mitigation Table XI-A for watering (61 percent) and speed control to 15 mph (57 percent), or 83.3 percent combined.

Constants:

k_p =	0.0022	(Particle size multiplier for PM10)
	0.00054	(Particle size multiplier for PM2.5)
k_u =	1.5	(Particle size multiplier for PM10)
	0.15	(Particle size multiplier for PM2.5)
a =	0.9	for PM10
	0.9	for PM2.5
b =	0.45	for PM10
	0.045	for PM2.5
^{c} =	0.2	for PM10
	0.2	for PM2.5

Table 38
Fugitive Dust Emission Factors
Soil Dropping During Excavation

Emission Factor [lb/cu. yd] = 0.0011 x (mean wind speed [mi/hr] / 5)$^{1.3}$ / (moisture [%] / 2)$^{1.4}$ x (number drops per ton) x (density [ton/cu. yd])
Reference: AP-42, Equation (1), Section 13.2.4, November 2006

Parameter	Value	Basis
Mean Wind Speed	12	SCAQMD CEQA Air Quality Handbook (1993), Table 9-9-G, default
Moisture	12	SCAQMD CEQA Fugitive Dust Mitigation, Table XI-A minimum moisture content due to watering
Number Drops	4	Assumption
Soil Density	1.215	Table 2.46, Handbook of Solid Waste Management

Controlled PM10 Emission Factor	1.36E-03	lb/cu. yd
Controlled PM2.5 Emission Factor[a]	2.82E-04	lb/cu. yd

[a] PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction of PM10 in Construction Dust = 0.208 from Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006

Emissions [pounds per day] = Controlled emission factor [pounds per cubic yard] x Volume soil handled [cubic yards per day]

Storage Pile Wind Erosion

Emission Factor [lb/day-acre] = 0.85 x (silt content [%] / 1.5) x (365 / 235) x (percentage of time unobstructed wind exceeds 12 mph / 15)
Reference: SCAQMD CEQA Air Quality Handbook (1993), Table 9-9-E

Parameter	Value	Basis
Silt Content	7.5	SCAQMD CEQA Air Quality Analysis Handbook, Table A9-9-F-2 for overburden
Pct. time wind > 12 mph	100	Worst-case assumption

PM10 Emission Factor (Uncontrolled)	44.0	lb/day-acre
Reduction from watering	90%	Control efficiency from watering storage pile by hand at a rate of 1.4 gallons/hour-yard^2, Table XI-B, Mitigation Measure Examples, Fugitive Dust from Materials Handling, http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/MM_fugitive.html
Controlled PM10 Emission Factor	4.4	lb/day-acre
Controlled PM2.5 Emission Factor[a]	0.9	lb/day-acre

[a] PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction of PM10 in Construction Dust = 0.208 from Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006

Emissions [pounds per day] = Controlled emission factor [pounds per acre-day] x Storage pile surface area [acres]

Bulldozing, Scraping and Grading

Emission Factor [lb/hr] = 0.75 x (silt content [%])$^{1.5}$ / (moisture)$^{1.4}$
Reference: AP-42, Table 11.9-1, July 1998

Parameter	Value	Basis
Silt Content	7.5	SCAQMD CEQA Air Quality Analysis Handbook, Table A9-9-F-2 for overburden
Moisture	12	SCAQMD CEQA Fugitive Dust Mitigation, Table XI-A minimum moisture content due to watering

Controlled PM10 Emission Factor	0.475	lb/hr
Controlled PM2.5 Emission Factor[a]	0.099	lb/hr

[a] PM2.5 emission factor [lb/hr] = PM10 emission factor [lb/hr] x PM2.5 fraction of PM10

PM2.5 Fraction of PM10 in Construction Dust = 0.208 from Appendix A, Final–Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, SCAQMD, October 2006

[b] Watering is assumed to be used to maintain moist conditions, so no further reduction from watering is included.

Emissions [pounds per day] = Controlled emission factor [pounds per hour] x Bulldozing, scraping or grading time [hours/day]