APPENDIX A.

Air Pollutant Emissions Calculations

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Emission Calculation Assumptions

Proposed Project General Assumptions

1) Construction work occurs 6 days a week excepting major holidays.

Offroad Equipment Emission Calculation Assumptions

1) Emission factors are the latest available from the SCAQMD website, where the nearest horsepower sized equipment given in the SCAQMD emission factor database are used with a ratio of actual assumed equipment horsepower to derive hourly emission factors.
2) Emission factors from each year assumed in the project schedule are used to calculate the annual emissions.
3) Equipment type, number, and usage estimates are used as estimated using equipment data and quantity estimates are from the PEA revised to create a consistent equipment list given certain variability between the segment construction elements.
4) The following vehicle types, which could be offroad vehicles are assumed to be onroad vehicles considering the project description, needs and location: water trucks and dump trucks.

Onroad Equipment Emission Calculations Assumptions

1) Emission factors are the latest available from the SCAQMD website, where the vehicles have been assigned three classes, passenger (i.e. employee vehicles and pickups), delivery (all nonpassenger vehicles smaller than Heavy-Heavy Duty), and heavy-heavy duty vehicles.
2) Emission factors from each year assumed in the project schedule are used to calculate the annual emissions.
3) Trip estimates are based on PEA estimates of crew size and onroad vehicle numbers and trips revised to create a consistent basis given certain variability between construction segment elements.
4) For simplification all onroad traffic for the project is assumed to occur within the jurisdiction of the specific project segment construction element.

Fugitive Dust Emission Calculations Assumptions

1) Unpaved road travel per trip is minimized to the extent feasible and shall range from zero for upgrades to paved substation sites to approximately 7.2 miles for construction segments within the ANF. Unpaved road distances were determined using GIS data for each construction site (tower, staging area, etc.) and employees were assumed to park personal vehicles on unpaved surfaces within staging areas requiring 0.1 mile of unpaved travel.
2) Unpaved road emission factors are calculated using the most current version of USEPA AP-42 Section 13.2.1 and use the following assumptions: 1) Silt content is assumed to be 12% on average (SCAQMD level for sand and gravel plant roads and the site is in a stream bed); and 2) average vehicle weight based on VMT estimate for unpaved roads
3) Paved road emission factors are calculated using the most current version of USEPA AP-42 Section 13.2.1 and use the following assumptions: 1) Silt loading is average for 5000-10000 ADT road; 2) average vehicle weight is calculated on VMT average basis.
4) Earthmoving emission factors are calculated using the recent version of USEPA AP-42 Section 11.9 for Dozing and Grading, and Section 13.2.4 for soil handling (drop emissions).
5) Specific assumptions related to the calculations, such as silt content or silt loading, are noted in the calculation sheets.

Helicopter Emission Calculations Assumptions

1) The type of helicopters and number of helicopter trips for tower helicopter construction are based on estimates provided by SCE.

Emission Estimate Limitations

1) The SCE project schedule has errors and inconsistencies that were corrected to the extent possible.

2) The actual project construction schedule would have greater variability and activity overlap in each segment or subsegment as problems such as weather or other factors delay work and work delays are later compensated for and as foundation/tower/stringing/restoration crews work sequentially down each T-Line Segment.
3) The equipment data provided by SCE was inconsistent between segments. Some consistency was attempted given differences in Segment needs such as more road construction through the ANF than in the LA basin.
4) The annual emissions estimate for each air basin and for the ANF are estimated based on a certain progression and direction of activities in those construction elements that cross borders.
5) There are likely unknown project construction requirements, such as upgrading certain paved roads within the ANF, that are not currently included in the construction assumptions.
6) The helicopter emission factors come from a old source and use engines that do not match the helicopter engines being used, which may cause an overestimation of these emissions depending on the accuracy of the helicopter trip estimate. Unlike large fixed wing aircraft engines helicopter engines do not require emission testing by the ICAO so no new emission factors are readily available.

TRTP Alternative 2 Project Construction Emission Totals
All Jurisdictions

2009 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.453	3.303	3.081	0.005	0.134	0.114
Offroad Vehicles/Equipment	0.671	2.060	3.947	0.004	0.260	0.239
Helicopter	0.000	0.000	0.000	0.000	0.000	0.000
Fugitive Dust	---	---	---	---	6.704	1.377
Totals	**1.12**	**5.36**	**7.03**	**0.01**	**7.10**	**1.73**

2010 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	6.818	47.537	44.804	0.081	2.057	1.725
Offroad Vehicles/Equipment	11.372	38.644	75.145	0.079	4.586	4.219
Helicopter	1.701	8.184	9.613	0.080	0.531	0.488
Fugitive Dust	---	---	---	---	111.807	26.372
Totals	**19.89**	**94.36**	**129.56**	**0.24**	**118.98**	**32.80**

2011 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	4.058	30.579	23.720	0.050	1.104	0.910
Offroad Vehicles/Equipment	6.769	23.688	42.118	0.045	2.739	2.520
Helicopter	1.437	5.629	7.756	0.065	0.427	0.393
Fugitive Dust	---	---	---	---	57.955	11.882
Totals	**12.26**	**59.90**	**73.59**	**0.16**	**62.22**	**15.70**

2012 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	2.264	16.674	13.610	0.030	0.645	0.530
Offroad Vehicles/Equipment	3.178	11.903	20.641	0.023	1.301	1.197
Helicopter	2.660	9.806	11.734	0.098	0.647	0.595
Fugitive Dust	---	---	---	---	36.721	7.848
Totals	**8.10**	**38.38**	**45.99**	**0.15**	**39.31**	**10.17**

2013 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.109	0.883	0.474	0.002	0.025	0.019
Offroad Vehicles/Equipment	0.145	0.597	1.015	0.001	0.058	0.053
Helicopter	0.005	0.011	0.022	0.000	0.001	0.001
Fugitive Dust	---	---	---	---	1.852	0.357
Totals	**0.26**	**1.49**	**1.51**	**0.00**	**1.94**	**0.43**

TRTP Alternative 2 Project Construction Emission Totals
SCAQMD Jurisdiction

Worst-Case Day	Emissions (lbs/day)					
(Year 2010)	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	31.91	224.03	207.46	0.38	9.48	7.94
Offroad Vehicles/Equipment	25.54	86.57	165.52	0.17	10.25	9.43
Helicopter	275.95	1,004.12	1,092.23	9.14	60.30	55.47
Fugitive Dust	---	---	---	---	494.30	115.44
Totals	**333.41**	**1,314.72**	**1,465.21**	**9.68**	**574.33**	**188.29**

2009 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.122	0.904	0.813	0.001	0.035	0.029
Offroad Vehicles/Equipment	0.161	0.500	0.772	0.001	0.063	0.058
Helicopter	0.000	0.000	0.000	0.000	0.000	0.000
Fugitive Dust	---	---	---	---	2.010	0.420
Totals	**0.28**	**1.40**	**1.59**	**0.00**	**2.11**	**0.51**

2010 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	2.423	16.383	17.165	0.029	0.782	0.660
Offroad Vehicles/Equipment	4.326	14.971	28.303	0.029	1.772	1.630
Helicopter	1.565	7.879	8.990	0.075	0.497	0.457
Fugitive Dust	---	---	---	---	33.552	7.899
Totals	**8.31**	**39.23**	**54.46**	**0.13**	**36.60**	**10.65**

2011 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	2.942	22.026	17.502	0.037	0.813	0.672
Offroad Vehicles/Equipment	4.988	17.329	30.670	0.033	2.011	1.850
Helicopter	1.294	5.310	7.104	0.059	0.391	0.360
Fugitive Dust	---	---	---	---	39.376	8.107
Totals	**9.22**	**44.67**	**55.28**	**0.13**	**42.59**	**10.99**

2012 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	1.429	10.463	8.720	0.019	0.413	0.340
Offroad Vehicles/Equipment	1.868	7.067	12.109	0.014	0.779	0.717
Helicopter	1.158	4.010	5.135	0.043	0.282	0.260
Fugitive Dust	---	---	---	---	22.809	4.838
Totals	**4.46**	**21.54**	**25.96**	**0.08**	**24.28**	**6.15**

2013 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.002	0.011	0.015	0.000	0.001	0.001
Offroad Vehicles/Equipment	0.002	0.007	0.009	0.000	0.001	0.001
Helicopter	0.000	0.000	0.000	0.000	0.000	0.000
Fugitive Dust	---	---	---	---	0.083	0.017
Totals	**0.00**	**0.02**	**0.02**	**0.00**	**0.08**	**0.02**

TRTP Alternative 2 Project Construction Emission Totals
AVAQMD Jurisdiction

Worst-Case Day	Emissions (lbs/day)					
(Year 2012)	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	16.02	120.08	92.13	0.21	4.38	3.58
Offroad Vehicles/Equipment	31.87	114.81	197.89	0.22	12.37	11.38
Helicopter	357.11	1,271.53	1,379.43	11.54	76.13	70.04
Fugitive Dust	---	---	---	---	271.90	53.29
Totals	**405.00**	**1,506.42**	**1,669.44**	**11.98**	**364.78**	**138.30**

2009 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.271	1.950	1.875	0.003	0.083	0.070
Offroad Vehicles/Equipment	0.447	1.365	2.902	0.003	0.172	0.158
Helicopter	0.000	0.000	0.000	0.000	0.000	0.000
Fugitive Dust	---	---	---	---	4.025	0.812
Totals	**0.72**	**3.32**	**4.78**	**0.01**	**4.28**	**1.04**

2010 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	2.233	15.390	15.070	0.026	0.691	0.581
Offroad Vehicles/Equipment	4.037	13.711	26.686	0.029	1.623	1.493
Helicopter	0.044	0.098	0.199	0.002	0.011	0.010
Fugitive Dust	---	---	---	---	44.333	10.589
Totals	**6.31**	**29.20**	**41.96**	**0.06**	**46.66**	**12.67**

2011 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.819	6.136	4.874	0.010	0.226	0.187
Offroad Vehicles/Equipment	1.284	4.573	8.110	0.009	0.528	0.486
Helicopter	0.110	0.246	0.503	0.004	0.027	0.025
Fugitive Dust	---	---	---	---	15.025	3.075
Totals	**2.21**	**10.96**	**13.49**	**0.02**	**15.81**	**3.77**

2012 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.835	6.211	4.890	0.011	0.233	0.191
Offroad Vehicles/Equipment	1.310	4.836	8.532	0.010	0.522	0.480
Helicopter	1.503	5.796	6.599	0.055	0.364	0.335
Fugitive Dust	---	---	---	---	13.911	3.010
Totals	**3.65**	**16.84**	**20.02**	**0.08**	**15.03**	**4.02**

2013 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.108	0.872	0.459	0.002	0.024	0.019
Offroad Vehicles/Equipment	0.143	0.590	1.006	0.001	0.057	0.053
Helicopter	0.005	0.011	0.022	0.000	0.001	0.001
Fugitive Dust	---	---	---	---	1.768	0.340
Totals	**0.26**	**1.47**	**1.49**	**0.00**	**1.85**	**0.41**

TRTP Alternative 2 Project Construction Emission Totals
KCAPCD Jurisdiction

Worst-Case Day	Emissions (lbs/day)					
(Year 2010)	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	34.22	256.16	187.24	0.40	8.59	7.07
Offroad Vehicles/Equipment	41.22	136.98	254.81	0.25	16.39	15.08
Helicopter	2.10	4.69	9.58	0.08	0.52	0.48
Fugitive Dust	---	---	---	---	445.04	88.32
Totals	**77.54**	**397.84**	**451.63**	**0.73**	**470.54**	**110.95**

2009 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.060	0.449	0.393	0.001	0.017	0.014
Offroad Vehicles/Equipment	0.063	0.194	0.273	0.000	0.025	0.023
Helicopter	0.000	0.000	0.000	0.000	0.000	0.000
Fugitive Dust	---	---	---	---	0.668	0.145
Totals	**0.12**	**0.64**	**0.67**	**0.00**	**0.71**	**0.18**

2010 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	2.162	15.764	12.569	0.025	0.584	0.484
Offroad Vehicles/Equipment	3.009	9.961	20.156	0.021	1.192	1.096
Helicopter	0.093	0.207	0.424	0.004	0.023	0.021
Fugitive Dust	---	---	---	---	33.922	7.883
Totals	**5.26**	**25.93**	**33.15**	**0.05**	**35.72**	**9.49**

2011 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.296	2.417	1.344	0.004	0.065	0.052
Offroad Vehicles/Equipment	0.497	1.786	3.338	0.004	0.200	0.184
Helicopter	0.032	0.073	0.149	0.001	0.008	0.007
Fugitive Dust	---	---	---	---	3.555	0.699
Totals	**0.83**	**4.28**	**4.83**	**0.01**	**3.83**	**0.94**

2012 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.000	0.000	0.000	0.000	0.000	0.000
Offroad Vehicles/Equipment	0.000	0.000	0.000	0.000	0.000	0.000
Helicopter	0.000	0.000	0.000	0.000	0.000	0.000
Fugitive Dust	---	---	---	---	0.000	0.000
Totals	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2013 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.000	0.000	0.000	0.000	0.000	0.000
Offroad Vehicles/Equipment	0.000	0.000	0.000	0.000	0.000	0.000
Helicopter	0.000	0.000	0.000	0.000	0.000	0.000
Fugitive Dust	---	---	---	---	0.000	0.000
Totals	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Major Elements																		
# Days in Full Month (6 days/week)																		
Onsite Construction Elements Begin in 2009							Employee Vehicle				Delivery Truck				Heavy Heavy Duty Truck			
Segment 4	**Crew Size**	**Total Days**	**Start Date**	**End Date**			**# of vehicle**	**Paved**	**Unpaved**	**Total VMT/day**	**# of vehicle**	**Paved**	**Unpaved**	**Total VMT/day**	**# of vehicle**	**Paved**	**Unpaved**	**Total VMT/day**
Construction of Marshalling Yards	6	**192**	**6-Mar-09**	**20-Oct-09**			6	60	0.10	360.60	3	60	0.10	180.30	1	60	0.10	60.10
Marshalling Yards, -5 & +5 other elements	4	**250**	**31-Mar-10**	**27-Jan-11**			4	60	0.10	240.40	1	60	0.10	60.10	1	210	0.10	210.10
Road Maintenance	2	**235**	**12-Apr-10**	**21-Jan-11**			2	60	0.10	120.20	1	60	2.94	62.94	0	60	2.94	0.00
500 kV T/L Antelope-Whirlwind																		
Road Construction (-5)	8	**39**	**6-Apr-10**	**20-May-10**			8	60	0.10	480.80	2	60	1.41	122.81	3	60	1.41	184.22
Foundation Construction	24	**53**	**20-May-10**	**22-Jul-10**			24	60	0.10	1442.40	8	60	1.41	491.26	7	60	1.41	429.85
Tower Construction	48	**135**	**25-Jun-10**	**4-Dec-10**			48	60	0.10	2884.80	14	60	1.41	859.70	3	60	1.41	184.22
String Cable	40	**54**	**5-Nov-10**	**11-Jan-11**			40	60	0.10	2404.00	15	60	1.41	921.10	6	60	1.41	368.44
Restoration/Guard Poles +3	7	**16**	**23-Dec-10**	**14-Jan-11**			7	60	0.10	420.70	3	60	1.41	184.22	3	60	1.41	184.22
IT/Communications -Antelope to Whirlwind	6	**36**	**2-Feb-11**	**16-Mar-11**			6	60	0.10	360.60	1	60	1.41	61.41	0	60	1.41	0.00
230 kV T/L Drycreek-Whirlwind																		
Road Construction	7	**38**	**20-May-10**	**5-Jul-10**			7	60	0.10	420.70	2	60	4.58	129.15	3	60	4.58	193.73
Foundation Construction	24	**55**	**26-Aug-10**	**29-Oct-10**			24	60	0.10	1442.40	8	60	4.58	516.61	7	60	4.58	452.04
Tower Construction	48	**71**	**1-Oct-10**	**27-Dec-10**			48	60	0.10	2884.80	14	60	4.58	904.07	3	60	4.58	193.73
String Cable	40	**35**	**4-Dec-10**	**18-Jan-11**			40	60	0.10	2404.00	15	60	4.58	968.65	6	60	4.58	387.46
Restoration/Guard Poles	7	**4**	**18-Jan-11**	**21-Jan-11**			7	60	0.10	420.70	3	60	4.58	193.73	3	60	4.58	193.73
IT/Communications - Drycreek to Whirlwind	6	**36**	**16-Feb-11**	**30-Mar-11**			6	60	0.10	360.60	1	60	4.58	64.58	0	60	4.58	0.00
Path 26 Loop																		
Road Construction	7	**39**	**6-Apr-10**	**20-May-10**			7	60	0.10	420.70	2	60	1.41	122.81	3	60	1.41	184.22
Foundation Construction	24	**30**	**23-Jul-10**	**26-Aug-10**			24	60	0.10	1442.40	8	60	1.41	491.26	7	60	1.41	429.85
Tower Construction	48	**19**	**26-Aug-10**	**17-Sep-10**			48	60	0.10	2884.80	14	60	1.41	859.70	3	60	1.41	184.22
String Cable	40	**13**	**17-Sep-10**	**1-Oct-10**			40	60	0.10	2404.00	15	60	1.41	921.10	6	60	1.41	368.44
Restoration/Guard Poles	7	**2**	**30-Sep-10**	**1-Oct-10**			7	60	0.10	420.70	3	60	1.41	184.22	3	60	1.41	184.22
IT/Communications	6	**37**	**19-Aug-10**	**1-Oct-10**			6	60	0.10	360.60	1	60	1.41	61.41	0	60	1.41	0.00
66 kV Relocate at Antelope																		
Construction - Relocate 66 kV at Antelope	6	**142**	**17-Nov-09**	**6-May-10**			6	60	0.10	360.60	2	40	0.10	80.20	2	40	0.10	80.20
							Employee Vehicle				Delivery Truck				Heavy Heavy Duty Truck			
Segment 5	**Crew Size**	**Total Days**	**Start Date**	**End Date**			**# of vehicle**	**Paved**	**Unpaved**	**Total VMT/day**	**# of vehicle**	**Paved**	**Unpaved**	**Total VMT/day**	**# of vehicle**	**Paved**	**Unpaved**	**Total VMT/day**
Construction of Marshalling Yards	6	**308**	**11-Jul-09**	**16-Jul-10**			6	40	0.10	240.60	3	40	1.61	124.84	1	40	1.61	41.61
Marshalling Yards	4	**497**	**10-Nov-09**	**2-Jul-11**			4	40	0.10	160.40	1	40	1.61	41.61	1	190	1.61	191.61
Road Maintenance	2	**364**	**13-Apr-10**	**24-Jun-11**			2	40	0.10	80.20	1	40	1.61	41.61	1	40	1.61	41.61
230 kV Removal T/L Antelope-Vincent																		
Wreckout - Antelope-Mesa	26	**7**	**6-Dec-11**	**13-Dec-11**			26	40	0.10	1042.60	12	40	1.61	499.38	10	40	1.61	416.15
Wreckout - Antelope-Vincent	26	**7**	**6-Dec-11**	**13-Dec-11**			26	40	0.10	1042.60	12	40	1.61	499.38	10	40	1.61	416.15
500 kV T/L Antelope-Vincent (#2 - 3a, b, &c)																		
Road Construction	8	**39**	**6-Apr-10**	**20-May-10**			8	40	0.10	320.80	2	40	1.61	83.23	3	40	1.61	124.84
Foundation Construction	24	**58**	**11-Sep-10**	**20-Nov-10**			24	40	0.10	962.40	8	40	1.61	332.92	7	40	1.61	291.30
Tower Construction	48	**141**	**23-Oct-10**	**13-Apr-11**			48	40	0.10	1924.80	14	40	1.61	582.61	3	40	1.61	124.84
String Cable	40	**72**	**16-Mar-11**	**23-Jun-11**			40	40	0.10	1604.00	15	40	1.61	624.22	6	40	1.61	249.69
Restoration/Guard Poles	7	**18**	**7-Jun-11**	**27-Jun-11**			7	40	0.10	280.70	3	40	1.61	124.84	3	40	1.61	124.84
Remove 18-mi 230kV T/L Antelope-Mesa	26	**96**	**20-May-10**	**11-Sep-10**			26	40	0.10	1042.60	12	40	1.61	499.38	10	40	1.61	416.15
Remove 18-mi 230kV T/L Antelope-Vincent	26	**96**	**20-May-10**	**11-Sep-10**			26	40	0.10	1042.60	12	40	1.61	499.38	10	40	1.61	416.15
IT/Communications	6	**72**	**23-Feb-11**	**17-May-11**			6	40	0.10	240.60	1	40	1.61	41.61	0	40	1.61	0.00
500 kV T/L Antelope-Vincent (#1)																		
Reconfigure 500kV T/L Antelope-Vincent	6	**12**	**16-Jan-12**	**30-Jan-12**			6	40	0.10	240.60	2	40	1.61	83.23	1	40	1.61	41.61
Test/Energize	3	**3**	**30-Jan-12**	**1-Feb-12**			3	40	0.10	120.30	0	40	1.61	0.00	0	40	1.61	0.00
Shoe Fly - Sagebrush Vincent	6	**24**	**17-Nov-09**	**15-Dec-09**			6	40	0.10	240.60	2	40	1.61	83.23	2	40	1.61	83.23
Construction - Sagebrush Vincent	6	**47**	**16-Dec-09**	**11-Feb-10**			6	40	0.10	240.60	2	40	1.61	83.23	2	40	1.61	83.23
Cutover of Sagebrush Vincent	6	**19**	**1-Apr-10**	**22-Apr-10**			6	40	0.10	240.60	2	40	1.61	83.23	2	40	1.61	83.23
Relocate Sagebrush - Antelope																		
Shoe Fly - Sagebrush Antelope	6	**24**	**17-Nov-09**	**15-Dec-09**			6	40	0.10	240.60	2	40	1.61	83.23	2	40	1.61	83.23
Construction - Sagebrush Antelope	6	**70**	**16-Dec-09**	**11-Mar-10**			6	40	0.10	240.60	2	40	1.61	83.23	2	40	1.61	83.23
Cutover of Sagebrush Antelope	6	**18**	**12-Mar-10**	**1-Apr-10**			6	40	0.10	240.60	2	40	1.61	83.23	2	40	1.61	83.23

							Employee Vehicle				Delivery Truck				Heavy Heavy Duty Truck			
Segment 6	**Crew Size**	**Total Days**	**Start Date**	**End Date**			**# of vehicle**	**Paved**	**Unpaved**	**Total VMT/day**	**# of vehicle**	**Paved**	**Unpaved**	**Total VMT/day**	**# of vehicle**	**Paved**	**Unpaved**	**Total VMT/day**
Construction of Marshalling/Heli Yards	6	**468**	**13-Jun-09**	**30-Dec-10**			6	60	0.10	360.60	3	60	0.10	180.30	1	60	0.10	60.10
Marshalling Yards	4	**667**	**31-Mar-10**	**11-Jun-12**			4	60	0.10	240.40	1	60	0.10	60.10	1	130	0.10	130.10
Road Maintenance	2	**533**	**5-Jan-10**	**5-Jun-12**			2	60	0.10	120.20	1	60	5.68	65.68	1	60	5.68	65.68
230 kV Removal Ant-Mesa																		
Wreckout - Antelope-Mesa	26	**133**	**6-Apr-10**	**22-Sep-10**			26	60	0.10	1562.60	12	60	5.68	788.13	10	60	1.08	610.83
500 kV T/L Vincent-Duarte																		
Road Construction	12	**139**	**1-Jul-10**	**15-Dec-10**			12	60	0.10	721.20	4	60	5.68	262.71	7	60	5.68	459.74
Foundation Construction	24	**104**	**23-Sep-10**	**29-Jan-11**			24	60	0.10	1442.40	8	60	5.68	525.42	7	60	5.68	459.74
Tower Construction	48	**238**	**10-Dec-10**	**22-Sep-11**			48	60	0.10	2884.80	14	60	5.68	919.48	3	60	5.68	197.03
String Cable	40	**99**	**13-Jul-11**	**23-Nov-11**			40	60	0.10	2404.00	15	60	5.68	985.16	6	60	5.68	394.06
Restoration/Guard Poles	7	**27**	**26-Oct-11**	**28-Nov-11**			7	60	0.10	420.70	5	60	5.68	328.39	5	60	5.68	328.39
IT/Communications	6	**65**	**31-Jan-11**	**16-Apr-11**			6	60	0.10	360.60	1	60	5.68	65.68	0	60	5.68	0.00
230 kV Removal Rio Hondo-Vincent																		
Wreckout - Antelope-Mesa	26	**17**	**12-Jan-12**	**9-Feb-12**			26	60	0.10	1562.60	12	60	1.08	732.99	10	60	1.08	610.83
500 kV T/L Vincent-Mira Loma																		
Foundation Construction	24	**24**	**9-Feb-12**	**8-Mar-12**			24	60	0.10	1442.40	8	60	1.08	488.66	7	60	1.08	427.58
Tower Construction	28	**73**	**23-Feb-12**	**17-May-12**			28	60	0.10	1682.80	14	60	1.08	855.16	3	60	1.08	183.25
String Cable	40	**25**	**3-May-12**	**1-Jun-12**			40	60	0.10	2404.00	15	60	1.08	916.24	6	60	1.08	366.50
Restoration/Guard Poles	7	**5**	**31-May-12**	**5-Jun-12**			7	60	0.10	420.70	5	60	1.08	305.41	5	60	1.08	305.41
							Employee Vehicle				**Delivery Truck**				**Heavy Heavy Duty Truck**			
Segment 7	**Crew Size**	**Total Days**	**Start Date**	**End Date**			**# of vehicle**	**Paved**	**Unpaved**	**Total VMT/day**	**# of vehicle**	**Paved**	**Unpaved**	**Total VMT/day**	**# of vehicle**	**Paved**	**Unpaved**	**Total VMT/day**
Construction of Marshalling Yards	6	**95**	**4-Jun-10**	**24-Sep-10**			6	40	0.10	240.60	3	40	0.10	120.30	1	40	0.10	40.10
Marshalling Yards	4	**649**	**24-Jun-10**	**14-Aug-12**			4	40	0.10	160.40	1	40	0.10	40.10	1	70	0.10	70.10
230 kV Removal Ant-Mesa																		
Wreckout - Antelope-Mesa	26	**94**	**30-Jun-10**	**20-Oct-10**			26	40	0.10	1042.60	12	40	0.87	490.45	10	40	0.87	408.71
500 kV Vincent-Rio Hondo																		
Road Construction	3	**39**	**14-Sep-10**	**28-Oct-10**			3	40	0.10	120.30	1	40	1.07	41.07	3	40	1.07	123.20
Foundation Construction	24	**30**	**28-Oct-10**	**3-Dec-10**			24	40	0.10	962.40	8	40	1.07	328.55	7	40	1.07	287.48
Tower Construction	48	**13**	**3-Dec-10**	**17-Dec-10**			48	40	0.10	1924.80	14	40	1.07	574.95	3	40	1.07	123.20
Restoration/Guard Poles	7	**2**	**18-Dec-10**	**19-Dec-10**			7	40	0.10	280.70	3	40	1.07	123.20	3	40	1.07	123.20
IT/Communications	6	**69**	**30-Sep-10**	**24-Dec-10**			6	40	0.10	240.60	1	40	1.07	41.07	0	40	1.07	0.00
500 kV Duarte-Mesa																		
Foundation Construction	24	**100**	**3-Dec-10**	**4-Apr-11**			24	40	0.10	962.40	8	40	0.79	326.33	7	40	0.79	285.54
Tower Construction	48	**376**	**10-Feb-11**	**17-May-12**			48	40	0.10	1924.80	14	40	0.79	571.08	3	40	0.79	122.38
String Cable	40	**156**	**2-Feb-12**	**4-Aug-12**			40	40	0.10	1604.00	15	40	0.87	613.06	6	40	0.87	245.22
Restoration/Guard Poles	7	**16**	**21-Jul-12**	**8-Aug-12**			7	40	0.10	280.70	3	40	0.79	122.38	3	40	0.79	122.38
IT/Communications	6	**73**	**10-May-12**	**4-Aug-12**			6	40	0.10	240.60	1	40	0.79	40.79	0	40	0.79	0.00
66 kV North of Rio Hondo																		
Construction	6	**146**	**6-Apr-10**	**25-Sep-10**			6	40	0.10	240.60	2	40	0.10	80.20	2	40	0.10	80.20
Removal	6	**47**	**29-Sep-10**	**24-Nov-10**			6	40	0.10	240.60	2	40	0.10	80.20	2	40	0.10	80.20
66 kV Rio Hondo-SG River																		
Construction	6	**142**	**3-Oct-10**	**26-Mar-11**			6	40	0.10	240.60	2	40	0.10	80.20	2	40	0.10	80.20
Removal	6	**49**	**26-Mar-11**	**21-May-11**			6	40	0.10	240.60	2	40	0.10	80.20	2	40	0.10	80.20
66 kV SG River to Mesa																		
Construction	6	**150**	**26-Mar-11**	**20-Sep-11**			6	40	0.10	240.60	2	40	0.10	80.20	2	40	0.10	80.20
Removal	6	**47**	**20-Sep-11**	**15-Nov-11**			6	40	0.10	240.60	2	40	0.10	80.20	2	40	0.10	80.20
66 kV Underground																		
Construction	12	**7**	**26-Sep-10**	**2-Oct-10**			12	40	0.10	481.20	2	40	0.10	80.20	2	40	0.10	80.20

							Employee Vehicle				Delivery Truck				Heavy Heavy Duty Truck			
Segment 8	**Crew Size**	**Total Days**	**Start Date**	**End Date**			**# of vehicle**	**Paved**	**Unpaved**	**Total VMT/day**	**# of vehicle**	**Paved**	**Unpaved**	**Total VMT/day**	**# of vehicle**	**Paved**	**Unpaved**	**Total VMT/day**
Construction of Marshalling Yards	6	**188**	**9-Sep-09**	**23-Apr-10**			6	40	0.10	240.60	3	40	0.10	120.30	1	40	0.10	40.10
Marshalling Yards	4	**631**	**31-Mar-10**	**28-Apr-12**			4	40	0.10	160.40	1	40	0.10	40.10	1	90	0.10	90.10
Road Maintenance	2	**616**	**12-Apr-10**	**23-Apr-12**			2	40	0.10	80.20	1	40	0.48	40.48	1	40	0.48	40.48
230kV Removal																		
Remove 230 kV Rose Hills	26	**7**	**2-Aug-10**	**9-Aug-10**			26	40	0.10	1042.60	12	40	1.25	494.94	10	40	1.25	412.45
Remove 230 kV at Fullerton Rd	26	**6**	**27-Aug-10**	**2-Sep-10**			26	40	0.10	1042.60	12	40	0.45	485.36	10	40	0.45	404.47
Remove 230 kV Chino-Mesa (8A)	26	**96**	**17-Apr-10**	**9-Aug-10**			26	40	0.10	1042.60	12	40	0.62	487.48	10	40	0.62	406.23
Remove 230 kV on North ROW (8B)	26	**48**	**6-Apr-10**	**1-Jun-10**			26	40	0.10	1042.60	12	40	0.27	483.19	10	40	0.27	402.66
Remove 230 kV Chino-Mira Loma (8A)	26	**25**	**24-Aug-10**	**22-Sep-10**			26	40	0.10	1042.60	12	40	0.28	483.37	10	40	0.28	402.81
220 kV Rose Hills																		
Road Construction	3	**39**	**6-Apr-10**	**20-May-10**			3	40	0.10	120.30	1	40	1.25	41.25	3	40	1.25	123.74
Foundation Construction	24	**37**	**20-May-10**	**2-Jul-10**			24	40	0.10	962.40	8	40	1.25	329.96	7	40	1.25	288.72
Tower Construction	48	**24**	**18-Jun-10**	**16-Jul-10**			48	40	0.10	1924.80	14	40	1.25	577.43	3	40	1.25	123.74
String Cable	40	**13**	**16-Jul-10**	**30-Jul-10**			40	40	0.10	1604.00	15	40	1.25	618.68	6	40	1.25	247.47
Restoration/Guard Poles	7	**2**	**29-Jul-10**	**30-Jul-10**			7	40	0.10	280.70	3	40	1.25	123.74	3	40	1.25	123.74
Test/Energize	3	**3**	**30-Jul-10**	**2-Aug-10**			3	40	0.10	120.30	0	40	1.25	0.00	0	40	1.25	0.00
230 kV Fullerton Road																		
Road Construction	3	**39**	**6-Apr-10**	**20-May-10**			3	40	0.10	120.30	1	40	0.45	40.45	3	40	0.45	121.34
Foundation Construction	24	**37**	**20-May-10**	**2-Jul-10**			24	40	0.10	962.40	8	40	0.45	323.58	7	40	0.45	283.13
Tower Construction	48	**29**	**18-Jun-10**	**16-Jul-10**			48	40	0.10	1924.80	14	40	0.45	566.26	3	40	0.45	121.34
String Cable	40	**12**	**23-Jul-10**	**5-Aug-10**			40	40	0.10	1604.00	15	40	0.45	606.70	6	40	0.45	242.68
Restoration/Guard Poles	7	**1**	**5-Aug-10**	**5-Aug-10**			7	40	0.10	280.70	3	40	0.45	121.34	3	40	0.45	121.34
Test/Energize	3	**12**	**6-Aug-10**	**19-Aug-10**			3	40	0.10	120.30	0	40	0.45	0.00	0	40	0.45	0.00
230 kV Chino-Mira Loma (8B)																		
Road Construction	3	**32**	**22-Dec-09**	**29-Jan-10**			3	40	0.10	120.30	1	40	0.27	40.27	3	40	0.27	120.80
Foundation Construction	24	**61**	**29-Jan-10**	**10-Apr-10**			24	40	0.10	962.40	8	40	0.27	322.13	7	40	0.27	281.86
Tower Construction	48	**80**	**18-Mar-10**	**19-Jun-10**			48	40	0.10	1924.80	14	40	0.27	563.72	3	40	0.27	120.80
String Cable	40	**41**	**2-Jun-10**	**20-Jul-10**			40	40	0.10	1604.00	15	40	0.27	603.99	6	40	0.27	241.60
Restoration/Guard Poles	7	**7**	**16-Jul-10**	**23-Jul-10**			7	40	0.10	280.70	3	40	0.27	120.80	3	40	0.27	120.80
Test/Energize	3	**7**	**17-Aug-10**	**24-Aug-10**			3	40	0.10	120.30	0	40	0.27	0.00	0	40	0.27	0.00
500 kV Mesa to Chino (8A)																		
Road Construction	3	**13**	**23-Jun-10**	**6-Aug-10**			3	40	0.10	120.30	1	40	0.62	40.62	3	40	0.62	121.87
Foundation Construction	24	**175**	**9-Aug-10**	**25-Mar-11**			24	40	0.10	962.40	8	40	0.62	324.98	7	40	0.62	284.36
Tower Construction	48	**290**	**30-Dec-10**	**13-Dec-11**			48	40	0.10	1924.80	14	40	0.62	568.72	3	40	0.62	121.87
String Cable	40	**285**	**13-May-11**	**19-Apr-12**			40	40	0.10	1604.00	15	40	0.62	609.35	6	40	0.62	243.74
Restoration/Guard Poles	7	**27**	**23-Mar-12**	**23-Apr-12**			7	40	0.10	280.70	3	40	0.62	121.87	3	40	0.62	121.87
500 kV Chino to Mira Loma (8A/8C)																		
Road Construction	3	**38**	**26-Jun-10**	**10-Aug-10**			3	40	0.10	120.30	1	40	0.28	40.28	3	40	0.28	120.84
Foundation Construction	24	**71**	**22-Sep-10**	**16-Dec-10**			24	40	0.10	962.40	8	40	0.28	322.25	7	40	0.28	281.96
Tower Construction	48	**94**	**24-Nov-10**	**19-Mar-11**			48	40	0.10	1924.80	14	40	0.28	563.93	3	40	0.28	120.84
String Cable	40	**48**	**28-Feb-11**	**23-Apr-11**			40	40	0.10	1604.00	15	40	0.28	604.21	6	40	0.28	241.68
Restoration/Guard Poles	7	**6**	**21-Apr-11**	**27-Apr-11**			7	40	0.10	280.70	3	40	0.28	120.84	3	40	0.28	120.84
Connect Chino-Mira Loma 500 kV	6	**72**	**16-Feb-12**	**10-May-12**			6	40	0.10	240.60	2	40	0.28	80.56	1	40	0.28	40.28
66 kV Construction/Removal																		
Construction Chino	6	**83**	**6-Apr-10**	**13-Jul-10**			6	40	0.00	240.00	2	40	0.00	80.00	2	40	0.00	80.00
Construction Mesa	6	**25**	**11-Jul-10**	**4-Aug-10**			6	40	0.00	240.00	2	40	0.00	80.00	2	40	0.00	80.00
Construction Mira Loma	6	**25**	**7-Jul-10**	**4-Aug-10**			6	40	0.00	240.00	2	40	0.00	80.00	2	40	0.00	80.00
Removal	6	**48**	**14-Jul-10**	**8-Sep-10**			6	40	0.00	240.00	2	40	0.00	80.00	2	40	0.00	80.00
66 kV Underground																		
Construction	12	**43**	**27-May-10**	**16-Jul-10**			12	40	0.10	481.20	2	40	0.10	80.20	2	40	0.10	80.20

Segment 9	Crew Size	Total Days	Start Date	End Date			Employee Vehicle # of vehicle	Paved	Unpaved	Total VMT/day	Delivery Truck # of vehicle	Paved	Unpaved	Total VMT/day	Heavy Heavy Duty Truck # of vehicle	Paved	Unpaved	Total VMT/day
Whirlwind Substation																		
Grading Element	15	**71**	**22-Jan-10**	**15-Apr-10**			15	80	0.25	1203.75	2	60	0.25	120.5	3	60	0.25	180.75
Civil Element	25	**107**	**16-Apr-10**	**20-Aug-10**			25	80	0.25	2006.25	6	60	0.25	361.5	4	100	0.25	401
Electrical Element	25	**199**	**21-Aug-10**	**20-Aug-11**			25	80	0.10	2002.5	6	60	0.1	360.6	0	60	0.1	0
Transformer Assembly*	6	**161**	**4 different durations**		4/Jan/11 ~ 28/Feb/11 16/Feb/11 ~ 30/Mar/11 2/Mar/11 ~ 30/Mar/11 21/Mar/11 ~ 25/May/11		6	80	0.10	480.6	2	60	0.1	120.2	0	60	0.1	0
Testing	4	**48**	**21-Apr-11**	**16-Jun-11**			4	80	0.10	320.4	0	60	0.1	0	0	60	0.1	0
Antelope Substation																		
Grading Element	8	**71**	**17-Nov-09**	**11-Feb-10**			8	60	0.10	480.8	2	50	0.1	100.2	3	50	0.1	150.3
Civil Element	15	**160**	**12-Feb-10**	**20-Aug-10**	7/May/10 ~ 13/Nov/10 9/Feb/12 ~ 4/Apr/12		15	60	0.10	901.5	5	50	0.1	250.5	3	133	0.1	399.3
Electrical Element*	25	**204**	**2 different durations**				25	60	0.10	1502.5	5	50	0.1	250.5	0	50	0.1	0
Transformer Element*	6	**236**	**4 different durations**				6	60	0.00	360	2	50	0.1	100.2	0	50	0.1	0
Testing*	4	**145**	**2 different durations**		20/Dec/10 ~ 15/Feb/11 20/Dec/10 ~ 16/Mar/11 13/Nov/10 ~ 9/Feb/11 1/Mar/11 ~ 26/Apr/11		4	60	0.00	240	0	50	0.1	0	0	50	0.1	0
Construct SVC Antelope	6	**74**	**7-Dec-10**	**8-Mar-12**			6	60	0.00	360	2	50	0.1	100.2	0	50	0.1	0
Vincent Substation																		
Electrical Element	25	**59**	**9-Jan-12**	**19-Mar-12**	23/Jun/11 ~ 19/Aug/11 5/Apr/12 ~ 27/Jul/12		25	60	0.10	1502.5	5	40	0.1	200.5	1	165	0.1	165.1
Transformer Element*	6	**261**	**3 different durations**				6	60	0.10	360.6	2	40	0.1	80.2	1	165	0.1	165.1
Testing*	4	**107**	**2 different durations**				4	60	0.10	240.4	0	40	0.1	0	0	40	0.1	0
Construct SVC Vincent	6	**297**	**1-Aug-12**	**24-Jul-13**			6	60	0.10	360.6	2	40	0.1	80.2	0	40	0.1	0
Reconductor Line Riser on Existing Rio Hondo-Vincent #2 230 kV Position - Seg 6	6	**12**	**10-Jul-09**	**23-Jul-09**	20/Nov/12 ~ 7/Jun/13 9/Oct/10 ~ 5/Jan/11 9/DEc/11 ~ 9/Jan/12		6	60	0.10	360.6	2	40	0.1	80.2	1	165	0.1	165.1
Gould Substation																		
Transformer Element*	6	**59**	**2 different durations**		28/Oct/11 ~ 24/Nov/11 22/Jun/11 ~ 3/Aug/11		6	40	0.00	240	2	40	0	80	1	80	0	80
Testing	4	**6**	**26-Nov-11**	**2-Dec-11**			4	40	0.00	160	0	40	0	0	0	40	0	0
Mira Loma Substation					20/Jul/10 ~ 17/Aug/10 2/Jun/12 ~ 4/Aug/12													
Transformer Element	6	**54**	**2 different durations**				6	40	0.00	240	2	40	0	80	1	120	0	120
Chino Substation																		
Transformer Element	6	**53**	**11-May-10**	**13-Jul-10**			6	40	0.00	240	2	40	0	80	1	105	0	105

							Employee Vehicle				Delivery Truck				Heavy Heavy Duty Truck			
Segment 10	**Crew Size**	**Total Days**	**Start Date**	**End Date**			**# of vehicle**	**Paved**	**Unpaved**	**Total VMT/day**	**# of vehicle**	**Paved**	**Unpaved**	**Total VMT/day**	**# of vehicle**	**Paved**	**Unpaved**	**Total VMT/day**
Marshalling Yards	4	**245**	**31-Mar-10**	**21-Jan-11**			4	80	0.10	320.40	1	60	3.14	63.14	1	220	3.14	223.14
Road Maintenance	2	**230**	**12-Apr-10**	**14-Jan-11**			2	80	0.10	160.20	1	60	3.14	63.14	1	60	3.14	63.14
500 kV Whirlwind to Windhub																		
Road Construction	10	**39**	**6-Apr-10**	**20-May-10**			10	80	0.10	801.00	2	60	3.14	126.27	3	60	3.14	189.41
Foundation Construction	24	**53**	**20-May-10**	**22-Jul-10**			24	80	0.10	1922.40	8	60	3.14	505.10	7	60	3.14	441.96
Tower Construction	48	**135**	**25-Jun-10**	**4-Dec-10**			48	80	0.10	3844.80	14	60	3.14	883.92	3	60	3.14	189.41
String Cable	40	**59**	**30-Oct-10**	**11-Jan-11**			40	80	0.10	3204.00	15	60	3.14	947.06	6	60	3.14	378.82
Restoration/Guard Poles	7	**17**	**23-Dec-10**	**14-Jan-11**			7	80	0.10	560.70	3	60	3.14	189.41	3	60	3.14	189.41
IT/Communications	6	**68**	**16-Oct-10**	**11-Jan-11**			6	80	0.10	480.60	1	60	3.14	63.14	0	60	3.14	0.00
							Employee Vehicle				**Delivery Truck**				**Heavy Heavy Duty Truck**			
Segment 11	**Crew Size**	**Total Days**	**Start Date**	**End Date**			**# of vehicle**	**Paved**	**Unpaved**	**Total VMT/day**	**# of vehicle**	**Paved**	**Unpaved**	**Total VMT/day**	**# of vehicle**	**Paved**	**Unpaved**	**Total VMT/day**
Construction of Marshalling/Heli Yards	6	**264**	**2 different durations**				6	60	0.10	360.60	3	60	3.17	189.52	1	60	3.17	63.17
Marshalling Yards	4	**428**	**18-Apr-11**	**18-Jan-13**			4	60	0.10	240.40	1	60	0.10	60.10	1	130	0.10	130.10
Road Maintenance	2	**320**	**22-Dec-11**	**12-Jan-13**			2	60	0.10	120.20	1	60	4.22	64.22	1	60	4.22	64.22
Removal 230 kV Eagle-Pardee																		
Wreckout	26	**59**	**23-Dec-11**	**5-Mar-12**			26	60	0.10	1562.60	12	60	4.22	770.66	10	60	4.22	642.22
500 kV 2nd Circuit Vincent-Gould																		
Road Construction	12	**98**	**3-Nov-11**	**2-Mar-12**			12	60	0.10	721.20	4	60	4.22	256.89	7	60	4.22	449.55
Foundation Construction	24	**49**	**5-Mar-12**	**30-Apr-12**			24	60	0.10	1442.40	8	60	4.22	513.77	7	60	4.22	449.55
Tower Construction	48	**136**	**30-Apr-12**	**9-Oct-12**			48	60	0.10	2884.80	14	60	4.22	899.10	3	60	4.22	192.67
String Cable	40	**57**	**1-Nov-12**	**9-Jan-13**			40	60	0.10	2404.00	15	60	4.22	963.33	6	60	4.22	385.33
Restoration/Guard Poles	7	**19**	**20-Dec-12**	**12-Jan-13**			7	60	0.10	420.70	5	60	4.22	321.11	5	60	4.22	321.11
IT/Communications	6	**72**	**13-Oct-12**	**9-Jan-13**			6	60	0.10	360.60	1	60	4.22	64.22	0	60	4.22	0.00
230 kV Mesa-Gould																		
String Cable	40	**54**	**8-Aug-12**	**11-Oct-12**			40	60	0.10	2404.00	15	60	0.55	908.29	6	60	0.55	363.32
IT/Communications	6	**72**	**18-Jul-12**	**11-Oct-12**			6	60	0.10	360.60	1	60	0.55	60.55	0	60	0.55	0.00
Test/Energize	3	**7**	**11-Oct-12**	**18-Oct-12**			3	60	0.10	180.30	0	60	0.55	0.00	0	60	0.55	0.00
230 kV Pardee-Vincent																		
Road Construction	6	**2**	**22-Apr-11**	**23-Apr-11**			6	60	0.10	360.60	4	60	0.48	241.92	7	60	0.48	423.37
Foundation Construction	24	**6**	**25-Apr-11**	**30-Apr-11**			24	60	0.10	1442.40	8	60	0.48	483.85	7	60	0.48	423.37
Tower Construction	48	**6**	**7-Jun-11**	**13-Jun-11**			48	60	0.10	2884.80	14	60	0.48	846.73	3	60	0.48	181.44
String Cable	40	**7**	**13-Jun-11**	**20-Jun-11**			40	60	0.10	2404.00	15	60	0.48	907.22	6	60	0.48	362.89
Restoration/Guard Poles	7	**1**	**20-Jun-11**	**20-Jun-11**			7	60	0.10	420.70	5	60	0.48	302.41	5	60	0.48	302.41
Test/Energize	3	**7**	**19-Mar-12**	**26-Mar-12**			3	60	0.10	180.30	0	60	0.48	0.00	0	60	0.48	0.00
230 kV Eagle Rock-Gould																		
Road Construction	6	**2**	**23-Apr-11**	**8-Jun-11**			6	60	0.10	360.60	4	60	0.25	240.99	7	60	0.25	421.73
Foundation Construction	24	**7**	**8-Jun-11**	**15-Jun-11**			24	60	0.10	1442.40	8	60	0.25	481.98	7	60	0.25	421.73
Tower Construction	48	**7**	**21-Jul-11**	**28-Jul-11**			48	60	0.10	2884.80	14	60	0.25	843.47	3	60	0.25	180.74
String Cable	40	**7**	**29-Jul-11**	**5-Aug-11**			40	60	0.10	2404.00	15	60	0.25	903.72	6	60	0.25	361.49
Restoration/Guard Poles	7	**1**	**6-Aug-11**	**6-Aug-11**			7	60	0.10	420.70	5	60	0.25	301.24	5	60	0.25	301.24

Major Elements	PAVED																	
# Days in Full Month (6 days/week)	2009			2010			2011			2012			2013			2014		
Onsite Construction Elements Begin in 2009																		
Segment 4	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**
Construction of Marshalling Yards	69120	34560	11520	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marshalling Yards, -5 & +5 other elements	0	0	0	54960	13740	48090	5040	1260	4410	0	0	0	0	0	0	0	0	0
Road Maintenance	0	0	0	26280	13140	0	1920	960	0	0	0	0	0	0	0	0	0	0
500 kV T/L Antelope-Whirlwind																		
Road Construction (-5)	0	0	0	18720	4680	7020	0	0	0	0	0	0	0	0	0	0	0	0
Foundation Construction	0	0	0	76320	25440	22260	0	0	0	0	0	0	0	0	0	0	0	0
Tower Construction	0	0	0	388800	113400	24300	0	0	0	0	0	0	0	0	0	0	0	0
String Cable	0	0	0	108000	40500	16200	21600	8100	3240	0	0	0	0	0	0	0	0	0
Restoration/Guard Poles +3	0	0	0	2520	1080	1080	4200	1800	1800	0	0	0	0	0	0	0	0	0
IT/Communications -Antelope to Whirlwind	0	0	0	0	0	0	12960	2160	0	0	0	0	0	0	0	0	0	0
230 kV T/L Drycreek-Whirlwind																		
Road Construction	0	0	0	15960	4560	6840	0	0	0	0	0	0	0	0	0	0	0	0
Foundation Construction	0	0	0	79200	26400	23100	0	0	0	0	0	0	0	0	0	0	0	0
Tower Construction	0	0	0	204480	59640	12780	0	0	0	0	0	0	0	0	0	0	0	0
String Cable	0	0	0	52800	19800	7920	31200	11700	4680	0	0	0	0	0	0	0	0	0
Restoration/Guard Poles	0	0	0	0	0	0	1680	720	720	0	0	0	0	0	0	0	0	0
IT/Communications - Drycreek to Whirlwind	0	0	0	0	0	0	12960	2160	0	0	0	0	0	0	0	0	0	0
Path 26 Loop																		
Road Construction	0	0	0	16380	4680	7020	0	0	0	0	0	0	0	0	0	0	0	0
Foundation Construction	0	0	0	43200	14400	12600	0	0	0	0	0	0	0	0	0	0	0	0
Tower Construction	0	0	0	54720	15960	3420	0	0	0	0	0	0	0	0	0	0	0	0
String Cable	0	0	0	31200	11700	4680	0	0	0	0	0	0	0	0	0	0	0	0
Restoration/Guard Poles	0	0	0	840	360	360	0	0	0	0	0	0	0	0	0	0	0	0
IT/Communications	0	0	0	13320	2220	0	0	0	0	0	0	0	0	0	0	0	0	0
66 kV Relocate at Antelope																		
Construction - Relocate 66 kV at Antelope	13320	2960	2960	37800	8400	8400	0	0	0	0	0	0	0	0	0	0	0	0
Segment 5	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**
Construction of Marshalling Yards	34560	17280	5760	39360	19680	6560	0	0	0	0	0	0	0	0	0	0	0	0
Marshalling Yards	6720	1680	7980	48320	12080	57380	24480	6120	29070	0	0	0	0	0	0	0	0	0
Road Maintenance	0	0	0	17440	8720	8720	11680	5840	5840	0	0	0	0	0	0	0	0	0
230 kV Removal T/L Antelope-Vincent																		
Wreckout - Antelope-Mesa	0	0	0	0	0	0	7280	3360	2800	0	0	0	0	0	0	0	0	0
Wreckout - Antelope-Vincent	0	0	0	0	0	0	7280	3360	2800	0	0	0	0	0	0	0	0	0
500 kV T/L Antelope-Vincent (#2 - 3a, b, &c)																		
Road Construction	0	0	0	12480	3120	4680	0	0	0	0	0	0	0	0	0	0	0	0
Foundation Construction	0	0	0	55680	18560	16240	0	0	0	0	0	0	0	0	0	0	0	0
Tower Construction	0	0	0	107520	31360	6720	163200	47600	10200	0	0	0	0	0	0	0	0	0
String Cable	0	0	0	0	0	0	115200	43200	17280	0	0	0	0	0	0	0	0	0
Restoration/Guard Poles	0	0	0	0	0	0	5040	2160	2160	0	0	0	0	0	0	0	0	0
Remove 18-mi 230kV T/L Antelope-Mesa	0	0	0	99840	46080	38400	0	0	0	0	0	0	0	0	0	0	0	0
Remove 18-mi 230kV T/L Antelope-Vincent	0	0	0	99840	46080	38400	0	0	0	0	0	0	0	0	0	0	0	0
IT/Communications	0	0	0	0	0	0	17280	2880	0	0	0	0	0	0	0	0	0	0
500 kV T/L Antelope-Vincent (#1)																		
Reconfigure 500kV T/L Antelope-Vincent	0	0	0	0	0	0	0	0	0	2880	960	480	0	0	0	0	0	0
Test/Energize	0	0	0	0	0	0	0	0	0	360	0	0	0	0	0	0	0	0
Shoe Fly - Sagebrush Vincent	5760	1920	1920	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Construction - Sagebrush Vincent	3120	1040	1040	8160	2720	2720	0	0	0	0	0	0	0	0	0	0	0	0
Cutover of Sagebrush Vincent	0	0	0	4560	1520	1520	0	0	0	0	0	0	0	0	0	0	0	0
Relocate Sagebrush - Antelope																		
Shoe Fly - Sagebrush Antelope	5760	1920	1920	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Construction - Sagebrush Antelope	3120	1040	1040	13680	4560	4560	0	0	0	0	0	0	0	0	0	0	0	0
Cutover of Sagebrush Antelope	0	0	0	4320	1440	1440	0	0	0	0	0	0	0	0	0	0	0	0

Segment 6	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT
Construction of Marshalling/Heli Yards	60120	30060	10020	108360	54180	18060	0	0	0	0	0	0	0	0	0	0	0	0
Marshalling Yards	0	0	0	54960	13740	29770	72720	18180	39390	32400	8100	17550	0	0	0	0	0	0
Road Maintenance	0	0	0	15000	7500	7500	33360	16680	16680	15600	7800	7800	0	0	0	0	0	0
230 kV Removal Ant-Mesa																		
Wreckout - Antelope-Mesa	0	0	0	207480	95760	79800	0	0	0	0	0	0	0	0	0	0	0	0
500 kV T/L Vincent-Duarte																		
Road Construction	0	0	0	100080	33360	58380	0	0	0	0	0	0	0	0	0	0	0	0
Foundation Construction	0	0	0	116640	38880	34020	33120	11040	9660	0	0	0	0	0	0	0	0	0
Tower Construction	0	0	0	48960	14280	3060	636480	185640	39780	0	0	0	0	0	0	0	0	0
String Cable	0	0	0	0	0	0	237600	89100	35640	0	0	0	0	0	0	0	0	0
Restoration/Guard Poles	0	0	0	0	0	0	11340	8100	8100	0	0	0	0	0	0	0	0	0
IT/Communications	0	0	0	0	0	0	23400	3900	0	0	0	0	0	0	0	0	0	0
230 kV Removal Rio Hondo-Vincent																		
Wreckout - Antelope-Mesa	0	0	0	0	0	0	0	0	0	26520	12240	10200	0	0	0	0	0	0
500 kV T/L Vincent-Mira Loma																		
Foundation Construction	0	0	0	0	0	0	0	0	0	34560	11520	10080	0	0	0	0	0	0
Tower Construction	0	0	0	0	0	0	0	0	0	122640	61320	13140	0	0	0	0	0	0
String Cable	0	0	0	0	0	0	0	0	0	60000	22500	9000	0	0	0	0	0	0
Restoration/Guard Poles	0	0	0	0	0	0	0	0	0	2100	1500	1500	0	0	0	0	0	0
Segment 7	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**
Construction of Marshalling Yards	0	0	0	22800	11400	3800	0	0	0	0	0	0	0	0	0	0	0	0
Marshalling Yards	0	0	0	25120	6280	10990	48480	12120	21210	30240	7560	13230	0	0	0	0	0	0
230 kV Removal Ant-Mesa																		
Wreckout - Antelope-Mesa	0	0	0	97760	45120	37600	0	0	0	0	0	0	0	0	0	0	0	0
500 kV Vincent-Rio Hondo																		
Road Construction	0	0	0	4680	1560	4680	0	0	0	0	0	0	0	0	0	0	0	0
Foundation Construction	0	0	0	28800	9600	8400	0	0	0	0	0	0	0	0	0	0	0	0
Tower Construction	0	0	0	24960	7280	1560	0	0	0	0	0	0	0	0	0	0	0	0
Restoration/Guard Poles	0	0	0	560	240	240	0	0	0	0	0	0	0	0	0	0	0	0
IT/Communications	0	0	0	16560	2760	0	0	0	0	0	0	0	0	0	0	0	0	0
500 kV Duarte-Mesa																		
Foundation Construction	0	0	0	22080	7360	6440	73920	24640	21560	0	0	0	0	0	0	0	0	0
Tower Construction	0	0	0	0	0	0	508800	148400	31800	213120	62160	13320	0	0	0	0	0	0
String Cable	0	0	0	0	0	0	0	0	0	249600	93600	37440	0	0	0	0	0	0
Restoration/Guard Poles	0	0	0	0	0	0	0	0	0	4480	1920	1920	0	0	0	0	0	0
IT/Communications	0	0	0	0	0	0	0	0	0	17520	2920	0	0	0	0	0	0	0
66 kV North of Rio Hondo																		
Construction	0	0	0	35040	11680	11680	0	0	0	0	0	0	0	0	0	0	0	0
Removal	0	0	0	11280	3760	3760	0	0	0	0	0	0	0	0	0	0	0	0
66 kV Rio Hondo-SG River																		
Construction	0	0	0	17280	5760	5760	16800	5600	5600	0	0	0	0	0	0	0	0	0
Removal	0	0	0	0	0	0	11760	3920	3920	0	0	0	0	0	0	0	0	0
66 kV SG River to Mesa																		
Construction	0	0	0	0	0	0	36000	12000	12000	0	0	0	0	0	0	0	0	0
Removal	0	0	0	0	0	0	11280	3760	3760	0	0	0	0	0	0	0	0	0
66 kV Underground																		
Construction	0	0	0	3360	560	560	0	0	0	0	0	0	0	0	0	0	0	0

Segment 8	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT
Construction of Marshalling Yards	22560	11280	3760	22560	11280	3760	0	0	0	0	0	0	0	0	0	0	0	0
Marshalling Yards	0	0	0	36640	9160	20610	48480	12120	27270	15840	3960	8910	0	0	0	0	0	0
Road Maintenance	0	0	0	17520	8760	8760	24240	12120	12120	7520	3760	3760	0	0	0	0	0	0
230kV Removal																		
Remove 230 kV Rose Hills	0	0	0	7280	3360	2800	0	0	0	0	0	0	0	0	0	0	0	0
Remove 230 kV at Fullerton Rd	0	0	0	6240	2880	2400	0	0	0	0	0	0	0	0	0	0	0	0
Remove 230 kV Chino-Mesa (8A)	0	0	0	99840	46080	38400	0	0	0	0	0	0	0	0	0	0	0	0
Remove 230 kV on North ROW (8B)	0	0	0	49920	23040	19200	0	0	0	0	0	0	0	0	0	0	0	0
Remove 230 kV Chino-Mira Loma (8A)	0	0	0	26000	12000	10000	0	0	0	0	0	0	0	0	0	0	0	0
220 kV Rose Hills																		
Road Construction	0	0	0	4680	1560	4680	0	0	0	0	0	0	0	0	0	0	0	0
Foundation Construction	0	0	0	35520	11840	10360	0	0	0	0	0	0	0	0	0	0	0	0
Tower Construction	0	0	0	46080	13440	2880	0	0	0	0	0	0	0	0	0	0	0	0
String Cable	0	0	0	20800	7800	3120	0	0	0	0	0	0	0	0	0	0	0	0
Restoration/Guard Poles	0	0	0	560	240	240	0	0	0	0	0	0	0	0	0	0	0	0
Test/Energize	0	0	0	360	0	0	0	0	0	0	0	0	0	0	0	0	0	0
230 kV Fullerton Road																		
Road Construction	0	0	0	4680	1560	4680	0	0	0	0	0	0	0	0	0	0	0	0
Foundation Construction	0	0	0	35520	11840	10360	0	0	0	0	0	0	0	0	0	0	0	0
Tower Construction	0	0	0	55680	16240	3480	0	0	0	0	0	0	0	0	0	0	0	0
String Cable	0	0	0	19200	7200	2880	0	0	0	0	0	0	0	0	0	0	0	0
Restoration/Guard Poles	0	0	0	280	120	120	0	0	0	0	0	0	0	0	0	0	0	0
Test/Energize	0	0	0	1440	0	0	0	0	0	0	0	0	0	0	0	0	0	0
230 kV Chino-Mira Loma (8B)																		
Road Construction	960	320	960	2880	960	2880	0	0	0	0	0	0	0	0	0	0	0	0
Foundation Construction	0	0	0	58560	19520	17080	0	0	0	0	0	0	0	0	0	0	0	0
Tower Construction	0	0	0	153600	44800	9600	0	0	0	0	0	0	0	0	0	0	0	0
String Cable	0	0	0	65600	24600	9840	0	0	0	0	0	0	0	0	0	0	0	0
Restoration/Guard Poles	0	0	0	1960	840	840	0	0	0	0	0	0	0	0	0	0	0	0
Test/Energize	0	0	0	840	0	0	0	0	0	0	0	0	0	0	0	0	0	0
500 kV Mesa to Chino (8A)																		
Road Construction	0	0	0	1560	520	1560	0	0	0	0	0	0	0	0	0	0	0	0
Foundation Construction	0	0	0	101760	33920	29680	66240	22080	19320	0	0	0	0	0	0	0	0	0
Tower Construction	0	0	0	1920	560	120	554880	161840	34680	0	0	0	0	0	0	0	0	0
String Cable	0	0	0	0	0	0	310400	116400	46560	145600	54600	21840	0	0	0	0	0	0
Restoration/Guard Poles	0	0	0	0	0	0	0	0	0	7560	3240	3240	0	0	0	0	0	0
500 kV Chino to Mira Loma (8A/8C)																		
Road Construction	0	0	0	4560	1520	4560	0	0	0	0	0	0	0	0	0	0	0	0
Foundation Construction	0	0	0	68160	22720	19880	0	0	0	0	0	0	0	0	0	0	0	0
Tower Construction	0	0	0	57600	16800	3600	122880	35840	7680	0	0	0	0	0	0	0	0	0
String Cable	0	0	0	0	0	0	76800	28800	11520	0	0	0	0	0	0	0	0	0
Restoration/Guard Poles	0	0	0	0	0	0	1680	720	720	0	0	0	0	0	0	0	0	0
Connect Chino-Mira Loma 500 kV	0	0	0	0	0	0	0	0	0	17280	5760	2880	0	0	0	0	0	0
66 kV Construction/Removal																		
Construction Chino	0	0	0	10320	3440	3440	0	0	0	0	0	0	0	0	0	0	0	0
Construction Mesa	0	0	0	5280	1760	1760	0	0	0	0	0	0	0	0	0	0	0	0
Construction Mira Loma	0	0	0	6000	2000	2000	0	0	0	0	0	0	0	0	0	0	0	0
Removal	0	0	0	11520	3840	3840	0	0	0	0	0	0	0	0	0	0	0	0
66 kV Underground																		
Construction	0	0	0	20640	3440	3440	0	0	0	0	0	0	0	0	0	0	0	0

Segment 9	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT
Whirlwind Substation																		
Grading Element	0	0	0	85200	8520	12780	0	0	0	0	0	0	0	0	0	0	0	0
Civil Element	0	0	0	214000	38520	42800	0	0	0	0	0	0	0	0	0	0	0	0
Electrical Element	0	0	0	216000	38880	0	182000	32760	0	0	0	0	0	0	0	0	0	0
Transformer Assembly*	0	0	0	0	0	0	77280	19320	0	0	0	0	0	0	0	0	0	0
Testing	0	0	0	0	0	0	15360	0	0	0	0	0	0	0	0	0	0	0
Antelope Substation																		
Grading Element	17760	3700	5550	16320	3400	5100	0	0	0	0	0	0	0	0	0	0	0	0
Civil Element	0	0	0	144000	40000	26000	0	0	0	0	0	0	0	0	0	0	0	0
Electrical Element*	0	0	0	235500	39250	0	0	0	0	70500	11750	0	0	0	0	0	0	0
Transformer Element*	0	0	0	20520	5700	0	64440	17900	0	0	0	0	0	0	0	0	0	0
Testing*	0	0	0	0	0	0	11760	0	0	23040	0	0	0	0	0	0	0	0
Construct SVC Antelope	0	0	0	7200	2000	0	19440	5400	0	0	0	0	0	0	0	0	0	0
Vincent Substation																		
Electrical Element	0	0	0	0	0	0	0	0	0	88500	11800	825	0	0	0	0	0	0
Transformer Element*	0	0	0	24120	5360	825	7920	1760	825	14400	3200	825	47520	10560	0	0	0	0
Testing*	0	0	0	1440	0	0	0	0	0	0	0	0	22800	0	0	0	0	0
Construct SVC Vincent	0	0	0	0	0	0	0	0	0	45360	10080	0	61560	13680	0	0	0	0
Reconductor Line Riser on Existing Rio Hondo-Vincent #2 230 kV Position - Seg 6	4320	960	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gould Substation																		
Transformer Element*	0	0	0	0	0	0	14160	4720	800	0	0	0	0	0	0	0	0	0
Testing	0	0	0	0	0	0	960	0	0	0	0	0	0	0	0	0	0	0
Mira Loma Substation																		
Transformer Element	0	0	0	6000	2000	600	0	0	0	6960	2320	600	0	0	0	0	0	0
Chino Substation																		
Transformer Element	0	0	0	12720	4240	525	0	0	0	0	0	0	0	0	0	0	0	0

Segment 10	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT
Marshalling Yards	0	0	0	73280	13740	50380	5120	960	3520	0	0	0	0	0	0	0	0	0
Road Maintenance	0	0	0	35040	13140	13140	1760	660	660	0	0	0	0	0	0	0	0	0
500 kV Whirlwind to Windhub																		
Road Construction	0	0	0	31200	4680	7020	0	0	0	0	0	0	0	0	0	0	0	0
Foundation Construction	0	0	0	101760	25440	22260	0	0	0	0	0	0	0	0	0	0	0	0
Tower Construction	0	0	0	518400	113400	24300	0	0	0	0	0	0	0	0	0	0	0	0
String Cable	0	0	0	160000	45000	18000	28800	8100	3240	0	0	0	0	0	0	0	0	0
Restoration/Guard Poles	0	0	0	2800	900	900	6720	2160	2160	0	0	0	0	0	0	0	0	0
IT/Communications	0	0	0	28320	3540	0	4320	540	0	0	0	0	0	0	0	0	0	0
Segment 11	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**
Construction of Marshalling/Heli Yards	56880	28440	9480	11160	5580	1860	0	0	0	27000	13500	4500	0	0	0	0	0	0
Marshalling Yards	0	0	0	0	0	0	26400	6600	14300	72720	18180	39390	3600	900	1950	0	0	0
Road Maintenance	0	0	0	0	0	0	840	420	420	36360	18180	18180	1200	600	600	0	0	0
Removal 230 kV Eagle-Pardee																		
Wreckout	0	0	0	0	0	0	10920	5040	4200	81120	37440	31200	0	0	0	0	0	0
500 kV 2nd Circuit Vincent-Gould																		
Road Construction	0	0	0	0	0	0	34560	11520	20160	36000	12000	21000	0	0	0	0	0	0
Foundation Construction	0	0	0	0	0	0	0	0	0	70560	23520	20580	0	0	0	0	0	0
Tower Construction	0	0	0	0	0	0	0	0	0	391680	114240	24480	0	0	0	0	0	0
String Cable	0	0	0	0	0	0	0	0	0	117600	44100	17640	19200	7200	2880	0	0	0
Restoration/Guard Poles	0	0	0	0	0	0	0	0	0	3780	2700	2700	4200	3000	3000	0	0	0
IT/Communications	0	0	0	0	0	0	0	0	0	23040	3840	0	2880	480	0	0	0	0
230 kV Mesa-Gould																		
String Cable	0	0	0	0	0	0	0	0	0	129600	48600	19440	0	0	0	0	0	0
IT/Communications	0	0	0	0	0	0	0	0	0	25920	4320	0	0	0	0	0	0	0
Test/Energize	0	0	0	0	0	0	0	0	0	1260	0	0	0	0	0	0	0	0
230 kV Pardee-Vincent																		
Road Construction	0	0	0	0	0	0	720	480	840	0	0	0	0	0	0	0	0	0
Foundation Construction	0	0	0	0	0	0	8640	2880	2520	0	0	0	0	0	0	0	0	0
Tower Construction	0	0	0	0	0	0	17280	5040	1080	0	0	0	0	0	0	0	0	0
String Cable	0	0	0	0	0	0	16800	6300	2520	0	0	0	0	0	0	0	0	0
Restoration/Guard Poles	0	0	0	0	0	0	420	300	300	0	0	0	0	0	0	0	0	0
Test/Energize	0	0	0	0	0	0	0	0	0	1260	0	0	0	0	0	0	0	0
230 kV Eagle Rock-Gould																		
Road Construction	0	0	0	0	0	0	720	480	840	0	0	0	0	0	0	0	0	0
Foundation Construction	0	0	0	0	0	0	10080	3360	2940	0	0	0	0	0	0	0	0	0
Tower Construction	0	0	0	0	0	0	20160	5880	1260	0	0	0	0	0	0	0	0	0
String Cable	0	0	0	0	0	0	16800	6300	2520	0	0	0	0	0	0	0	0	0
Restoration/Guard Poles	0	0	0	0	0	0	420	300	300	0	0	0	0	0	0	0	0	0

Major Elements	UNPAVED																	
# Days in Full Month (6 days/week)	2009			2010			2011			2012			2013			2014		
Onsite Construction Elements Begin in 2009																		
Segment 4	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**
Construction of Marshalling Yards	115.2	57.6	19.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Marshalling Yards, -5 & +5 other elements	0	0	0	91.60	22.90	22.90	8.40	2.10	2.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Road Maintenance	0	0	0	43.80	643.86	0.00	3.20	47.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
500 kV T/L Antelope-Whirlwind																		
Road Construction (-5)	0	0	0	31.20	109.74	164.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foundation Construction	0	0	0	127.20	596.52	521.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tower Construction	0	0	0	648.00	2659.01	569.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
String Cable	0	0	0	180.00	949.65	379.86	36.00	189.93	75.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restoration/Guard Poles +3	0	0	0	4.20	25.32	25.32	7.00	42.21	42.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IT/Communications -Antelope to Whirlwind	0	0	0	0.00	0.00	0.00	21.60	50.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
230 kV T/L Drycreek-Whirlwind																		
Road Construction	0	0	0	26.60	347.83	521.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foundation Construction	0	0	0	132.00	2013.76	1762.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tower Construction	0	0	0	340.80	4549.27	974.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
String Cable	0	0	0	88.00	1510.32	604.13	52.00	892.46	356.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restoration/Guard Poles	0	0	0	0.00	0.00	0.00	2.80	54.92	54.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IT/Communications - Drycreek to Whirlwind	0	0	0	0.00	0.00	0.00	21.60	164.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Path 26 Loop																		
Road Construction	0	0	0	27.30	109.74	164.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foundation Construction	0	0	0	72.00	337.65	295.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tower Construction	0	0	0	91.20	374.23	80.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
String Cable	0	0	0	52.00	274.34	109.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restoration/Guard Poles	0	0	0	1.40	8.44	8.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IT/Communications	0	0	0	22.20	52.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66 kV Relocate at Antelope																		
Construction - Relocate 66 kV at Antelope	22.2	7.4	7.4	63.00	21.00	21.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Segment 5	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**
Construction of Marshalling Yards	86.4	697.590909	232.530303	98.40	794.48	264.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Marshalling Yards	16.8	67.8213384	67.8213384	120.80	487.67	487.67	61.20	247.06	247.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Road Maintenance	0	0	0	43.60	352.03	352.03	29.20	235.76	235.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
230 kV Removal T/L Antelope-Vincent																		
Wreckout - Antelope-Mesa	0	0	0	0.00	0.00	0.00	18.20	135.64	113.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wreckout - Antelope-Vincent	0	0	0	0.00	0.00	0.00	18.20	135.64	113.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
500 kV T/L Antelope-Vincent (#2 - 3a, b, &c)																		
Road Construction	0	0	0	31.20	125.95	188.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foundation Construction	0	0	0	139.20	749.26	655.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tower Construction	0	0	0	268.80	1266.00	271.29	408.00	1921.60	411.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
String Cable	0	0	0	0.00	0.00	0.00	288.00	1743.98	697.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restoration/Guard Poles	0	0	0	0.00	0.00	0.00	12.60	87.20	87.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Remove 18-mi 230kV T/L Antelope-Mesa	0	0	0	249.60	1860.24	1550.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Remove 18-mi 230kV T/L Antelope-Vincent	0	0	0	249.60	1860.24	1550.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IT/Communications	0	0	0	0.00	0.00	0.00	43.20	116.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
500 kV T/L Antelope-Vincent (#1)																		
Reconfigure 500kV T/L Antelope-Vincent	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	7.20	38.76	19.38	0.00	0.00	0.00	0.00	0.00	0.00
Test/Energize	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Shoe Fly - Sagebrush Vincent	14.4	77.510101	77.510101	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction - Sagebrush Vincent	7.8	41.984638	41.984638	20.40	109.81	109.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cutover of Sagebrush Vincent	0	0	0	11.40	61.36	61.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Relocate Sagebrush - Antelope																		
Shoe Fly - Sagebrush Antelope	14.4	77.510101	77.510101	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction - Sagebrush Antelope	7.8	41.984638	41.984638	34.20	184.09	184.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cutover of Sagebrush Antelope	0	0	0	10.80	58.13	58.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Segment 6	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT
Construction of Marshalling/Heli Yards	100.2	50.1	16.7	180.60	90.30	30.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Marshalling Yards	0	0	0	91.60	22.90	22.90	121.20	30.30	30.30	54.00	13.50	13.50	0.00	0.00	0.00	0.00	0.00	0.00
Road Maintenance	0	0	0	25.00	709.66	709.66	55.60	1578.29	1578.29	26.00	738.05	738.05	0.00	0.00	0.00	0.00	0.00	0.00
230 kV Removal Ant-Mesa																		
Wreckout - Antelope-Mesa	0	0	0	345.80	9060.95	1440.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
500 kV T/L Vincent-Duarte																		
Road Construction	0	0	0	166.80	3156.57	5524.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foundation Construction	0	0	0	194.40	3678.88	3219.02	55.20	1044.62	914.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tower Construction	0	0	0	81.60	1351.20	289.54	1060.80	17565.54	3764.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
String Cable	0	0	0	0.00	0.00	0.00	396.00	8430.78	3372.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restoration/Guard Poles	0	0	0	0.00	0.00	0.00	18.90	766.43	766.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IT/Communications	0	0	0	0.00	0.00	0.00	39.00	369.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
230 kV Removal Rio Hondo-Vincent																		
Wreckout - Antelope-Mesa	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	44.20	220.90	184.09	0.00	0.00	0.00	0.00	0.00	0.00
500 kV T/L Vincent-Mira Loma																		
Foundation Construction	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	57.60	207.91	181.92	0.00	0.00	0.00	0.00	0.00	0.00
Tower Construction	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	204.40	1106.68	237.15	0.00	0.00	0.00	0.00	0.00	0.00
String Cable	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	100.00	406.07	162.43	0.00	0.00	0.00	0.00	0.00	0.00
Restoration/Guard Poles	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	3.50	27.07	27.07	0.00	0.00	0.00	0.00	0.00	0.00
Segment 7	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**
Construction of Marshalling Yards	0	0	0	57.00	28.50	9.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Marshalling Yards	0	0	0	62.80	15.70	15.70	121.20	30.30	30.30	75.60	18.90	18.90	0.00	0.00	0.00	0.00	0.00	0.00
230 kV Removal Ant-Mesa																		
Wreckout - Antelope-Mesa	0	0	0	244.40	982.12	818.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
500 kV Vincent-Rio Hondo																		
Road Construction	0	0	0	11.70	41.66	124.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foundation Construction	0	0	0	72.00	256.36	224.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tower Construction	0	0	0	62.40	194.41	41.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restoration/Guard Poles	0	0	0	1.40	6.41	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IT/Communications	0	0	0	41.40	73.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
500 kV Duarte-Mesa																		
Foundation Construction	0	0	0	55.20	145.67	127.46	184.80	487.67	426.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tower Construction	0	0	0	0.00	0.00	0.00	1272.00	2937.08	629.38	532.80	1230.25	263.63	0.00	0.00	0.00	0.00	0.00	0.00
String Cable	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	624.00	2037.37	814.95	0.00	0.00	0.00	0.00	0.00	0.00
Restoration/Guard Poles	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	11.20	38.00	38.00	0.00	0.00	0.00	0.00	0.00	0.00
IT/Communications	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	43.80	57.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66 kV North of Rio Hondo																		
Construction	0	0	0	87.60	29.20	29.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Removal	0	0	0	28.20	9.40	9.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66 kV Rio Hondo-SG River																		
Construction	0	0	0	43.20	14.40	14.40	42.00	14.00	14.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Removal	0	0	0	0.00	0.00	0.00	29.40	9.80	9.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66 kV SG River to Mesa																		
Construction	0	0	0	0.00	0.00	0.00	90.00	30.00	30.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Removal	0	0	0	0.00	0.00	0.00	28.20	9.40	9.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66 kV Underground																		
Construction	0	0	0	8.40	1.40	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Segment 8	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT
Construction of Marshalling Yards	56.4	28.2	9.4	56.40	28.20	9.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Marshalling Yards	0	0	0	91.60	22.90	22.90	121.20	30.30	30.30	39.60	9.90	9.90	0.00	0.00	0.00	0.00	0.00	0.00
Road Maintenance	0	0	0	43.80	105.03	105.03	60.60	145.32	145.32	18.80	45.08	45.08	0.00	0.00	0.00	0.00	0.00	0.00
230kV Removal																		
Remove 230 kV Rose Hills	0	0	0	18.20	104.60	87.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Remove 230 kV at Fullerton Rd	0	0	0	15.60	32.18	26.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Remove 230 kV Chino-Mesa (8A)	0	0	0	249.60	717.72	598.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Remove 230 kV on North ROW (8B)	0	0	0	124.80	153.15	127.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Remove 230 kV Chino-Mira Loma (8A)	0	0	0	65.00	84.19	70.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
220 kV Rose Hills																		
Road Construction	0	0	0	11.70	48.57	145.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foundation Construction	0	0	0	88.80	368.60	322.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tower Construction	0	0	0	115.20	418.41	89.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
String Cable	0	0	0	52.00	242.83	97.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restoration/Guard Poles	0	0	0	1.40	7.47	7.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Test/Energize	0	0	0	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
230 kV Fullerton Road																		
Road Construction	0	0	0	11.70	17.43	52.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foundation Construction	0	0	0	88.80	132.30	115.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tower Construction	0	0	0	139.20	181.47	38.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
String Cable	0	0	0	48.00	80.45	32.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restoration/Guard Poles	0	0	0	0.70	1.34	1.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Test/Energize	0	0	0	3.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
230 kV Chino-Mira Loma (8B)																		
Road Construction	2.4	2.12712491	6.38137472	7.20	6.38	19.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foundation Construction	0	0	0	146.40	129.75	113.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tower Construction	0	0	0	384.00	297.80	63.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
String Cable	0	0	0	164.00	163.52	65.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restoration/Guard Poles	0	0	0	4.90	5.58	5.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Test/Energize	0	0	0	2.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
500 kV Mesa to Chino (8A)																		
Road Construction	0	0	0	3.90	8.10	24.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foundation Construction	0	0	0	254.40	528.32	462.28	165.60	343.91	300.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tower Construction	0	0	0	4.80	8.72	1.87	1387.20	2520.75	540.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
String Cable	0	0	0	0.00	0.00	0.00	776.00	1812.99	725.20	364.00	850.43	340.17	0.00	0.00	0.00	0.00	0.00	0.00
Restoration/Guard Poles	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	18.90	50.46	50.46	0.00	0.00	0.00	0.00	0.00	0.00
500 kV Chino to Mira Loma (8A/8C)																		
Road Construction	0	0	0	11.40	10.66	31.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foundation Construction	0	0	0	170.40	159.40	139.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tower Construction	0	0	0	144.00	117.86	25.26	307.20	251.44	53.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
String Cable	0	0	0	0.00	0.00	0.00	192.00	202.05	80.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restoration/Guard Poles	0	0	0	0.00	0.00	0.00	4.20	5.05	5.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Connect Chino-Mira Loma 500 kV	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	43.20	40.41	20.21	0.00	0.00	0.00	0.00	0.00	0.00
66 kV Construction/Removal																		
Construction Chino	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Mesa	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Mira Loma	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Removal	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66 kV Underground																		
Construction	0	0	0	51.60	8.60	8.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Segment 9	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT
Whirlwind Substation																		
Grading Element	0	0	0	266.25	35.50	53.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Civil Element	0	0	0	668.75	160.50	107.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electrical Element	0	0	0	270.00	64.80	0.00	227.50	54.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transformer Assembly*	0	0	0	0.00	0.00	0.00	96.60	32.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Testing	0	0	0	0.00	0.00	0.00	19.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Antelope Substation																		
Grading Element	29.6	7.4	11.1	27.20	6.80	10.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Civil Element	0	0	0	240.00	80.00	48.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electrical Element*	0	0	0	392.50	78.50	0.00	0.00	0.00	0.00	117.50	23.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transformer Element*	0	0	0	0.00	11.40	0.00	0.00	35.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Testing*	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct SVC Antelope	0	0	0	0.00	4.00	0.00	0.00	10.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vincent Substation																		
Electrical Element	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	147.50	29.50	0.50	0.00	0.00	0.00	0.00	0.00	0.00
Transformer Element*	0	0	0	40.20	13.40	0.50	13.20	4.40	0.50	24.00	8.00	0.50	79.20	26.40	0.00	0.00	0.00	0.00
Testing*	0	0	0	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.00	0.00	0.00	0.00	0.00	0.00
Construct SVC Vincent	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	75.60	25.20	0.00	102.60	34.20	0.00	0.00	0.00	0.00
Reconductor Line Riser on Existing Rio Hondo-Vincent #2 230 kV Position - Seg 6	7.2	2.4	0.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gould Substation																		
Transformer Element*	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Testing	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mira Loma Substation																		
Transformer Element	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chino Substation																		
Transformer Element	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Segment 10	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT
Marshalling Yards	0	0	0	91.60	718.44	718.44	6.40	50.20	50.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Road Maintenance	0	0	0	43.80	687.07	687.07	2.20	34.51	34.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
500 kV Whirlwind to Windhub																		
Road Construction	0	0	0	39.00	244.71	367.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foundation Construction	0	0	0	127.20	1330.22	1163.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tower Construction	0	0	0	648.00	5929.52	1270.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
String Cable	0	0	0	200.00	2352.98	941.19	36.00	423.54	169.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restoration/Guard Poles	0	0	0	3.50	47.06	47.06	8.40	112.94	112.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IT/Communications	0	0	0	35.40	185.10	0.00	5.40	28.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Segment 11	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**
Construction of Marshalling/Heli Yards	94.8	1504.59091	501.530303	18.60	295.20	98.40	0.00	0.00	0.00	45.00	714.20	238.07	0.00	0.00	0.00	0.00	0.00	0.00
Marshalling Yards	0	0	0	0.00	0.00	0.00	44.00	11.00	11.00	121.20	30.30	30.30	6.00	1.50	1.50	0.00	0.00	0.00
Road Maintenance	0	0	0	0.00	0.00	0.00	1.40	29.55	29.55	60.60	1279.20	1279.20	2.00	42.22	42.22	0.00	0.00	0.00
Removal 230 kV Eagle-Pardee																		
Wreckout	0	0	0	0.00	0.00	0.00	18.20	354.63	295.52	135.20	2634.39	2195.33	0.00	0.00	0.00	0.00	0.00	0.00
500 kV 2nd Circuit Vincent-Gould																		
Road Construction	0	0	0	0.00	0.00	0.00	57.60	810.58	1418.52	60.00	844.36	1477.62	0.00	0.00	0.00	0.00	0.00	0.00
Foundation Construction	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	117.60	1654.94	1448.07	0.00	0.00	0.00	0.00	0.00	0.00
Tower Construction	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	652.80	8038.27	1722.49	0.00	0.00	0.00	0.00	0.00	0.00
String Cable	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	196.00	3103.01	1241.20	32.00	506.61	202.65	0.00	0.00	0.00
Restoration/Guard Poles	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	6.30	189.98	189.98	7.00	211.09	211.09	0.00	0.00	0.00
IT/Communications	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	38.40	270.19	0.00	4.80	33.77	0.00	0.00	0.00	0.00
230 kV Mesa-Gould																		
String Cable	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	216.00	447.82	179.13	0.00	0.00	0.00	0.00	0.00	0.00
IT/Communications	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	43.20	39.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Test/Energize	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	2.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
230 kV Pardee-Vincent																		
Road Construction	0	0	0	0.00	0.00	0.00	1.20	3.85	6.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foundation Construction	0	0	0	0.00	0.00	0.00	14.40	23.09	20.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tower Construction	0	0	0	0.00	0.00	0.00	28.80	40.41	8.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
String Cable	0	0	0	0.00	0.00	0.00	28.00	50.51	20.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restoration/Guard Poles	0	0	0	0.00	0.00	0.00	0.70	2.41	2.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Test/Energize	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	2.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
230 kV Eagle Rock-Gould																		
Road Construction	0	0	0	0.00	0.00	0.00	1.20	1.98	3.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foundation Construction	0	0	0	0.00	0.00	0.00	16.80	13.87	12.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tower Construction	0	0	0	0.00	0.00	0.00	33.60	24.28	5.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
String Cable	0	0	0	0.00	0.00	0.00	28.00	26.01	10.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restoration/Guard Poles	0	0	0	0.00	0.00	0.00	0.70	1.24	1.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Major Elements	TOTAL																	
# Days in Full Month (6 days/week)	2009			2010			2011			2012			2013			2014		
Onsite Construction Elements Begin in 2009																		
Segment 4	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**
Construction of Marshalling Yards	69235.20	34617.60	11539.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Marshalling Yards, -5 & +5 other elements	0.00	0.00	0.00	55051.60	13762.90	48112.90	5048.40	1262.10	4412.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Road Maintenance	0.00	0.00	0.00	26323.80	13783.86	0.00	1923.20	1007.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
500 kV T/L Antelope-Whirlwind																		
Road Construction (-5)	0.00	0.00	0.00	18751.20	4789.74	7184.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foundation Construction	0.00	0.00	0.00	76447.20	26036.52	22781.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tower Construction	0.00	0.00	0.00	389448.00	116059.01	24869.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
String Cable	0.00	0.00	0.00	108180.00	41449.65	16579.86	21636.00	8289.93	3315.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restoration/Guard Poles +3	0.00	0.00	0.00	2524.20	1105.32	1105.32	4207.00	1842.21	1842.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IT/Communications -Antelope to Whirlwind	0.00	0.00	0.00	0.00	0.00	0.00	12981.60	2210.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
230 kV T/L Drycreek-Whirlwind																		
Road Construction	0.00	0.00	0.00	15986.60	4907.83	7361.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foundation Construction	0.00	0.00	0.00	79332.00	28413.76	24862.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tower Construction	0.00	0.00	0.00	204820.80	64189.27	13754.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
String Cable	0.00	0.00	0.00	52888.00	21310.32	8524.13	31252.00	12592.46	5036.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restoration/Guard Poles	0.00	0.00	0.00	0.00	0.00	0.00	1682.80	774.92	774.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IT/Communications - Drycreek to Whirlwind	0.00	0.00	0.00	0.00	0.00	0.00	12981.60	2324.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Path 26 Loop																		
Road Construction	0.00	0.00	0.00	16407.30	4789.74	7184.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foundation Construction	0.00	0.00	0.00	43272.00	14737.65	12895.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tower Construction	0.00	0.00	0.00	54811.20	16334.23	3500.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
String Cable	0.00	0.00	0.00	31252.00	11974.34	4789.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restoration/Guard Poles	0.00	0.00	0.00	841.40	368.44	368.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IT/Communications	0.00	0.00	0.00	13342.20	2272.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66 kV Relocate at Antelope																		
Construction - Relocate 66 kV at Antelope	13342.20	2967.40	2967.40	37863.00	8421.00	8421.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Segment 5	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**
Construction of Marshalling Yards	34646.40	17977.59	5992.53	39458.40	20474.48	6824.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Marshalling Yards	6736.80	1747.82	8047.82	48440.80	12567.67	57867.67	24541.20	6367.06	29317.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Road Maintenance	0.00	0.00	0.00	17483.60	9072.03	9072.03	11709.20	6075.76	6075.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
230 kV Removal T/L Antelope-Vincent																		
Wreckout - Antelope-Mesa	0.00	0.00	0.00	0.00	0.00	0.00	7298.20	3495.64	2913.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wreckout - Antelope-Vincent	0.00	0.00	0.00	0.00	0.00	0.00	7298.20	3495.64	2913.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
500 kV T/L Antelope-Vincent (#2 - 3a, b, &c)																		
Road Construction	0.00	0.00	0.00	12511.20	3245.95	4868.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foundation Construction	0.00	0.00	0.00	55819.20	19309.26	16895.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tower Construction	0.00	0.00	0.00	107788.80	32626.00	6991.29	163608.00	49521.60	10611.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
String Cable	0.00	0.00	0.00	0.00	0.00	0.00	115488.00	44943.98	17977.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restoration/Guard Poles	0.00	0.00	0.00	0.00	0.00	0.00	5052.60	2247.20	2247.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Remove 18-mi 230kV T/L Antelope-Mesa	0.00	0.00	0.00	100089.60	47940.24	39950.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Remove 18-mi 230kV T/L Antelope-Vincent	0.00	0.00	0.00	100089.60	47940.24	39950.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IT/Communications	0.00	0.00	0.00	0.00	0.00	0.00	17323.20	2996.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
500 kV T/L Antelope-Vincent (#1)																		
Reconfigure 500kV T/L Antelope-Vincent	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2887.20	998.76	499.38	0.00	0.00	0.00	0.00	0.00	0.00
Test/Energize	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	360.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Shoe Fly - Sagebrush Vincent	5774.40	1997.51	1997.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction - Sagebrush Vincent	3127.80	1081.98	1081.98	8180.40	2829.81	2829.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cutover of Sagebrush Vincent	0.00	0.00	0.00	4571.40	1581.36	1581.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Relocate Sagebrush - Antelope																		
Shoe Fly - Sagebrush Antelope	5774.40	1997.51	1997.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction - Sagebrush Antelope	3127.80	1081.98	1081.98	13714.20	4744.09	4744.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cutover of Sagebrush Antelope	0.00	0.00	0.00	4330.80	1498.13	1498.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Segment 6	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT
Construction of Marshalling/Heli Yards	60220.20	30110.10	10036.70	108540.60	54270.30	18090.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Marshalling Yards	0.00	0.00	0.00	55051.60	13762.90	29792.90	72841.20	18210.30	39420.30	32454.00	8113.50	17563.50	0.00	0.00	0.00	0.00	0.00	0.00
Road Maintenance	0.00	0.00	0.00	15025.00	8209.66	8209.66	33415.60	18258.29	18258.29	15626.00	8538.05	8538.05	0.00	0.00	0.00	0.00	0.00	0.00
230 kV Removal Ant-Mesa																		
Wreckout - Antelope-Mesa	0.00	0.00	0.00	207825.80	104820.95	81240.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
500 kV T/L Vincent-Duarte																		
Road Construction	0.00	0.00	0.00	100246.80	36516.57	63904.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foundation Construction	0.00	0.00	0.00	116834.40	42558.88	37239.02	33175.20	12084.62	10574.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tower Construction	0.00	0.00	0.00	49041.60	15631.20	3349.54	637540.80	203205.54	43544.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
String Cable	0.00	0.00	0.00	0.00	0.00	0.00	237996.00	97530.78	39012.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restoration/Guard Poles	0.00	0.00	0.00	0.00	0.00	0.00	11358.90	8866.43	8866.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IT/Communications	0.00	0.00	0.00	0.00	0.00	0.00	23439.00	4269.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
230 kV Removal Rio Hondo-Vincent																		
Wreckout - Antelope-Mesa	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26564.20	12460.90	10384.09	0.00	0.00	0.00	0.00	0.00	0.00
500 kV T/L Vincent-Mira Loma																		
Foundation Construction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34617.60	11727.91	10261.92	0.00	0.00	0.00	0.00	0.00	0.00
Tower Construction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	122844.40	62426.68	13377.15	0.00	0.00	0.00	0.00	0.00	0.00
String Cable	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60100.00	22906.07	9162.43	0.00	0.00	0.00	0.00	0.00	0.00
Restoration/Guard Poles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2103.50	1527.07	1527.07	0.00	0.00	0.00	0.00	0.00	0.00
Segment 7	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**
Construction of Marshalling Yards	0.00	0.00	0.00	22857.00	11428.50	3809.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Marshalling Yards	0.00	0.00	0.00	25182.80	6295.70	11005.70	48601.20	12150.30	21240.30	30315.60	7578.90	13248.90	0.00	0.00	0.00	0.00	0.00	0.00
230 kV Removal Ant-Mesa																		
Wreckout - Antelope-Mesa	0.00	0.00	0.00	98004.40	46102.12	38418.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
500 kV Vincent-Rio Hondo																		
Road Construction	0.00	0.00	0.00	4691.70	1601.66	4804.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foundation Construction	0.00	0.00	0.00	28872.00	9856.36	8624.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tower Construction	0.00	0.00	0.00	25022.40	7474.41	1601.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restoration/Guard Poles	0.00	0.00	0.00	561.40	246.41	246.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IT/Communications	0.00	0.00	0.00	16601.40	2833.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
500 kV Duarte-Mesa																		
Foundation Construction	0.00	0.00	0.00	22135.20	7505.67	6567.46	74104.80	25127.67	21986.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tower Construction	0.00	0.00	0.00	0.00	0.00	0.00	510072.00	151337.08	32429.38	213652.80	63390.25	13583.63	0.00	0.00	0.00	0.00	0.00	0.00
String Cable	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	250224.00	95637.37	38254.95	0.00	0.00	0.00	0.00	0.00	0.00
Restoration/Guard Poles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4491.20	1958.00	1958.00	0.00	0.00	0.00	0.00	0.00	0.00
IT/Communications	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17563.80	2977.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66 kV North of Rio Hondo																		
Construction	0.00	0.00	0.00	35127.60	11709.20	11709.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Removal	0.00	0.00	0.00	11308.20	3769.40	3769.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66 kV Rio Hondo-SG River																		
Construction	0.00	0.00	0.00	17323.20	5774.40	5774.40	16842.00	5614.00	5614.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Removal	0.00	0.00	0.00	0.00	0.00	0.00	11789.40	3929.80	3929.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66 kV SG River to Mesa																		
Construction	0.00	0.00	0.00	0.00	0.00	0.00	36090.00	12030.00	12030.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Removal	0.00	0.00	0.00	0.00	0.00	0.00	11308.20	3769.40	3769.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66 kV Underground																		
Construction	0.00	0.00	0.00	3368.40	561.40	561.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Segment 8	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT
Construction of Marshalling Yards	22616.40	11308.20	3769.40	22616.40	11308.20	3769.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Marshalling Yards	0.00	0.00	0.00	36731.60	9182.90	20632.90	48601.20	12150.30	27300.30	15879.60	3969.90	8919.90	0.00	0.00	0.00	0.00	0.00	0.00
Road Maintenance	0.00	0.00	0.00	17563.80	8865.03	8865.03	24300.60	12265.32	12265.32	7538.80	3805.08	3805.08	0.00	0.00	0.00	0.00	0.00	0.00
230kV Removal																		
Remove 230 kV Rose Hills	0.00	0.00	0.00	7298.20	3464.60	2887.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Remove 230 kV at Fullerton Rd	0.00	0.00	0.00	6255.60	2912.18	2426.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Remove 230 kV Chino-Mesa (8A)	0.00	0.00	0.00	100089.60	46797.72	38998.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Remove 230 kV on North ROW (8B)	0.00	0.00	0.00	50044.80	23193.15	19327.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Remove 230 kV Chino-Mira Loma (8A)	0.00	0.00	0.00	26065.00	12084.19	10070.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
220 kV Rose Hills																		
Road Construction	0.00	0.00	0.00	4691.70	1608.57	4825.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foundation Construction	0.00	0.00	0.00	35608.80	12208.60	10682.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tower Construction	0.00	0.00	0.00	46195.20	13858.41	2969.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
String Cable	0.00	0.00	0.00	20852.00	8042.83	3217.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restoration/Guard Poles	0.00	0.00	0.00	561.40	247.47	247.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Test/Energize	0.00	0.00	0.00	360.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
230 kV Fullerton Road																		
Road Construction	0.00	0.00	0.00	4691.70	1577.43	4732.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foundation Construction	0.00	0.00	0.00	35608.80	11972.30	10475.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tower Construction	0.00	0.00	0.00	55819.20	16421.47	3518.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
String Cable	0.00	0.00	0.00	19248.00	7280.45	2912.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restoration/Guard Poles	0.00	0.00	0.00	280.70	121.34	121.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Test/Energize	0.00	0.00	0.00	1443.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
230 kV Chino-Mira Loma (8B)																		
Road Construction	962.40	322.13	966.38	2887.20	966.38	2899.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foundation Construction	0.00	0.00	0.00	58706.40	19649.75	17193.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tower Construction	0.00	0.00	0.00	153984.00	45097.80	9663.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
String Cable	0.00	0.00	0.00	65764.00	24763.52	9905.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restoration/Guard Poles	0.00	0.00	0.00	1964.90	845.58	845.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Test/Energize	0.00	0.00	0.00	842.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
500 kV Mesa to Chino (8A)																		
Road Construction	0.00	0.00	0.00	1563.90	528.10	1584.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foundation Construction	0.00	0.00	0.00	102014.40	34448.32	30142.28	66405.60	22423.91	19620.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tower Construction	0.00	0.00	0.00	1924.80	568.72	121.87	556267.20	164360.75	35220.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
String Cable	0.00	0.00	0.00	0.00	0.00	0.00	311176.00	118212.99	47285.20	145964.00	55450.43	22180.17	0.00	0.00	0.00	0.00	0.00	0.00
Restoration/Guard Poles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7578.90	3290.46	3290.46	0.00	0.00	0.00	0.00	0.00	0.00
500 kV Chino to Mira Loma (8A/8C)																		
Road Construction	0.00	0.00	0.00	4571.40	1530.66	4591.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foundation Construction	0.00	0.00	0.00	68330.40	22879.40	20019.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tower Construction	0.00	0.00	0.00	57744.00	16917.86	3625.26	123187.20	36091.44	7733.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
String Cable	0.00	0.00	0.00	0.00	0.00	0.00	76992.00	29002.05	11600.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restoration/Guard Poles	0.00	0.00	0.00	0.00	0.00	0.00	1684.20	725.05	725.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Connect Chino-Mira Loma 500 kV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17323.20	5800.41	2900.21	0.00	0.00	0.00	0.00	0.00	0.00
66 kV Construction/Removal																		
Construction Chino	0.00	0.00	0.00	10320.00	3440.00	3440.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Mesa	0.00	0.00	0.00	5280.00	1760.00	1760.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Mira Loma	0.00	0.00	0.00	6000.00	2000.00	2000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Removal	0.00	0.00	0.00	11520.00	3840.00	3840.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66 kV Underground																		
Construction	0.00	0.00	0.00	20691.60	3448.60	3448.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Segment 9	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT
Whirlwind Substation																		
Grading Element	0.00	0.00	0.00	85466.25	8555.50	12833.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Civil Element	0.00	0.00	0.00	214668.75	38680.50	42907.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electrical Element	0.00	0.00	0.00	216270.00	38944.80	0.00	182227.50	32814.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transformer Assembly*	0.00	0.00	0.00	0.00	0.00	0.00	77376.60	19352.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Testing	0.00	0.00	0.00	0.00	0.00	0.00	15379.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Antelope Substation																		
Grading Element	17789.60	3707.40	5561.10	16347.20	3406.80	5110.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Civil Element	0.00	0.00	0.00	144240.00	40080.00	26048.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electrical Element*	0.00	0.00	0.00	235892.50	39328.50	0.00	0.00	0.00	0.00	70617.50	11773.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transformer Element*	0.00	0.00	0.00	20520.00	5711.40	0.00	64440.00	17935.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Testing*	0.00	0.00	0.00	0.00	0.00	0.00	11760.00	0.00	0.00	23040.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construct SVC Antelope	0.00	0.00	0.00	7200.00	2004.00	0.00	19440.00	5410.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vincent Substation																		
Electrical Element	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	88647.50	11829.50	825.50	0.00	0.00	0.00	0.00	0.00	0.00
Transformer Element*	0.00	0.00	0.00	24160.20	5373.40	825.50	7933.20	1764.40	825.50	14424.00	3208.00	825.50	47599.20	10586.40	0.00	0.00	0.00	0.00
Testing*	0.00	0.00	0.00	1442.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22838.00	0.00	0.00	0.00	0.00	0.00
Construct SVC Vincent	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45435.60	10105.20	0.00	61662.60	13714.20	0.00	0.00	0.00	0.00
Reconductor Line Riser on Existing Rio Hondo-Vincent #2 230 kV Position - Seg 6	4327.20	962.40	165.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gould Substation																		
Transformer Element*	0.00	0.00	0.00	0.00	0.00	0.00	14160.00	4720.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Testing	0.00	0.00	0.00	0.00	0.00	0.00	960.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mira Loma Substation																		
Transformer Element	0.00	0.00	0.00	6000.00	2000.00	600.00	0.00	0.00	0.00	6960.00	2320.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
Chino Substation																		
Transformer Element	0.00	0.00	0.00	12720.00	4240.00	525.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Segment 10	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT	Employee Vehicle	Delivery Truck	HHDT
Marshalling Yards	0.00	0.00	0.00	73371.60	14458.44	51098.44	5126.40	1010.20	3570.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Road Maintenance	0.00	0.00	0.00	35083.80	13827.07	13827.07	1762.20	694.51	694.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
500 kV Whirlwind to Windhub																		
Road Construction	0.00	0.00	0.00	31239.00	4924.71	7387.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foundation Construction	0.00	0.00	0.00	101887.20	26770.22	23423.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tower Construction	0.00	0.00	0.00	519048.00	119329.52	25570.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
String Cable	0.00	0.00	0.00	160200.00	47352.98	18941.19	28836.00	8523.54	3409.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restoration/Guard Poles	0.00	0.00	0.00	2803.50	947.06	947.06	6728.40	2272.94	2272.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IT/Communications	0.00	0.00	0.00	28355.40	3725.10	0.00	4325.40	568.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Segment 11	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**
Construction of Marshalling/Heli Yards	56974.80	29944.59	9981.53	11178.60	5875.20	1958.40	0.00	0.00	0.00	27045.00	14214.20	4738.07	0.00	0.00	0.00	0.00	0.00	0.00
Marshalling Yards	0.00	0.00	0.00	0.00	0.00	0.00	26444.00	6611.00	14311.00	72841.20	18210.30	39420.30	3606.00	901.50	1951.50	0.00	0.00	0.00
Road Maintenance	0.00	0.00	0.00	0.00	0.00	0.00	841.40	449.55	449.55	36420.60	19459.20	19459.20	1202.00	642.22	642.22	0.00	0.00	0.00
Removal 230 kV Eagle-Pardee																		
Wreckout	0.00	0.00	0.00	0.00	0.00	0.00	10938.20	5394.63	4495.52	81255.20	40074.39	33395.33	0.00	0.00	0.00	0.00	0.00	0.00
500 kV 2nd Circuit Vincent-Gould																		
Road Construction	0.00	0.00	0.00	0.00	0.00	0.00	34617.60	12330.58	21578.52	36060.00	12844.36	22477.62	0.00	0.00	0.00	0.00	0.00	0.00
Foundation Construction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	70677.60	25174.94	22028.07	0.00	0.00	0.00	0.00	0.00	0.00
Tower Construction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	392332.80	122278.27	26202.49	0.00	0.00	0.00	0.00	0.00	0.00
String Cable	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	117796.00	47203.01	18881.20	19232.00	7706.61	3082.65	0.00	0.00	0.00
Restoration/Guard Poles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3786.30	2889.98	2889.98	4207.00	3211.09	3211.09	0.00	0.00	0.00
IT/Communications	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23078.40	4110.19	0.00	2884.80	513.77	0.00	0.00	0.00	0.00
230 kV Mesa-Gould																		
String Cable	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	129816.00	49047.82	19619.13	0.00	0.00	0.00	0.00	0.00	0.00
IT/Communications	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25963.20	4359.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Test/Energize	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1262.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
230 kV Pardee-Vincent																		
Road Construction	0.00	0.00	0.00	0.00	0.00	0.00	721.20	483.85	846.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foundation Construction	0.00	0.00	0.00	0.00	0.00	0.00	8654.40	2903.09	2540.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tower Construction	0.00	0.00	0.00	0.00	0.00	0.00	17308.80	5080.41	1088.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
String Cable	0.00	0.00	0.00	0.00	0.00	0.00	16828.00	6350.51	2540.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restoration/Guard Poles	0.00	0.00	0.00	0.00	0.00	0.00	420.70	302.41	302.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Test/Energize	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1262.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
230 kV Eagle Rock-Gould																		
Road Construction	0.00	0.00	0.00	0.00	0.00	0.00	721.20	481.98	843.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Foundation Construction	0.00	0.00	0.00	0.00	0.00	0.00	10096.80	3373.87	2952.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tower Construction	0.00	0.00	0.00	0.00	0.00	0.00	20193.60	5904.28	1265.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
String Cable	0.00	0.00	0.00	0.00	0.00	0.00	16828.00	6326.01	2530.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restoration/Guard Poles	0.00	0.00	0.00	0.00	0.00	0.00	420.70	301.24	301.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Onroad Emission Calculations

ONROAD EMISSIONS: SCAQMD EMISSION FACTORS FOR 2009

Scenario Year: 2009 -- Model Years: 1965-2009

Passenger Vehicles	
lb/mile	
CO	0.009686
NOx	0.001005
ROG	0.000992
SOx	1.07E-05
PM10	8.6E-05
PM2.5	5.38E-05
CO2	1.097554

Delivery Trucks	
lb/mile	
CO	0.020161
NOx	0.022366
ROG	0.002789
SOx	2.68E-05
PM10	0.000805
PM2.5	0.000692
CO2	2.723305

Heavy-Heavy Duty	
lb/mile	
CO	0.01282236
NOx	0.04184591
ROG	0.0032932
SOx	4.0128E-05
PM10	0.00199572
PM2.5	0.00175227
CO2	4.21080792

Scenario Year: 2010 -- Model Years: 1965-2010

Passenger Vehicles	
lb/mile	
CO	0.008263
Nox	0.000918
ROG	0.000914
Sox	1.08E-05
PM10	8.7E-05
PM2.5	5.48E-05
CO2	1.095682

Delivery Trucks	
lb/mile	
CO	0.018438
Nox	0.020625
ROG	0.00259
Sox	2.7E-05
PM10	0.000751
PM2.5	0.000642
CO2	2.732222

Heavy-Heavy Duty	
lb/mile	
CO	0.01195456
NOx	0.03822102
ROG	0.00304157
SOx	4.1312E-05
PM10	0.00183062
PM2.5	0.00160083
CO2	4.21120578

Scenario Year: 2011 -- Model Years: 1966-2011

Passenger Vehicles	
lb/mile	
CO	0.008263
Nox	0.000845
ROG	0.000852
Sox	1.08E-05
PM10	8.88E-05
PM2.5	5.65E-05
CO2	1.102352

Delivery Trucks	
lb/mile	
CO	0.016932
Nox	0.018934
ROG	0.002419
Sox	2.73E-05
PM10	0.000701
PM2.5	0.000597
CO2	2.751808

Heavy-Heavy Duty	
lb/mile	
CO	0.01112463
NOx	0.03455809
ROG	0.00279543
SOx	3.9722E-05
PM10	0.00166087
PM2.5	0.00144489
CO2	4.2204568

Scenario Year: 2012 -- Model Years: 1967-2012

Passenger Vehicles	
lb/mile	
CO	0.007655
Nox	0.000776
ROG	0.000796
Sox	1.07E-05
PM10	8.98E-05
PM2.5	5.75E-05
CO2	1.101525

Delivery Trucks	
lb/mile	
CO	0.015457
Nox	0.017324
ROG	0.002238
Sox	2.67E-05
PM10	0.00065
PM2.5	0.00055
CO2	2.766284

Heavy-Heavy Duty	
lb/mile	
CO	0.01021519
NOx	0.03092379
ROG	0.00252764
SOx	4.0423E-05
PM10	0.00149566
PM2.5	0.00129354
CO2	4.21590774

Scenario Year: 2013 -- Model Years: 1968-2013

Passenger Vehicles	
lb/mile	
CO	0.007092
Nox	0.000712
ROG	0.000746
Sox	1.07E-05
PM10	9.07E-05
PM2.5	5.83E-05
CO2	1.100874

Delivery Trucks	
lb/mile	
CO	0.014078
Nox	0.015773
ROG	0.002063
Sox	2.68E-05
PM10	0.0006
PM2.5	0.000502
CO2	2.781635

Heavy-Heavy Duty	
lb/mile	
CO	0.0093179
NOx	0.02742935
ROG	0.00226308
SOx	4.0858E-05
PM10	0.00133697
PM2.5	0.00114629
CO2	4.21518556

Scenario Year: 2014 -- Model Years: 1968-2013

Passenger Vehicles	
lb/mile	
CO	0.006604
Nox	0.000655
ROG	0.000702
Sox	1.07E-05
PM10	9.18E-05
PM2.5	5.94E-05
CO2	1.102572

Delivery Trucks	
lb/mile	
CO	0.012843
Nox	0.014252
ROG	0.001896
Sox	2.75E-05
PM10	0.000549
PM2.5	0.000455
CO2	2.798455

Heavy-Heavy Duty	
lb/mile	
CO	0.00846435
NOx	0.02418049
ROG	0.00201594
SOx	4.0922E-05
PM10	0.00118458
PM2.5	0.00100582
CO2	4.21279345

Offroad Equipment Emission Calculations

SCAQMD Offroad Emission Factors

	HP	2009 SCAQMD Emission Factor lbs/hour					2010 SCAQMD Emission Factor lbs/hour					2011 SCAQMD Emission Factor lbs/hour					2012 SCAQMD Emission Factor lbs/hour					2013 SCAQMD Emission Factor lbs/hour					2014 SCAQMD Emission Factor lbs/hour				
		ROG	CO	NOX	SOX	PM	ROG	CO	NOX	SOX	PM	ROG	CO	NOX	SOX	PM	ROG	CO	NOX	SOX	PM	ROG	CO	NOX	SOX	PM	ROG	CO	NOX	SOX	PM
14 ton Crane	180	0.1284	0.5009	1.0117	0.0009	0.0557	0.1213	0.4785	0.9507	0.0009	0.0534	0.1150	0.4752	0.8960	0.0009	0.0509	0.1089	0.4722	0.8423	0.0009	0.0473	0.1032	0.4696	0.7914	0.0009	0.0439	0.0977	0.4674	0.7425	0.0009	0.0405
50 ton Crane	200	0.1317	0.5424	1.1189	0.0010	0.0532	0.1222	0.4408	1.0325	0.0010	0.0516	0.1156	0.4330	0.9692	0.0010	0.0486	0.1093	0.4260	0.9077	0.0010	0.0449	0.1034	0.4197	0.8495	0.0010	0.0414	0.0978	0.4143	0.7900	0.0010	0.0380
980 Loader	318	0.1768	0.5461	1.8155	0.0019	0.0672	0.1678	0.5145	1.7078	0.0019	0.0633	0.1586	0.4870	1.5801	0.0019	0.0575	0.1502	0.4631	1.4605	0.0019	0.0521	0.1424	0.4422	1.3494	0.0019	0.0470	0.1345	0.4242	1.2201	0.0019	0.0424
Backhoe	85	0.1193	0.3673	0.4618	0.0005	0.0446	0.1083	0.3586	0.4389	0.0005	0.0414	0.0980	0.3505	0.4179	0.0005	0.0383	0.0883	0.3431	0.3970	0.0005	0.0349	0.0794	0.3364	0.3729	0.0005	0.0311	0.0713	0.3303	0.3509	0.0005	0.0274
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	0.1193	0.3673	0.4618	0.0005	0.0446	0.1083	0.3586	0.4389	0.0005	0.0414	0.0980	0.3505	0.4179	0.0005	0.0383	0.0883	0.3431	0.3970	0.0005	0.0349	0.0794	0.3364	0.3729	0.0005	0.0311	0.0713	0.3303	0.3509	0.0005	0.0274
Compactor	80	0.1322	0.3671	0.4932	0.0005	0.0464	0.1240	0.3601	0.4737	0.0005	0.0442	0.1161	0.3533	0.4553	0.0005	0.0421	0.1083	0.3467	0.4367	0.0005	0.0397	0.1008	0.3405	0.4156	0.0005	0.0368	0.0936	0.3345	0.3955	0.0005	0.0341
Compressor, Air	75	0.1165	0.3048	0.3786	0.0004	0.0378	0.1110	0.3005	0.3668	0.0004	0.0365	0.1044	0.2947	0.3538	0.0004	0.0350	0.0967	0.2875	0.3390	0.0004	0.0329	0.0886	0.2798	0.3210	0.0004	0.0304	0.0805	0.2721	0.3044	0.0004	0.0278
Crane, Hydraulic, 150 Ton (150 ton crane)	350	0.1553	0.5061	1.5371	0.0015	0.0591	0.1474	0.4728	1.4512	0.0015	0.0556	0.1393	0.4421	1.3511	0.0015	0.0508	0.1316	0.4138	1.2558	0.0015	0.0461	0.1245	0.3886	1.1661	0.0015	0.0418	0.1175	0.3669	1.0644	0.0015	0.0378
Crane, Hydraulic, Rough Terrain 35 ton	155	0.1244	0.4490	0.8777	0.0008	0.0589	0.1177	0.4459	0.8298	0.0008	0.0562	0.1112	0.4431	0.7838	0.0008	0.0535	0.1050	0.4406	0.7381	0.0008	0.0499	0.0990	0.4383	0.6947	0.0008	0.0462	0.0934	0.4363	0.6536	0.0008	0.0427
Crane, Hydraulic, 150/300 Ton	450	0.1793	0.6458	1.7637	0.0017	0.0681	0.1706	0.5992	1.6652	0.0017	0.0642	0.1615	0.5565	1.5499	0.0017	0.0587	0.1529	0.5173	1.4404	0.0017	0.0534	0.1449	0.4823	1.3374	0.0017	0.0485	0.1370	0.4522	1.2200	0.0017	0.0439
Crawler, track type, drill dig, Pheumatic D8	305	0.2347	0.7557	2.2327	0.0020	0.0903	0.2241	0.7105	2.1160	0.0020	0.0854	0.2133	0.6694	1.9821	0.0020	0.0789	0.2031	0.6323	1.8555	0.0020	0.0728	0.1935	0.5991	1.7363	0.0020	0.0669	0.1836	0.5696	1.6007	0.0020	0.0614
Crawler, Track Type, w/ blade (D6 Type)	185	0.2055	0.7445	1.6267	0.0014	0.0888	0.1956	0.7350	1.5409	0.0014	0.0846	0.1862	0.7264	1.4567	0.0014	0.0806	0.1771	0.7189	1.3752	0.0014	0.0752	0.1686	0.7122	1.2984	0.0014	0.0700	0.1604	0.7064	1.2236	0.0014	0.0649
Crawler, Track Type, w/ blade (D8 type)	305	0.2347	0.7557	2.2327	0.0020	0.0903	0.2241	0.7105	2.1160	0.0020	0.0854	0.2133	0.6694	1.9821	0.0020	0.0789	0.2031	0.6323	1.8555	0.0020	0.0728	0.1935	0.5991	1.7363	0.0020	0.0669	0.1836	0.5696	1.6007	0.0020	0.0614
Crawler, Track Type, Sagging (D8 type)	305	0.2347	0.7557	2.2327	0.0020	0.0903	0.2241	0.7105	2.1160	0.0020	0.0854	0.2133	0.6694	1.9821	0.0020	0.0789	0.2031	0.6323	1.8555	0.0020	0.0728	0.1935	0.5991	1.7363	0.0020	0.0669	0.1836	0.5696	1.6007	0.0020	0.0614
Ditch Digger	75	0.1808	0.4617	0.5754	0.0005	0.0559	0.1720	0.4534	0.5571	0.0005	0.0538	0.1633	0.4453	0.5397	0.0005	0.0517	0.1548	0.4374	0.5222	0.0005	0.0493	0.1464	0.4297	0.5014	0.0005	0.0466	0.1382	0.4222	0.4816	0.0005	0.0439
Drill Rig	250	0.0999	0.3479	1.3113	0.0021	0.0395	0.0957	0.3460	1.1847	0.0021	0.0384	0.0892	0.3445	1.0129	0.0021	0.0323	0.0838	0.3435	0.8722	0.0021	0.0268	0.0795	0.3429	0.7632	0.0021	0.0221	0.0737	0.3426	0.6140	0.0021	0.0179
Driller	305	0.1114	0.3944	1.4291	0.0023	0.0446	0.1074	0.3924	1.2992	0.0023	0.0435	0.1008	0.3906	1.1181	0.0023	0.0366	0.0951	0.3895	0.9697	0.0023	0.0305	0.0905	0.3888	0.8531	0.0023	0.0252	0.0840	0.3885	0.6883	0.0023	0.0205
Excavator Cat 320	138	0.1534	0.5814	0.9977	0.0010	0.0796	0.1420	0.5771	0.9299	0.0010	0.0742	0.1316	0.5732	0.8673	0.0010	0.0693	0.1217	0.5697	0.8057	0.0010	0.0628	0.1126	0.5665	0.7492	0.0010	0.0562	0.1042	0.5636	0.6983	0.0010	0.0499
Excavator, Grade - All	165	0.1556	0.6472	1.1448	0.0012	0.0729	0.1453	0.6450	1.0645	0.0012	0.0684	0.1359	0.6430	0.9906	0.0012	0.0644	0.1269	0.6413	0.9192	0.0012	0.0585	0.1186	0.6397	0.8542	0.0012	0.0526	0.1109	0.6383	0.7961	0.0012	0.0469
Forklift	75	0.0723	0.2046	0.2348	0.0003	0.0248	0.0643	0.1973	0.2233	0.0003	0.0227	0.0572	0.1917	0.2134	0.0003	0.0208	0.0505	0.1866	0.2034	0.0003	0.0187	0.0443	0.1821	0.1916	0.0003	0.0164	0.0384	0.1779	0.1803	0.0003	0.0142
Forklift, 5 ton	75	0.0723	0.2046	0.2348	0.0003	0.0248	0.0643	0.1973	0.2233	0.0003	0.0227	0.0572	0.1917	0.2134	0.0003	0.0208	0.0505	0.1866	0.2034	0.0003	0.0187	0.0443	0.1821	0.1916	0.0003	0.0164	0.0384	0.1779	0.1803	0.0003	0.0142
Forklift, 10 ton	85	0.0709	0.2097	0.2661	0.0003	0.0275	0.0634	0.2033	0.2514	0.0003	0.0252	0.0566	0.1984	0.2384	0.0003	0.0231	0.0501	0.1939	0.2252	0.0003	0.0207	0.0442	0.1900	0.2110	0.0003	0.0181	0.0385	0.1863	0.1974	0.0003	0.0156
Generator Concrete Batch Plant	50	0.1182	0.2970	0.3115	0.0004	0.0296	0.1117	0.2904	0.3070	0.0004	0.0284	0.1043	0.2826	0.3020	0.0004	0.0270	0.0959	0.2734	0.2966	0.0004	0.0255	0.0872	0.2639	0.2847	0.0004	0.0234	0.0785	0.2545	0.2731	0.0004	0.0213
Grader	285	0.1912	0.5601	1.9514	0.0020	0.0726	0.1815	0.5297	1.8365	0.0020	0.0683	0.1718	0.5036	1.7014	0.0020	0.0622	0.1627	0.4806	1.5743	0.0020	0.0564	0.1543	0.4605	1.4556	0.0020	0.0510	0.1456	0.4431	1.3180	0.0020	0.0460
Loader, Front End w/ Bucket	145	0.1416	0.5240	0.9747	0.0009	0.0699	0.1329	0.5203	0.9175	0.0009	0.0662	0.1246	0.5171	0.8635	0.0009	0.0627	0.1166	0.5142	0.8100	0.0009	0.0579	0.1092	0.5116	0.7600	0.0009	0.0530	0.1023	0.5093	0.7137	0.0009	0.0482
Manlifts	75	0.0723	0.2046	0.2348	0.0003	0.0248	0.0643	0.1973	0.2233	0.0003	0.0227	0.0572	0.1917	0.2134	0.0003	0.0208	0.0505	0.1866	0.2034	0.0003	0.0187	0.0443	0.1821	0.1916	0.0003	0.0164	0.0384	0.1779	0.1803	0.0003	0.0142
Motor, Auxilary Power	5	0.0060	0.0246	0.0399	0.0001	0.0024	0.0057	0.0242	0.0385	0.0001	0.0023	0.0055	0.0237	0.0370	0.0001	0.0022	0.0052	0.0233	0.0354	0.0001	0.0020	0.0050	0.0228	0.0339	0.0001	0.0019	0.0047	0.0223	0.0324	0.0001	0.0018
Motor Grader	140	0.1730	0.6218	1.1482	0.0011	0.0871	0.1622	0.6168	1.0818	0.0011	0.0825	0.1521	0.6125	1.0195	0.0011	0.0781	0.1423	0.6085	0.9571	0.0011	0.0721	0.1331	0.6050	0.8989	0.0011	0.0660	0.1246	0.6018	0.8448	0.0011	0.0601
Puller, Wire Puller 1 Drum	310	0.1489	0.6170	1.5047	0.0017	0.0635	0.1391	0.5970	1.4037	0.0017	0.0599	0.1298	0.5804	1.2927	0.0017	0.0553	0.1220	0.5692	1.1912	0.0017	0.0500	0.1150	0.5608	1.0991	0.0017	0.0449	0.1080	0.5540	0.9960	0.0017	0.0402
Tension Machine, Conductor or Static	135	0.1391	0.5595	0.9629	0.0010	0.0731	0.1279	0.5550	0.8997	0.0010	0.0686	0.1176	0.5510	0.8413	0.0010	0.0645	0.1078	0.5473	0.7829	0.0010	0.0588	0.0987	0.5439	0.7294	0.0010	0.0527	0.0902	0.5409	0.6818	0.0010	0.0468
Tractors	85	0.1193	0.3673	0.4618	0.0005	0.0446	0.1083	0.3586	0.4389	0.0005	0.0414	0.0980	0.3505	0.4179	0.0005	0.0383	0.0883	0.3431	0.3970	0.0005	0.0349	0.0794	0.3364	0.3729	0.0005	0.0311	0.0713	0.3303	0.3509	0.0005	0.0274
Water Pump	100	0.1494	0.4701	0.7904	0.0008	0.0651	0.1412	0.4648	0.7577	0.0008	0.0627	0.1323	0.4588	0.7229	0.0008	0.0600	0.1223	0.4520	0.6836	0.0008	0.0563	0.1121	0.4450	0.6427	0.0008	0.0519	0.1020	0.4382	0.6057	0.0008	0.0474

SCAQMD emission factors are linearly interpolated as necessary for the specific hp size of the assumed equipment

Helicopter Emission Calculations

Emission Factor Derivation

Approach/Climbout (i.e. Working)

Equiv. Engs	Engine HP	Number	Emissions lbs/hour				
			HC	CO	NOx	SOx	PM
T53-L-11D	1100	1	0.20	2.04	5.00	0.04	0.27
T58-GE-5 (2)	1500	2	1.40	9.92	12.79	0.11	0.71

Note: SOx increased to assume 30 ppm sulfur Jet A fuel Sulfur Content

Idle	Engine HP	Number	Emissions lbs/hour				
			HC	CO	NOx	SOx	PM
T53-L-11D	1100	1	9.00	4.21	0.20	0.01	0.01
T58-GE-5 (2)	1500	2	25.86	45.12	0.40	0.02	0.03

Source: FAEED database
FAEED - FAA Aircraft Engine Emission Database

Relating Factors to Potential Construction/Operating Helicopters

Approach/Climbout	Engine HP	Number	Emissions lbs/hour				
			HC	CO	NOx	SOx	PM
Hughes 500	420	1	0.08	0.78	1.91	0.02	0.10
Eurocopter	847	1	0.15	1.57	3.85	0.03	0.21
Skyking	1400	2	2.61	18.52	23.87	0.20	1.32
Skycrane	4500	2	8.40	59.52	76.74	0.64	4.25

Idle	Engine HP	Number	Emissions lbs/hour				
			HC	CO	NOx	SOx	PM
Hughes 500	420	1	3.44	1.61	0.08	0.00	0.01
Eurocopter	847	1	6.93	3.24	0.15	0.01	0.01
Skyking	1400	2	48.28	84.23	0.75	0.03	0.05
Skycrane	4500	2	155.19	270.73	2.40	0.10	0.16

<u>Construction</u>
Assumptions:
Only the Hughes 500 size helicopters are used during conductor installation for the proposed project.
Two Hughes helicopters are in operation during line stringing for 2.5 hours/day each.
Basis - PEA and Response to question 054
The Dever-Valley Alternative requires 8 hours per day of Skycrane, 2 hours/day of Eurocopter, and Hughes 500 helicopter use is the same as for the proposed project.
The per tower Skycrane usage is xx hours, Eurocopter is xx hours for the Devers-Valley Alternative
Idle time is 10% of working time for small helicopters and negligible for the Skycrane.
Assumes helicopters stay within 3000 feet of the ground.
Applicant Measure APM-G7 notes use of helicopters assisted construction in sensitive areas, but that APM is not assumed to be implemented in this emission estimate.

Proposed Project - Onroad Emissions by Segment

Segment 4

		VMT	Emissions lbs -2009					
2009	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	82,577	81.95	799.81	83.01	0.88	7.10	4.45
	Delivery	37,585	104.82	757.74	840.64	1.01	30.27	26.02
	Heavy-Heavy Duty	14,507	47.77	186.01	607.04	0.58	28.95	25.42
		Totals	234.55	1,743.56	1,530.69	2.47	66.33	55.88

		VMT	Emissions lbs -2010					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	1,227,543	1,121.96	10,142.89	1,127.06	13.23	106.77	67.25
	Delivery	394,706	1,022.12	7,277.44	8,140.65	10.66	296.51	253.53
	Heavy-Heavy Duty	212,297	645.71	2,537.91	8,114.19	8.77	388.63	339.85
		Totals	2,789.79	19,958.24	17,381.90	32.66	791.91	660.63

		VMT	Emissions lbs -2011					
2011	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	91,713	78.17	757.80	77.46	0.99	8.14	5.18
	Delivery	30,304	73.30	513.12	573.77	0.83	21.24	18.09
	Heavy-Heavy Duty	15,382	43.00	171.12	531.58	0.61	25.55	22.23
		Totals	194.47	1,442.04	1,182.81	2.43	54.93	45.50

Segment 5

		VMT	Emissions lbs -2009					
2009	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	59,188	58.74	573.27	59.49	0.63	5.09	3.19
	Delivery	25,884	72.19	521.85	578.94	0.69	20.85	17.92
	Heavy-Heavy Duty	20,199	66.52	259.00	845.26	0.81	40.31	35.39
		Totals	197.45	1,354.12	1,483.69	2.14	66.25	56.50

		VMT	Emissions lbs -2010					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	512,478	468.40	4,234.48	470.53	5.52	44.57	28.07
	Delivery	203,829	527.83	3,758.13	4,203.90	5.51	153.12	130.93
	Heavy-Heavy Duty	193,074	587.25	2,308.12	7,379.49	7.98	353.45	309.08
		Totals	1,583.48	10,300.73	12,053.91	19.00	551.14	468.08

		VMT	Emissions lbs -2011					
2011	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	352,319	300.29	2,911.12	297.57	3.80	31.28	19.91
	Delivery	119,143	288.17	2,017.38	2,255.82	3.25	83.52	71.11
	Heavy-Heavy Duty	72,055	201.43	801.59	2,490.10	2.86	119.68	104.11
		Totals	789.89	5,730.10	5,043.49	9.91	234.47	195.13

		VMT	Emissions lbs -2012					
2012	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	3,248	2.59	24.86	2.52	0.03	0.29	0.19
	Delivery	999	2.23	15.44	17.30	0.03	0.65	0.55
	Heavy-Heavy Duty	499	1.26	5.10	15.44	0.02	0.75	0.65
		Totals	6.08	45.40	35.27	0.08	1.69	1.38

Segment 6

		VMT	Emissions lbs -2009					
2009	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	60,220	59.77	583.27	60.53	0.64	5.18	3.24
	Delivery	30,110	83.98	607.04	673.45	0.81	24.25	20.84
	Heavy-Heavy Duty	10,037	33.05	128.69	419.99	0.40	20.03	17.59
		Totals	176.80	1,319.01	1,153.98	1.85	49.46	41.67

		VMT	Emissions lbs -2010					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	652,566	596.44	5,391.99	599.15	7.03	56.76	35.75
	Delivery	275,770	714.13	5,084.56	5,687.66	7.45	207.16	177.14
	Heavy-Heavy Duty	241,825	735.53	2,890.92	9,242.81	9.99	442.69	387.12
		Totals	2,046.09	13,367.47	15,529.62	24.47	706.61	600.00

		VMT	Emissions lbs -2011					
2011	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	1,049,767	894.75	8,673.97	886.64	11.31	93.21	59.34
	Delivery	362,425	876.59	6,136.73	6,862.03	9.89	254.05	216.30
	Heavy-Heavy Duty	159,675	446.36	1,776.33	5,518.08	6.34	265.20	230.71
		Totals	2,217.70	16,587.03	13,266.75	27.54	612.46	506.35

		VMT	Emissions lbs -2012					
2012	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	294,310	234.35	2,252.87	228.33	3.16	26.43	16.92
	Delivery	127,700	285.76	1,973.91	2,212.31	3.41	82.97	70.18
	Heavy-Heavy Duty	70,814	178.99	723.38	2,189.84	2.86	105.91	91.60
		Totals	699.11	4,950.16	4,630.48	9.43	215.31	178.70

Segment 7

2010	VMT	Emissions lbs -2010					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	311,056	284.30	2,570.18	285.59	3.35	27.06	17.04
Delivery	115,159	298.21	2,123.26	2,375.11	3.11	86.51	73.97
Heavy-Heavy Duty	96,893	294.71	1,158.31	3,703.34	4.00	177.37	155.11
Totals		877.22	5,851.75	6,364.04	10.46	290.94	246.12

2011	VMT	Emissions lbs -2011					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	708,808	604.14	5,856.70	598.66	7.64	62.94	40.07
Delivery	213,958	517.50	3,622.83	4,051.01	5.84	149.98	127.69
Heavy-Heavy Duty	101,000	282.34	1,123.58	3,490.35	4.01	167.75	145.93
Totals		1,403.97	10,603.12	8,140.03	17.49	380.66	313.69

2012	VMT	Emissions lbs -2012					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	516,247	411.08	3,951.74	400.52	5.54	46.35	29.68
Delivery	171,542	383.87	2,651.60	2,971.84	4.57	111.46	94.27
Heavy-Heavy Duty	67,045	169.47	684.88	2,073.30	2.71	100.28	86.73
Totals		964.41	7,288.23	5,445.66	12.82	258.09	210.68

Segment 8

		VMT	Emissions lbs -2009					
2009	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	23,579	23.40	228.38	23.70	0.25	2.03	1.27
	Delivery	11,630	32.44	234.48	260.13	0.31	9.37	8.05
	Heavy-Heavy Duty	4,736	15.60	60.72	198.17	0.19	9.45	8.30
		Totals	71.43	523.58	482.00	0.75	20.85	17.62

		VMT	Emissions lbs -2010					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	1,066,136	974.44	8,809.22	978.86	11.49	92.73	58.40
	Delivery	373,832	968.07	6,892.57	7,710.13	10.10	280.83	240.12
	Heavy-Heavy Duty	265,761	808.33	3,177.06	10,157.67	10.98	486.51	425.44
		Totals	2,750.83	18,878.86	18,846.66	32.56	860.07	723.97

		VMT	Emissions lbs -2011					
2011	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	1,208,614	1,030.14	9,986.48	1,020.80	13.02	107.32	68.32
	Delivery	395,232	955.94	6,692.23	7,483.19	10.78	277.05	235.88
	Heavy-Heavy Duty	161,752	452.17	1,799.43	5,589.83	6.43	268.65	233.71
		Totals	2,438.25	18,478.14	14,093.82	30.23	653.01	537.91

		VMT	Emissions lbs -2012					
2012	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	194,285	154.70	1,487.20	150.73	2.08	17.45	11.17
	Delivery	72,316	161.83	1,117.82	1,252.82	1.93	46.99	39.74
	Heavy-Heavy Duty	41,096	103.88	419.80	1,270.84	1.66	61.47	53.16
		Totals	420.41	3,024.82	2,674.39	5.67	125.90	104.07

Segment 9-Whirlwind Substation

		VMT	Emissions lbs -2010					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	516,405	471.99	4,266.93	474.13	5.56	44.92	28.29
	Delivery	86,181	223.17	1,588.97	1,777.44	2.33	64.74	55.36
	Heavy-Heavy Duty	55,740	169.54	666.35	2,130.45	2.30	102.04	89.23
		Totals	864.70	6,522.25	4,382.03	10.19	211.70	172.88

		VMT	Emissions lbs -2011					
2011	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	274,983	234.38	2,272.12	232.25	2.96	24.42	15.54
	Delivery	52,167	126.17	883.31	987.71	1.42	36.57	31.13
	Heavy-Heavy Duty	0	0.00	0.00	0.00	0.00	0.00	0.00
		Totals	360.55	3,155.43	1,219.96	4.39	60.98	46.68

Segment 9-Antelope Substation

		VMT	Emissions lbs -2009					
2009	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	17,790	17.66	172.30	17.88	0.19	1.53	0.96
	Delivery	3,707	10.34	74.74	82.92	0.10	2.99	2.57
	Heavy-Heavy Duty	5,561	18.31	71.31	232.71	0.22	11.10	9.74
		Totals	46.31	318.35	333.51	0.51	15.61	13.27

		VMT	Emissions lbs -2010					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	424,200	387.71	3,505.06	389.48	4.57	36.90	23.24
	Delivery	90,531	234.44	1,669.17	1,867.16	2.45	68.01	58.15
	Heavy-Heavy Duty	31,158	94.77	372.48	1,190.90	1.29	57.04	49.88
		Totals	716.92	5,546.71	3,447.53	8.30	161.94	131.27

		VMT	Emissions lbs -2011					
2011	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	95,640	81.52	790.25	80.78	1.03	8.49	5.41
	Delivery	23,347	56.47	395.31	442.04	0.64	16.37	13.93
	Heavy-Heavy Duty	0	0.00	0.00	0.00	0.00	0.00	0.00
		Totals	137.99	1,185.56	522.81	1.67	24.86	19.34

		VMT	Emissions lbs -2012					
2012	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	93,658	74.58	716.92	72.66	1.00	8.41	5.38
	Delivery	11,774	26.35	181.99	203.97	0.31	7.65	6.47
	Heavy-Heavy Duty	0	0.00	0.00	0.00	0.00	0.00	0.00
		Totals	100.92	898.91	276.63	1.32	16.06	11.85

Segment 9-Vincent Substation

		VMT	Emissions lbs -2009					
2009	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	4,327	4.29	41.91	4.35	0.05	0.37	0.23
	Delivery	962	2.68	19.40	21.53	0.03	0.78	0.67
	Heavy-Heavy Duty	165	0.54	2.12	6.91	0.01	0.33	0.29
	Totals		7.52	63.43	32.78	0.08	1.48	1.19

		VMT	Emissions lbs -2010					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	25,603	23.40	211.55	23.51	0.28	2.23	1.40
	Delivery	5,373	13.91	99.07	110.82	0.15	4.04	3.45
	Heavy-Heavy Duty	826	2.51	9.87	31.55	0.03	1.51	1.32
	Totals		39.83	320.49	165.88	0.46	7.77	6.18

		VMT	Emissions lbs -2011					
2011	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	7,933	6.76	65.55	6.70	0.09	0.70	0.45
	Delivery	1,764	4.27	29.88	33.41	0.05	1.24	1.05
	Heavy-Heavy Duty	826	2.31	9.18	28.53	0.03	1.37	1.19
	Totals		13.34	104.61	68.63	0.17	3.31	2.69

		VMT	Emissions lbs -2012					
2012	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	148,507	118.25	1,136.78	115.22	1.59	13.33	8.54
	Delivery	25,143	56.26	388.64	435.58	0.67	16.34	13.82
	Heavy-Heavy Duty	1,651	4.17	16.87	51.06	0.07	2.47	2.14
	Totals		178.69	1,542.29	601.85	2.33	32.14	24.49

		VMT	Emissions lbs -2013					
2013	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	132,100	98.50	936.89	94.00	1.42	11.98	7.71
	Delivery	24,301	50.13	342.10	383.30	0.65	14.57	12.19
	Heavy-Heavy Duty	0	0.00	0.00	0.00	0.00	0.00	0.00
	Totals		148.63	1,278.99	477.30	2.07	26.55	19.90

Segment 9-Gould Substation

		VMT	Emissions lbs -2011					
2011	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	15,120	12.89	124.93	12.77	0.16	1.34	0.85
	Delivery	4,720	11.42	79.92	89.37	0.13	3.31	2.82
	Heavy-Heavy Duty	800	2.24	8.90	27.65	0.03	1.33	1.16
	Totals		26.54	213.75	129.78	0.32	5.98	4.83

Segment 9-Mira Loma Substation

		VMT	Emissions lbs -2010					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	6,000	5.48	49.58	5.51	0.06	0.52	0.33
	Delivery	2,000	5.18	36.88	41.25	0.05	1.50	1.28
	Heavy-Heavy Duty	600	1.82	7.17	22.93	0.02	1.10	0.96
		Totals	12.49	93.62	69.69	0.14	3.12	2.57

		VMT	Emissions lbs -2012					
2012	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	6,960	5.54	53.28	5.40	0.07	0.62	0.40
	Delivery	2,320	5.19	35.86	40.19	0.06	1.51	1.27
	Heavy-Heavy Duty	600	1.52	6.13	18.55	0.02	0.90	0.78
		Totals	12.25	95.27	64.15	0.16	3.03	2.45

Segment 9-Chino Substation

		VMT	Emissions lbs -2010					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	12,720	11.63	105.10	11.68	0.14	1.11	0.70
	Delivery	4,240	10.98	78.18	87.45	0.11	3.19	2.72
	Heavy-Heavy Duty	525	1.60	6.28	20.07	0.02	0.96	0.84
		Totals	24.20	189.55	119.19	0.27	5.25	4.26

Segment 10

		VMT	Emissions lbs -2010					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	951,989	870.11	7,866.05	874.06	10.26	82.80	52.15
	Delivery	231,335	599.06	4,265.27	4,771.20	6.25	173.78	148.59
	Heavy-Heavy Duty	141,195	429.46	1,687.93	5,396.63	5.83	258.48	226.03
		Totals	1,898.62	13,819.25	11,041.89	22.34	515.06	426.77

		VMT	Emissions lbs -2011					
2011	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	46,778	39.87	386.52	39.51	0.50	4.15	2.64
	Delivery	13,069	31.61	221.30	247.45	0.36	9.16	7.80
	Heavy-Heavy Duty	9,947	27.81	110.66	343.75	0.40	16.52	14.37
		Totals	99.29	718.47	630.71	1.26	29.84	24.82

Segment 11

		VMT	Emissions lbs -2009					
2009	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	56,975	56.54	551.84	57.27	0.61	4.90	3.07
	Delivery	29,945	83.52	603.71	669.75	0.80	24.12	20.73
	Heavy-Heavy Duty	9,982	32.87	127.99	417.69	0.40	19.92	17.49
		Totals	172.93	1,283.53	1,144.71	1.81	48.94	41.29

		VMT	Emissions lbs -2010					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	11,179	10.22	92.37	10.26	0.12	0.97	0.61
	Delivery	5,875	15.21	108.32	121.17	0.16	4.41	3.77
	Heavy-Heavy Duty	1,958	5.96	23.41	74.85	0.08	3.59	3.14
		Totals	31.39	224.10	206.29	0.36	8.97	7.52

		VMT	Emissions lbs -2011					
2011	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	165,035	140.66	1,363.64	139.39	1.78	14.65	9.33
	Delivery	56,293	136.16	953.18	1,065.84	1.54	39.46	33.60
	Heavy-Heavy Duty	56,045	156.67	623.48	1,936.82	2.23	93.08	80.98
		Totals	433.49	2,940.31	3,142.05	5.54	147.20	123.90

		VMT	Emissions lbs -2012					
2012	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	1,019,597	811.88	7,804.75	791.03	10.94	91.55	58.62
	Delivery	359,866	805.29	5,562.60	6,234.41	9.60	233.82	197.76
	Heavy-Heavy Duty	209,111	528.56	2,136.11	6,466.52	8.45	312.76	270.49
		Totals	2,145.74	15,503.47	13,491.96	28.99	638.13	526.88

		VMT	Emissions lbs -2013					
2013	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	31,132	23.21	220.80	22.15	0.33	2.82	1.82
	Delivery	12,975	26.77	182.66	204.66	0.35	7.78	6.51
	Heavy-Heavy Duty	8,887	20.11	82.81	243.78	0.36	11.88	10.19
		Totals	70.09	486.27	470.59	1.04	22.48	18.51

Summary by Segment

Segment 4

	VMT	Emissions lbs					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	1,401,832.50	1,282.08	11,700.50	1,287.52	15.10	122.02	76.88
Delivery	462,594.72	1,200.24	8,548.31	9,555.05	12.49	348.03	297.64
Heavy-Heavy Duty	242,185.40	736.49	2,895.04	9,252.81	9.96	443.13	387.50
	Totals	3,218.81	23,143.85	20,095.39	37.55	913.17	762.01

Segment 5

	VMT	Emissions lbs					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	927,232.30	830.02	7,743.74	830.11	9.98	81.24	51.36
Delivery	349,855.57	890.43	6,312.80	7,055.96	9.48	258.13	220.50
Heavy-Heavy Duty	285,828.31	856.46	3,373.81	10,730.29	11.67	514.18	449.23
	Totals	2,576.90	17,430.35	18,616.36	31.13	853.55	721.09

Segment 6

	VMT	Emissions lbs					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	2,056,862.40	1,785.31	16,902.10	1,774.65	22.14	181.58	115.25
Delivery	796,005.73	1,960.46	13,802.25	15,435.45	21.55	568.44	484.46
Heavy-Heavy Duty	482,351.75	1,393.94	5,519.32	17,370.73	19.60	833.84	727.02
	Totals	5,139.70	36,223.66	34,580.83	63.29	1,583.85	1,326.73

Segment 7

	VMT	Emissions lbs					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	1,536,110.70	1,299.52	12,378.63	1,284.77	16.53	136.35	86.79
Delivery	500,659.49	1,199.58	8,397.69	9,397.96	13.52	347.95	295.93
Heavy-Heavy Duty	264,937.91	746.51	2,966.78	9,267.00	10.72	445.40	387.77
	Totals	3,245.61	23,743.09	19,949.73	40.77	929.69	770.49

Segment 8

	VMT	Emissions lbs					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	2,492,613.40	2,182.68	20,511.28	2,174.10	26.85	219.52	139.16
Delivery	853,009.99	2,118.27	14,937.11	16,706.27	23.12	614.23	523.80
Heavy-Heavy Duty	473,344.67	1,379.97	5,457.01	17,216.51	19.26	826.07	720.61
	Totals	5,680.92	40,905.40	36,096.87	69.22	1,659.82	1,383.57

Segment 9

	VMT	Emissions lbs					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	1,781,945.00	1,554.58	14,449.16	1,546.31	19.18	156.87	99.43
Delivery	338,529.30	836.96	5,903.42	6,604.12	9.15	242.78	206.89
Heavy-Heavy Duty	98,451.65	299.33	1,176.65	3,761.30	4.06	180.14	157.53
	Totals	2,690.88	21,529.23	11,911.74	32.38	579.79	463.85

Segment 10

	VMT	Emissions lbs					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	998,766.90	909.98	8,252.57	913.57	10.76	86.96	54.80
Delivery	244,404.53	630.67	4,486.57	5,018.65	6.60	182.94	156.39
Heavy-Heavy Duty	151,142.45	457.26	1,798.59	5,740.38	6.23	275.00	240.40
	Totals	1,997.91	14,537.73	11,672.60	23.59	544.90	451.59

Segment 11

	VMT	Emissions lbs					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	1,283,916.30	1,042.52	10,033.39	1,020.11	13.78	114.90	73.45
Delivery	464,954.86	1,066.95	7,410.48	8,295.83	12.44	309.60	262.37
Heavy-Heavy Duty	285,984.02	744.17	2,993.81	9,139.65	11.52	441.23	382.29
	Totals	2,853.64	20,437.68	18,455.59	37.74	865.73	718.11

Proposed Project - Onroad Emissions Summary (ton)

2009	VMT	Emissions ton -2009					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	304,656	0.151	1.475	0.153	0.002	0.013	0.008
Delivery	139,824	0.195	1.409	1.564	0.002	0.056	0.048
Heavy-Heavy Duty	65,186	0.107	0.418	1.364	0.001	0.065	0.057

2010	VMT	Emissions ton -2010					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	5,717,873	2.613	23.623	2.625	0.031	0.249	0.157
Delivery	1,788,831	2.316	16.491	18.447	0.024	0.672	0.575
Heavy-Heavy Duty	1,241,853	1.889	7.423	23.732	0.026	1.137	0.994

2011	VMT	Emissions ton -2011					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	4,016,709	1.712	16.595	1.696	0.022	0.178	0.114
Delivery	1,272,423	1.539	10.773	12.046	0.017	0.446	0.380
Heavy-Heavy Duty	577,482	0.807	3.212	9.978	0.011	0.480	0.417

2012	VMT	Emissions ton -2012					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	2,276,811	0.906	8.714	0.883	0.012	0.102	0.065
Delivery	771,660	0.863	5.964	6.684	0.010	0.251	0.212
Heavy-Heavy Duty	390,817	0.494	1.996	6.043	0.008	0.292	0.253

2013	VMT	Emissions ton -2013					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	163,232	0.061	0.579	0.058	0.001	0.007	0.005
Delivery	37,276	0.038	0.262	0.294	0.000	0.011	0.009
Heavy-Heavy Duty	8,887	0.010	0.041	0.122	0.000	0.006	0.005

Proposed Project Onroad Emissions - KCAPCD

		VMT	Emissions ton -2009					
2009	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	40,995	0.020	0.199	0.021	0.000	0.002	0.001
	Delivery	20,497	0.029	0.207	0.229	0.000	0.008	0.007
	Heavy-Heavy Duty	6,832	0.011	0.044	0.143	0.000	0.007	0.006
	Totals	68,324	0.06	0.45	0.39	0.00	0.02	0.01

		VMT	Emissions ton -2010					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	2,154,316	0.985	8.900	0.989	0.012	0.094	0.059
	Delivery	540,856	0.700	4.986	5.577	0.007	0.203	0.174
	Heavy-Heavy Duty	314,084	0.478	1.877	6.002	0.006	0.287	0.251
	Totals	3,009,256	2.16	15.76	12.57	0.03	0.58	0.48

		VMT	Emissions ton -2011					
2011	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	381,298	0.162	1.575	0.161	0.002	0.017	0.011
	Delivery	85,097	0.103	0.720	0.806	0.001	0.030	0.025
	Heavy-Heavy Duty	21,814	0.030	0.121	0.377	0.000	0.018	0.016
	Totals	488,208	0.30	2.42	1.34	0.00	0.06	0.05

Proposed Project Onroad Emissions - SCAQMD

		VMT	Emissions ton -2009					
2009	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	80,554	0.040	0.390	0.040	0.000	0.003	0.002
	Delivery	41,575	0.058	0.419	0.465	0.001	0.017	0.014
	Heavy-Heavy Duty	14,717	0.024	0.094	0.308	0.000	0.015	0.013
	Totals	136,846	0.12	0.90	0.81	0.00	0.03	0.03

		VMT	Emissions ton -2010					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	1,765,884	0.807	7.296	0.811	0.010	0.077	0.048
	Delivery	662,760	0.858	6.110	6.835	0.009	0.249	0.213
	Heavy-Heavy Duty	498,163	0.758	2.978	9.520	0.010	0.456	0.399
	Totals	2,926,807	2.42	16.38	17.17	0.03	0.78	0.66

		VMT	Emissions ton -2011					
2011	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	2,845,577	1.213	11.756	1.202	0.015	0.126	0.080
	Delivery	926,950	1.121	7.848	8.775	0.013	0.325	0.277
	Heavy-Heavy Duty	435,523	0.609	2.423	7.525	0.009	0.362	0.315
	Totals	4,208,050	2.94	22.03	17.50	0.04	0.81	0.67

		VMT	Emissions ton -2012					
2012	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	1,407,854	0.561	5.388	0.546	0.008	0.063	0.040
	Delivery	487,923	0.546	3.771	4.226	0.007	0.159	0.134
	Heavy-Heavy Duty	255,283	0.323	1.304	3.947	0.005	0.191	0.165
	Totals	2,151,060	1.43	10.46	8.72	0.02	0.41	0.34

		VMT	Emissions ton -2013					
2013	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	867	0.000	0.003	0.000	0.000	0.000	0.000
	Delivery	661	0.001	0.005	0.005	0.000	0.000	0.000
	Heavy-Heavy Duty	661	0.001	0.003	0.009	0.000	0.000	0.000
	Totals	2,189	0.00	0.01	0.01	0.00	0.00	0.00

Proposed Project Onroad Emissions - AVAQMD

		VMT	Emissions lbs -2009					
2009	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	183,107	0.091	0.887	0.092	0.001	0.008	0.005
	Delivery	77,752	0.108	0.784	0.870	0.001	0.031	0.027
	Heavy-Heavy Duty	43,636	0.072	0.280	0.913	0.001	0.044	0.038
	Totals	304,496	0.27	1.95	1.87	0.00	0.08	0.07

		VMT	Emissions lbs -2010					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	1,797,673	0.822	7.427	0.825	0.010	0.078	0.049
	Delivery	585,215	0.758	5.395	6.035	0.008	0.220	0.188
	Heavy-Heavy Duty	429,605	0.653	2.568	8.210	0.009	0.393	0.344
	Totals	2,812,494	2.23	15.39	15.07	0.03	0.69	0.58

		VMT	Emissions lbs -2011					
2011	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	789,834	0.337	3.263	0.334	0.004	0.035	0.022
	Delivery	260,376	0.315	2.204	2.465	0.004	0.091	0.078
	Heavy-Heavy Duty	120,146	0.168	0.668	2.076	0.002	0.100	0.087
	Totals	1,170,356	0.82	6.14	4.87	0.01	0.23	0.19

		VMT	Emissions lbs -2012					
2012	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	868,956	0.346	3.326	0.337	0.005	0.039	0.025
	Delivery	283,737	0.317	2.193	2.458	0.004	0.092	0.078
	Heavy-Heavy Duty	135,535	0.171	0.692	2.096	0.003	0.101	0.088
	Totals	1,288,228	0.83	6.21	4.89	0.01	0.23	0.19

		VMT	Emissions lbs -2013					
2013	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	162,365	0.061	0.576	0.058	0.001	0.007	0.005
	Delivery	36,614	0.038	0.258	0.289	0.000	0.011	0.009
	Heavy-Heavy Duty	8,226	0.009	0.038	0.113	0.000	0.005	0.005
	Totals	207,206	0.11	0.87	0.46	0.00	0.02	0.02

Offroad Equipment Emission Calculations

2009 Emission Calculations

Construction of Marshalling Yards

Segment 4

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.1244	0.4490	0.8777	0.0008	0.0589	2	0.25	0.90	1.76	0.00	0.12	192	47.77	172.41	337.04	0.30	22.62
Forklift, 5 ton	75	1	0.0723	0.2046	0.2348	0.0003	0.0248	6	0.43	1.23	1.41	0.00	0.15	192	83.24	235.75	270.51	0.29	28.51
Forklift, 10 ton	85	1	0.0709	0.2097	0.2661	0.0003	0.0275	6	0.43	1.26	1.60	0.00	0.17	192	81.69	241.53	306.58	0.32	31.73
Motor, Auxilary Power	5	1	0.0060	0.0246	0.0399	0.0001	0.0024	1	0.01	0.02	0.04	0.00	0.00	192	1.16	4.72	7.66	0.01	0.47
									1.11	3.41	4.80	0.00	0.43		213.87	654.41	921.79	0.92	83.33

Segment 5

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.1244	0.4490	0.8777	0.0008	0.0589	2	0.25	0.90	1.76	0.00	0.12	144	35.83	129.31	252.78	0.23	16.96
Forklift, 5 ton	75	1	0.0723	0.2046	0.2348	0.0003	0.0248	6	0.43	1.23	1.41	0.00	0.15	144	62.43	176.81	202.89	0.22	21.39
Forklift, 10 ton	85	1	0.0709	0.2097	0.2661	0.0003	0.0275	6	0.43	1.26	1.60	0.00	0.17	144	61.27	181.15	229.94	0.24	23.80
Motor, Auxilary Power	5	1	0.0060	0.0246	0.0399	0.0001	0.0024	1	0.01	0.02	0.04	0.00	0.00	144	0.87	3.54	5.74	0.01	0.35
									1.11	3.41	4.80	0.00	0.43		160.40	490.81	691.35	0.69	62.50

Segment 6

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.1244	0.4490	0.8777	0.0008	0.0589	2	0.25	0.90	1.76	0.00	0.12	167	41.55	149.96	293.15	0.26	19.67
Forklift, 5 ton	75	1	0.0723	0.2046	0.2348	0.0003	0.0248	6	0.43	1.23	1.41	0.00	0.15	167	72.40	205.05	235.29	0.25	24.80
Forklift, 10 ton	85	1	0.0709	0.2097	0.2661	0.0003	0.0275	6	0.43	1.26	1.60	0.00	0.17	167	71.06	210.08	266.66	0.28	27.60
Motor, Auxilary Power	5	1	0.0060	0.0246	0.0399	0.0001	0.0024	1	0.01	0.02	0.04	0.00	0.00	167	1.01	4.11	6.66	0.01	0.41
									1.11	3.41	4.80	0.00	0.43		186.02	569.20	801.77	0.80	72.48

Segment 8

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.1244	0.4490	0.8777	0.0008	0.0589	2	0.25	0.90	1.76	0.00	0.12	94	23.39	84.41	165.01	0.15	11.07
Forklift, 5 ton	75	1	0.0723	0.2046	0.2348	0.0003	0.0248	6	0.43	1.23	1.41	0.00	0.15	94	40.75	115.42	132.44	0.14	13.96
Forklift, 10 ton	85	1	0.0709	0.2097	0.2661	0.0003	0.0275	6	0.43	1.26	1.60	0.00	0.17	94	40.00	118.25	150.10	0.16	15.54
Motor, Auxilary Power	5	1	0.0060	0.0246	0.0399	0.0001	0.0024	1	0.01	0.02	0.04	0.00	0.00	94	0.57	2.31	3.75	0.00	0.23
									1.11	3.41	4.80	0.00	0.43		104.71	320.39	451.30	0.45	40.80

Segment 11

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.1244	0.4490	0.8777	0.0008	0.0589	2	0.25	0.90	1.76	0.00	0.12	158	39.31	141.88	277.36	0.25	18.61
Forklift, 5 ton	75	1	0.0723	0.2046	0.2348	0.0003	0.0248	6	0.43	1.23	1.41	0.00	0.15	158	68.50	194.00	222.61	0.24	23.47
Forklift, 10 ton	85	1	0.0709	0.2097	0.2661	0.0003	0.0275	6	0.43	1.26	1.60	0.00	0.17	158	67.23	198.76	252.29	0.26	26.11
Motor, Auxilary Power	5	1	0.0060	0.0246	0.0399	0.0001	0.0024	1	0.01	0.02	0.04	0.00	0.00	158	0.95	3.89	6.30	0.01	0.38
									1.11	3.41	4.80	0.00	0.43		176.00	538.53	758.56	0.76	68.58

Marshalling Yards

Segment 5

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.1244	0.4490	0.8777	0.0008	0.0589	3	0.31	1.12	2.19	0.00	0.15	42	13.06	47.14	92.16	0.08	6.18
Forklift, 5 ton	75	1	0.0723	0.2046	0.2348	0.0003	0.0248	5	0.36	1.02	1.17	0.00	0.12	42	15.17	42.97	49.31	0.05	5.20
Forklift, 10 ton	85	1	0.0709	0.2097	0.2661	0.0003	0.0275	5	0.35	1.05	1.33	0.00	0.14	42	14.89	44.03	55.89	0.06	5.78
									1.03	3.19	4.70	0.00	0.41		43.13	134.15	197.36	0.19	17.17

Roads & Landing Work

Segment 8

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crawler, Track Type, w/ blade (D8 type)	305	1	0.2347	0.7557	2.2327	0.0020	0.0903	9	2.11	6.80	20.09	0.02	0.81	8	16.90	54.41	160.76	0.15	6.50
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.2055	0.7445	1.6267	0.0014	0.0888	9	1.85	6.70	14.64	0.01	0.80	8	14.80	53.61	117.12	0.10	6.39
Motor Grader	140	1	0.1730	0.6218	1.1482	0.0011	0.0871	5	0.86	3.11	5.74	0.01	0.44	8	6.92	24.87	45.93	0.04	3.48
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	1	0.1193	0.3673	0.4618	0.0005	0.0446	3	0.36	1.10	1.39	0.00	0.13	8	2.86	8.82	11.08	0.01	1.07
									5.19	17.71	41.86	0.04	2.18		41.48	141.70	334.89	0.30	17.44

Offroad Equipment Emission Calculations

Construction - 66kV (or other subtransmission lines)

Segment 4 - Relocate at Antelope

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Drill Rig	250	1	0.0999	0.3479	1.3113	0.0021	0.0395	4	0.40	1.39	5.25	0.01	0.16	37	14.79	51.49	194.07	0.31	5.85
Backhoe	85	1	0.1193	0.3673	0.4618	0.0005	0.0446	4	0.48	1.47	1.85	0.00	0.18	37	17.66	54.36	68.35	0.07	6.59
									0.88	2.86	7.09	0.01	0.34		32.45	105.85	262.42	0.39	12.45

Segment 5 - Sagebrush/Ant. & Sagebrush Vincent

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Drill Rig	250	1	0.0999	0.3479	1.3113	0.0021	0.0395	4	0.40	1.39	5.25	0.01	0.16	74	29.58	102.97	388.15	0.63	11.70
Backhoe	85	1	0.1193	0.3673	0.4618	0.0005	0.0446	4	0.48	1.47	1.85	0.00	0.18	74	35.32	108.73	136.70	0.15	13.19
									0.88	2.86	7.09	0.01	0.34		64.90	211.70	524.84	0.77	24.89

Grading Element

Segment 9 - Antelope Substation

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
980 Loader	318	3	0.1768	0.5461	1.8155	0.0019	0.0672	8	4.24	13.11	43.57	0.04	1.61	37	157.02	484.94	1612.15	1.65	59.70
Compactor	80	2	0.1322	0.3671	0.4932	0.0005	0.0464	5	1.32	3.67	4.93	0.00	0.46	37	48.92	135.82	182.48	0.18	17.16
Grader	285	2	0.1912	0.5601	1.9514	0.0020	0.0726	8	3.06	8.96	31.22	0.03	1.16	37	113.18	331.55	1155.22	1.17	42.95
									8.62	25.74	79.73	0.08	3.24		319.12	952.31	2949.85	3.00	119.81

2010 Emission Calculations

Construction of Marshalling Yards

Segment 5

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.1177	0.4459	0.8298	0.0008	0.0562	2	0.24	0.89	1.66	0.00	0.11	164	38.59	146.26	272.18	0.26	18.42
Forklift, 5 ton	75	1	0.0643	0.1973	0.2233	0.0003	0.0227	6	0.39	1.18	1.34	0.00	0.14	164	63.27	194.19	219.71	0.25	22.32
Forklift, 10 ton	85	1	0.0634	0.2033	0.2514	0.0003	0.0252	6	0.38	1.22	1.51	0.00	0.15	164	62.36	200.08	247.36	0.27	24.84
Motor, Auxilary Power	5	1	0.0057	0.0242	0.0385	0.0001	0.0023	1	0.01	0.02	0.04	0.00	0.00	164	0.94	3.97	6.31	0.01	0.38
									1.01	3.32	4.55	0.00	0.40		165.16	544.49	745.57	0.79	65.96

Segment 6

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.1177	0.4459	0.8298	0.0008	0.0562	2	0.24	0.89	1.66	0.00	0.11	301	70.83	268.44	499.55	0.48	33.81
Forklift, 5 ton	75	1	0.0643	0.1973	0.2233	0.0003	0.0227	6	0.39	1.18	1.34	0.00	0.14	301	116.12	356.41	403.25	0.46	40.96
Forklift, 10 ton	85	1	0.0634	0.2033	0.2514	0.0003	0.0252	6	0.38	1.22	1.51	0.00	0.15	301	114.45	367.22	454.00	0.50	45.59
Motor, Auxilary Power	5	1	0.0057	0.0242	0.0385	0.0001	0.0023	1	0.01	0.02	0.04	0.00	0.00	301	1.73	7.28	11.58	0.02	0.69
									1.01	3.32	4.55	0.00	0.40		303.13	999.35	1368.39	1.45	121.05

Segment 7

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.1177	0.4459	0.8298	0.0008	0.0562	2	0.24	0.89	1.66	0.00	0.11	95	22.35	84.72	157.67	0.15	10.67
Forklift, 5 ton	75	1	0.0643	0.1973	0.2233	0.0003	0.0227	6	0.39	1.18	1.34	0.00	0.14	95	36.65	112.49	127.27	0.14	12.93
Forklift, 10 ton	85	1	0.0634	0.2033	0.2514	0.0003	0.0252	6	0.38	1.22	1.51	0.00	0.15	95	36.12	115.90	143.29	0.16	14.39
Motor, Auxilary Power	5	1	0.0057	0.0242	0.0385	0.0001	0.0023	1	0.01	0.02	0.04	0.00	0.00	95	0.55	2.30	3.65	0.01	0.22
									1.01	3.32	4.55	0.00	0.40		95.67	315.41	431.88	0.46	38.21

Segment 8

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.1177	0.4459	0.8298	0.0008	0.0562	2	0.24	0.89	1.66	0.00	0.11	94	22.12	83.83	156.01	0.15	10.56
Forklift, 5 ton	75	1	0.0643	0.1973	0.2233	0.0003	0.0227	6	0.39	1.18	1.34	0.00	0.14	94	36.26	111.30	125.93	0.14	12.79
Forklift, 10 ton	85	1	0.0634	0.2033	0.2514	0.0003	0.0252	6	0.38	1.22	1.51	0.00	0.15	94	35.74	114.68	141.78	0.16	14.24
Motor, Auxilary Power	5	1	0.0057	0.0242	0.0385	0.0001	0.0023	1	0.01	0.02	0.04	0.00	0.00	94	0.54	2.27	3.62	0.00	0.22
									1.01	3.32	4.55	0.00	0.40		94.66	312.09	427.34	0.45	37.80

Offroad Equipment Emission Calculations

Segment 11

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.1177	0.4459	0.8298	0.0008	0.0562	2	0.24	0.89	1.66	0.00	0.11	31	7.29	27.65	51.45	0.05	3.48
Forklift, 5 ton	75	1	0.0643	0.1973	0.2233	0.0003	0.0227	6	0.39	1.18	1.34	0.00	0.14	31	11.96	36.71	41.53	0.05	4.22
Forklift, 10 ton	85	1	0.0634	0.2033	0.2514	0.0003	0.0252	6	0.38	1.22	1.51	0.00	0.15	31	11.79	37.82	46.76	0.05	4.70
Motor, Auxilary Power	5	1	0.0057	0.0242	0.0385	0.0001	0.0023	1	0.01	0.02	0.04	0.00	0.00	31	0.18	0.75	1.19	0.00	0.07
									1.01	3.32	4.55	0.00	0.40		31.22	102.92	140.93	0.15	12.47

Marshalling Yards

Segment 4

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.1177	0.4459	0.8298	0.0008	0.0562	3	0.29	1.11	2.07	0.00	0.14	229	67.36	255.29	475.07	0.45	32.15
Forklift, 5 ton	75	1	0.0643	0.1973	0.2233	0.0003	0.0227	5	0.32	0.99	1.12	0.00	0.11	229	73.62	225.96	255.66	0.29	25.97
Forklift, 10 ton	85	1	0.0634	0.2033	0.2514	0.0003	0.0252	5	0.32	1.02	1.26	0.00	0.13	229	72.56	232.82	287.84	0.32	28.91
									0.93	3.12	4.45	0.00	0.38		213.54	714.06	1018.57	1.06	87.03

Segment 5

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.1177	0.4459	0.8298	0.0008	0.0562	3	0.29	1.11	2.07	0.00	0.14	302	88.83	336.67	626.51	0.60	42.40
Forklift, 5 ton	75	1	0.0643	0.1973	0.2233	0.0003	0.0227	5	0.32	0.99	1.12	0.00	0.11	302	97.09	297.99	337.16	0.38	34.25
Forklift, 10 ton	85	1	0.0634	0.2033	0.2514	0.0003	0.0252	5	0.32	1.02	1.26	0.00	0.13	302	95.69	307.03	379.59	0.42	38.12
									0.93	3.12	4.45	0.00	0.38		281.61	941.69	1343.27	1.40	114.77

Segment 6

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.1177	0.4459	0.8298	0.0008	0.0562	3	0.29	1.11	2.07	0.00	0.14	229	67.36	255.29	475.07	0.45	32.15
Forklift, 5 ton	75	1	0.0643	0.1973	0.2233	0.0003	0.0227	5	0.32	0.99	1.12	0.00	0.11	229	73.62	225.96	255.66	0.29	25.97
Forklift, 10 ton	85	1	0.0634	0.2033	0.2514	0.0003	0.0252	5	0.32	1.02	1.26	0.00	0.13	229	72.56	232.82	287.84	0.32	28.91
									0.93	3.12	4.45	0.00	0.38		213.54	714.06	1018.57	1.06	87.03

Segment 7

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.1177	0.4459	0.8298	0.0008	0.0562	3	0.29	1.11	2.07	0.00	0.14	157	46.18	175.02	325.70	0.31	22.04
Forklift, 5 ton	75	1	0.0643	0.1973	0.2233	0.0003	0.0227	5	0.32	0.99	1.12	0.00	0.11	157	50.47	154.92	175.28	0.20	17.80
Forklift, 10 ton	85	1	0.0634	0.2033	0.2514	0.0003	0.0252	5	0.32	1.02	1.26	0.00	0.13	157	49.75	159.62	197.34	0.22	19.82
									0.93	3.12	4.45	0.00	0.38		146.40	489.55	698.32	0.73	59.66

Segment 8

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.1177	0.4459	0.8298	0.0008	0.0562	3	0.29	1.11	2.07	0.00	0.14	229	67.36	255.29	475.07	0.45	32.15
Forklift, 5 ton	75	1	0.0643	0.1973	0.2233	0.0003	0.0227	5	0.32	0.99	1.12	0.00	0.11	229	73.62	225.96	255.66	0.29	25.97
Forklift, 10 ton	85	1	0.0634	0.2033	0.2514	0.0003	0.0252	5	0.32	1.02	1.26	0.00	0.13	229	72.56	232.82	287.84	0.32	28.91
									0.93	3.12	4.45	0.00	0.38		213.54	714.06	1018.57	1.06	87.03

Segment 10

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.1177	0.4459	0.8298	0.0008	0.0562	3	0.29	1.11	2.07	0.00	0.14	229	67.36	255.29	475.07	0.45	32.15
Forklift, 5 ton	75	1	0.0643	0.1973	0.2233	0.0003	0.0227	5	0.32	0.99	1.12	0.00	0.11	229	73.62	225.96	255.66	0.29	25.97
Forklift, 10 ton	85	1	0.0634	0.2033	0.2514	0.0003	0.0252	5	0.32	1.02	1.26	0.00	0.13	229	72.56	232.82	287.84	0.32	28.91
									0.93	3.12	4.45	0.00	0.38		213.54	714.06	1018.57	1.06	87.03

Road Maintenance

Segment 4

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Motor Grader	140	1	0.1622	0.6168	1.0818	0.0011	0.0825	2	0.32	1.23	2.16	0.00	0.16	219	71.05	270.15	473.85	0.47	36.13
Crawler, Track Type, w/ blade (D6 Type)	300	1	0.1956	0.7350	1.5409	0.0014	0.0846	2	0.39	1.47	3.08	0.00	0.17	219	85.67	321.93	674.90	0.63	37.07
									0.72	2.70	5.25	0.00	0.33		156.72	592.08	1148.74	1.09	73.19

Offroad Equipment Emission Calculations

Segment 5

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Motor Grader	140	1	0.1622	0.6168	1.0818	0.0011	0.0825	2	0.32	1.23	2.16	0.00	0.16	218	70.72	268.92	471.68	0.47	35.96
Crawler, Track Type, w/ blade (D6 Type)	300	1	0.1956	0.7350	1.5409	0.0014	0.0846	2	0.39	1.47	3.08	0.00	0.17	218	85.28	320.46	671.82	0.62	36.90
									0.72	2.70	5.25	0.00	0.33		156.00	589.38	1143.50	1.09	72.86

Segment 6

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Motor Grader	140	1	0.1622	0.6168	1.0818	0.0011	0.0825	2	0.32	1.23	2.16	0.00	0.16	125	40.55	154.20	270.46	0.27	20.62
Crawler, Track Type, w/ blade (D6 Type)	300	1	0.1956	0.7350	1.5409	0.0014	0.0846	2	0.39	1.47	3.08	0.00	0.17	125	48.90	183.75	385.22	0.36	21.16
									0.72	2.70	5.25	0.00	0.33		89.45	337.94	655.68	0.62	41.78

Segment 8

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Motor Grader	140	1	0.1622	0.6168	1.0818	0.0011	0.0825	2	0.32	1.23	2.16	0.00	0.16	219	71.05	270.15	473.85	0.47	36.13
Crawler, Track Type, w/ blade (D6 Type)	300	1	0.1956	0.7350	1.5409	0.0014	0.0846	2	0.39	1.47	3.08	0.00	0.17	219	85.67	321.93	674.90	0.63	37.07
									0.72	2.70	5.25	0.00	0.33		156.72	592.08	1148.74	1.09	73.19

Segment 10

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Motor Grader	140	1	0.1622	0.6168	1.0818	0.0011	0.0825	2	0.32	1.23	2.16	0.00	0.16	219	71.05	270.15	473.85	0.47	36.13
Crawler, Track Type, w/ blade (D6 Type)	300	1	0.1956	0.7350	1.5409	0.0014	0.0846	2	0.39	1.47	3.08	0.00	0.17	219	85.67	321.93	674.90	0.63	37.07
									0.72	2.70	5.25	0.00	0.33		156.72	592.08	1148.74	1.09	73.19

Roads & Landing Work

Segment 4

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crawler, Track Type, w/ blade (D8 type)	305	1	0.2241	0.7105	2.1160	0.0020	0.0854	9	2.02	6.39	19.04	0.02	0.77	116	233.96	741.72	2209.06	2.11	89.15
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.1956	0.7350	1.5409	0.0014	0.0846	9	1.76	6.61	13.87	0.01	0.76	116	204.20	767.33	1608.66	1.49	88.35
Motor Grader	140	1	0.1622	0.6168	1.0818	0.0011	0.0825	5	0.81	3.08	5.41	0.01	0.41	116	94.08	357.74	627.47	0.62	47.84
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	1	0.1083	0.3586	0.4389	0.0005	0.0414	3	0.32	1.08	1.32	0.00	0.12	116	37.69	124.79	152.74	0.17	14.39
									4.91	17.17	39.64	0.04	2.07		569.94	1991.58	4597.93	4.39	239.73

Segment 5

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crawler, Track Type, w/ blade (D8 type)	305	1	0.2241	0.7105	2.1160	0.0020	0.0854	9	2.02	6.39	19.04	0.02	0.77	39	78.66	249.37	742.70	0.71	29.97
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.1956	0.7350	1.5409	0.0014	0.0846	9	1.76	6.61	13.87	0.01	0.76	39	68.65	257.98	540.84	0.50	29.70
Motor Grader	140	1	0.1622	0.6168	1.0818	0.0011	0.0825	5	0.81	3.08	5.41	0.01	0.41	39	31.63	120.27	210.96	0.21	16.08
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	1	0.1083	0.3586	0.4389	0.0005	0.0414	3	0.32	1.08	1.32	0.00	0.12	39	12.67	41.95	51.35	0.06	4.84
									4.91	17.17	39.64	0.04	2.07		191.62	669.58	1545.86	1.48	80.60

Segment 6

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crawler, Track Type, w/ blade (D8 type)	305	2	0.2241	0.7105	2.1160	0.0020	0.0854	8	3.59	11.37	33.86	0.03	1.37	139	498.40	1580.07	4705.90	4.49	189.91
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.1956	0.7350	1.5409	0.0014	0.0846	8	1.56	5.88	12.33	0.01	0.68	139	217.50	817.31	1713.44	1.59	94.11
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	2	0.1083	0.3586	0.4389	0.0005	0.0414	3	0.65	2.15	2.63	0.00	0.25	139	90.34	299.06	366.05	0.42	34.49
Excavator, Grade - All	165	2	0.1453	0.6450	1.0645	0.0012	0.0684	8	2.32	10.32	17.03	0.02	1.09	139	323.14	1434.38	2367.36	2.65	152.19
Motor Grader	140	1	0.1622	0.6168	1.0818	0.0011	0.0825	5	0.81	3.08	5.41	0.01	0.41	139	112.73	428.67	751.88	0.74	57.33
									8.94	32.80	71.26	0.07	3.80		1242.11	4559.49	9904.62	9.88	528.03

Segment 7

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.1956	0.7350	1.5409	0.0014	0.0846	3	0.59	2.20	4.62	0.00	0.25	39	22.88	85.99	180.28	0.17	9.90
Excavator, Grade - All	165	1	0.1453	0.6450	1.0645	0.0012	0.0684	3	0.44	1.93	3.19	0.00	0.21	39	17.00	75.46	124.54	0.14	8.01
Motor Grader	140	1	0.1622	0.6168	1.0818	0.0011	0.0825	3	0.49	1.85	3.25	0.00	0.25	39	18.98	72.16	126.58	0.12	9.65
									1.51	5.99	11.06	0.01	0.71		58.86	233.62	431.40	0.43	27.56

Offroad Equipment Emission Calculations

Segment 8

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.1956	0.7350	1.5409	0.0014	0.0846	3	0.59	2.20	4.62	0.00	0.25	153	89.78	337.36	707.26	0.66	38.84
Motor Grader	140	1	0.1622	0.6168	1.0818	0.0011	0.0825	3	0.49	1.85	3.25	0.00	0.25	153	74.45	283.11	496.56	0.49	37.86
Excavator, Grade - All	165	1	0.1453	0.6450	1.0645	0.0012	0.0684	3	0.44	1.93	3.19	0.00	0.21	153	66.69	296.03	488.59	0.55	31.41
									1.51	5.99	11.06	0.01	0.71		230.92	916.50	1692.41	1.69	108.11

Segment 10

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crawler, Track Type, w/ blade (D8 type)	305	1	0.2241	0.7105	2.1160	0.0020	0.0854	9	2.02	6.39	19.04	0.02	0.77	39	78.66	249.37	742.70	0.71	29.97
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.1956	0.7350	1.5409	0.0014	0.0846	9	1.76	6.61	13.87	0.01	0.76	39	68.65	257.98	540.84	0.50	29.70
Motor Grader	140	1	0.1622	0.6168	1.0818	0.0011	0.0825	5	0.81	3.08	5.41	0.01	0.41	39	31.63	120.27	210.96	0.21	16.08
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	1	0.1083	0.3586	0.4389	0.0005	0.0414	3	0.32	1.08	1.32	0.00	0.12	39	12.67	41.95	51.35	0.06	4.84
									4.91	17.17	39.64	0.04	2.07		191.62	669.58	1545.86	1.48	80.60

Install Foundations

Segment 4

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.1956	0.7350	1.5409	0.0014	0.0846	3	0.59	2.20	4.62	0.00	0.25	138	80.98	304.29	637.92	0.59	35.04
Excavator, Grade - All	165	1	0.1453	0.6450	1.0645	0.0012	0.0684	4	0.58	2.58	4.26	0.00	0.27	138	80.20	356.01	587.58	0.66	37.77
Crawler, track type, drill dig, Pheumatic D8	305	1	0.2241	0.7105	2.1160	0.0020	0.0854	8	1.79	5.68	16.93	0.02	0.68	138	247.41	784.35	2336.02	2.23	94.27
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	2	0.1083	0.3586	0.4389	0.0005	0.0414	4	0.87	2.87	3.51	0.00	0.33	138	119.58	395.88	484.56	0.55	45.65
Motor, Auxilary Power	5	2	0.0057	0.0242	0.0385	0.0001	0.0023	2	0.02	0.10	0.15	0.00	0.01	138	3.17	13.35	21.24	0.03	1.27
									3.85	13.43	29.47	0.03	1.55		531.34	1853.88	4067.31	4.06	214.00

Segment 5

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.1956	0.7350	1.5409	0.0014	0.0846	3	0.59	2.20	4.62	0.00	0.25	58	34.03	127.89	268.11	0.25	14.73
Excavator, Grade - All	165	1	0.1453	0.6450	1.0645	0.0012	0.0684	4	0.58	2.58	4.26	0.00	0.27	58	33.71	149.63	246.95	0.28	15.88
Crawler, track type, drill dig, Pheumatic D8	305	1	0.2241	0.7105	2.1160	0.0020	0.0854	8	1.79	5.68	16.93	0.02	0.68	58	103.98	329.66	981.81	0.94	39.62
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	2	0.1083	0.3586	0.4389	0.0005	0.0414	4	0.87	2.87	3.51	0.00	0.33	58	50.26	166.38	203.65	0.23	19.19
Motor, Auxilary Power	5	2	0.0057	0.0242	0.0385	0.0001	0.0023	2	0.02	0.10	0.15	0.00	0.01	58	1.33	5.61	8.92	0.01	0.53
									3.85	13.43	29.47	0.03	1.55		223.32	779.17	1709.45	1.71	89.94

Segment 6

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.1956	0.7350	1.5409	0.0014	0.0846	3	0.59	2.20	4.62	0.00	0.25	81	47.53	178.60	374.43	0.35	20.56
Excavator, Grade - All	165	1	0.1453	0.6450	1.0645	0.0012	0.0684	4	0.58	2.58	4.26	0.00	0.27	81	47.08	208.97	344.89	0.39	22.17
Crawler, track type, drill dig, Pheumatic D8	305	1	0.2241	0.7105	2.1160	0.0020	0.0854	8	1.79	5.68	16.93	0.02	0.68	81	145.22	460.38	1371.14	1.31	55.33
Generator, Concrete Batch Plant	50	1	0.1117	0.2904	0.3070	0.0004	0.0284	6	0.67	1.74	1.84	0.00	0.17	81	54.28	141.15	149.20	0.19	13.80
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	2	0.1083	0.3586	0.4389	0.0005	0.0414	4	0.87	2.87	3.51	0.00	0.33	81	70.19	232.36	284.41	0.32	26.80
Motor, Auxilary Power	5	2	0.0057	0.0242	0.0385	0.0001	0.0023	2	0.02	0.10	0.15	0.00	0.01	81	1.86	7.84	12.46	0.02	0.74
									4.52	15.18	31.32	0.03	1.72		366.15	1229.30	2536.53	2.57	139.41

Segment 7

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.1956	0.7350	1.5409	0.0014	0.0846	3	0.59	2.20	4.62	0.00	0.25	53	31.10	116.86	245.00	0.23	13.46
Excavator, Grade - All	165	1	0.1453	0.6450	1.0645	0.0012	0.0684	4	0.58	2.58	4.26	0.00	0.27	53	30.80	136.73	225.67	0.25	14.51
Crawler, track type, drill dig, Pheumatic D8	305	1	0.2241	0.7105	2.1160	0.0020	0.0854	8	1.79	5.68	16.93	0.02	0.68	53	95.02	301.24	897.17	0.86	36.21
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	2	0.1083	0.3586	0.4389	0.0005	0.0414	4	0.87	2.87	3.51	0.00	0.33	53	45.93	152.04	186.10	0.21	17.53
Motor, Auxilary Power	5	2	0.0057	0.0242	0.0385	0.0001	0.0023	2	0.02	0.10	0.15	0.00	0.01	53	1.22	5.13	8.16	0.01	0.49
									3.85	13.43	29.47	0.03	1.55		204.07	712.00	1562.08	1.56	82.19

Segment 8

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.1956	0.7350	1.5409	0.0014	0.0846	3	0.59	2.20	4.62	0.00	0.25	312	183.08	687.95	1442.25	1.34	79.21
Excavator, Grade - All	165	1	0.1453	0.6450	1.0645	0.0012	0.0684	4	0.58	2.58	4.26	0.00	0.27	312	181.33	804.90	1328.45	1.49	85.40
Crawler, track type, drill dig, Pheumatic D8	305	1	0.2241	0.7105	2.1160	0.0020	0.0854	8	1.79	5.68	16.93	0.02	0.68	312	559.36	1773.32	5281.44	5.04	213.14
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	2	0.1083	0.3586	0.4389	0.0005	0.0414	4	0.87	2.87	3.51	0.00	0.33	312	270.36	895.02	1095.52	1.25	103.21
Motor, Auxilary Power	5	2	0.0057	0.0242	0.0385	0.0001	0.0023	2	0.02	0.10	0.15	0.00	0.01	312	7.17	30.19	48.01	0.07	2.86
									3.85	13.43	29.47	0.03	1.55		1201.29	4191.38	9195.66	9.17	483.83

Segment 10

			SCAQMD Emission Factor lbs/hour						Daily Emissions lbs						Annual Emissions lbs				

Offroad Equipment Emission Calculations

	HP	Number	ROG	CO	NOX	SOX	PM	Hours/day	ROG	CO	NOX	SOX	PM	Days	ROG	CO	NOX	SOX	PM
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.1956	0.7350	1.5409	0.0014	0.0846	3	0.59	2.20	4.62	0.00	0.25	53	31.10	116.86	245.00	0.23	13.46
Excavator, Grade - All	165	1	0.1453	0.6450	1.0645	0.0012	0.0684	4	0.58	2.58	4.26	0.00	0.27	53	30.80	136.73	225.67	0.25	14.51
Crawler, track type, drill dig, Pheumatic D8	305	1	0.2241	0.7105	2.1160	0.0020	0.0854	8	1.79	5.68	16.93	0.02	0.68	53	95.02	301.24	897.17	0.86	36.21
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	2	0.1083	0.3586	0.4389	0.0005	0.0414	4	0.87	2.87	3.51	0.00	0.33	53	45.93	152.04	186.10	0.21	17.53
Motor, Auxilary Power	5	2	0.0057	0.0242	0.0385	0.0001	0.0023	2	0.02	0.10	0.15	0.00	0.01	53	1.22	5.13	8.16	0.01	0.49
									3.85	13.43	29.47	0.03	1.55		204.07	712.00	1562.08	1.56	82.19

Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)

Segment 4

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, 150/300 Ton	450	1	0.1706	0.5992	1.6652	0.0017	0.0642	8	1.36	4.79	13.32	0.01	0.51	225	307.02	1078.65	2997.44	3.00	115.55
Crane, Hydraulic, Rough Terrain 35 ton	155	3	0.1177	0.4459	0.8298	0.0008	0.0562	8	2.82	10.70	19.92	0.02	1.35	225	635.35	2407.94	4481.01	4.26	303.27
Compressor, Air	75	5	0.1110	0.3005	0.3668	0.0004	0.0365	7.5	4.16	11.27	13.76	0.01	1.37	225	936.55	2535.56	3095.00	3.22	307.78
Motor, Auxilary Power	5	2	0.0057	0.0242	0.0385	0.0001	0.0023	2	0.02	0.10	0.15	0.00	0.01	225	5.17	21.77	34.62	0.05	2.06
									8.37	26.86	47.15	0.05	3.24		1884.10	6043.92	10608.07	10.53	728.67

Segment 5

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, 150/300 Ton	450	1	0.1706	0.5992	1.6652	0.0017	0.0642	8	1.36	4.79	13.32	0.01	0.51	56	76.41	268.46	746.03	0.75	28.76
Crane, Hydraulic, Rough Terrain 35 ton	155	3	0.1177	0.4459	0.8298	0.0008	0.0562	8	2.82	10.70	19.92	0.02	1.35	56	158.13	599.31	1115.27	1.06	75.48
Compressor, Air	75	5	0.1110	0.3005	0.3668	0.0004	0.0365	7.5	4.16	11.27	13.76	0.01	1.37	56	233.10	631.07	770.31	0.80	76.60
Motor, Auxilary Power	5	2	0.0057	0.0242	0.0385	0.0001	0.0023	2	0.02	0.10	0.15	0.00	0.01	56	1.29	5.42	8.62	0.01	0.51
									8.37	26.86	47.15	0.05	3.24		468.93	1504.26	2640.23	2.62	181.36

Segment 6

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, 150/300 Ton	450	1	0.1706	0.5992	1.6652	0.0017	0.0642	8	1.36	4.79	13.32	0.01	0.51	17	23.20	81.50	226.47	0.23	8.73
Crane, Hydraulic, Rough Terrain 35 ton	155	3	0.1177	0.4459	0.8298	0.0008	0.0562	8	2.82	10.70	19.92	0.02	1.35	17	48.00	181.93	338.57	0.32	22.91
Compressor, Air	75	5	0.1110	0.3005	0.3668	0.0004	0.0365	7.5	4.16	11.27	13.76	0.01	1.37	17	70.76	191.58	233.84	0.24	23.25
Motor, Auxilary Power	5	2	0.0057	0.0242	0.0385	0.0001	0.0023	2	0.02	0.10	0.15	0.00	0.01	17	0.39	1.64	2.62	0.00	0.16
									8.37	26.86	47.15	0.05	3.24		142.35	456.65	801.50	0.80	55.05

Segment 7

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, 150/300 Ton	450	1	0.1706	0.5992	1.6652	0.0017	0.0642	8	1.36	4.79	13.32	0.01	0.51	13	17.74	62.32	173.19	0.17	6.68
Crane, Hydraulic, Rough Terrain 35 ton	155	3	0.1177	0.4459	0.8298	0.0008	0.0562	8	2.82	10.70	19.92	0.02	1.35	13	36.71	139.13	258.90	0.25	17.52
Compressor, Air	75	5	0.1110	0.3005	0.3668	0.0004	0.0365	7.5	4.16	11.27	13.76	0.01	1.37	13	54.11	146.50	178.82	0.19	17.78
Motor, Auxilary Power	5	2	0.0057	0.0242	0.0385	0.0001	0.0023	2	0.02	0.10	0.15	0.00	0.01	13	0.30	1.26	2.00	0.00	0.12
									8.37	26.86	47.15	0.05	3.24		108.86	349.20	612.91	0.61	42.10

Segment 8

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, 150/300 Ton	450	1	0.1706	0.5992	1.6652	0.0017	0.0642	8	1.36	4.79	13.32	0.01	0.51	164	223.78	786.21	2184.80	2.19	84.22
Crane, Hydraulic, Rough Terrain 35 ton	155	3	0.1177	0.4459	0.8298	0.0008	0.0562	8	2.82	10.70	19.92	0.02	1.35	164	463.10	1755.12	3266.16	3.11	221.05
Compressor, Air	75	5	0.1110	0.3005	0.3668	0.0004	0.0365	7.5	4.16	11.27	13.76	0.01	1.37	164	682.64	1848.14	2255.91	2.35	224.34
Motor, Auxilary Power	5	2	0.0057	0.0242	0.0385	0.0001	0.0023	2	0.02	0.10	0.15	0.00	0.01	164	3.77	15.87	25.24	0.03	1.50
									8.37	26.86	47.15	0.05	3.24		1373.30	4405.34	7732.10	7.68	531.12

Segment 10

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, 150/300 Ton	450	1	0.1706	0.5992	1.6652	0.0017	0.0642	8	1.36	4.79	13.32	0.01	0.51	135	184.21	647.19	1798.46	1.80	69.33
Crane, Hydraulic, Rough Terrain 35 ton	155	3	0.1177	0.4459	0.8298	0.0008	0.0562	8	2.82	10.70	19.92	0.02	1.35	135	381.21	1444.76	2688.61	2.56	181.96
Compressor, Air	75	5	0.1110	0.3005	0.3668	0.0004	0.0365	7.5	4.16	11.27	13.76	0.01	1.37	135	561.93	1521.34	1857.00	1.93	184.67
Motor, Auxilary Power	5	2	0.0057	0.0242	0.0385	0.0001	0.0023	2	0.02	0.10	0.15	0.00	0.01	135	3.10	13.06	20.77	0.03	1.24
									8.37	26.86	47.15	0.05	3.24		1130.46	3626.35	6364.84	6.32	437.20

Offroad Equipment Emission Calculations

Conductor & OHGW Installation

Segment 4

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	1	0.1083	0.3586	0.4389	0.0005	0.0414	3	0.32	1.08	1.32	0.00	0.12	80	26.00	86.06	105.34	0.12	9.92
Crane, Hydraulic, Rough Terrain 35 ton	155	3	0.1177	0.4459	0.8298	0.0008	0.0562	3	1.06	4.01	7.47	0.01	0.51	80	84.71	321.06	597.47	0.57	40.44
Crawler, Track Type, w/ blade (D8 type)	305	1	0.2241	0.7105	2.1160	0.0020	0.0854	2	0.45	1.42	4.23	0.00	0.17	80	35.86	113.67	338.55	0.32	13.66
Crawler, Track Type, Sagging (D8 type)	305	2	0.2241	0.7105	2.1160	0.0020	0.0854	2	0.90	2.84	8.46	0.01	0.34	80	71.71	227.35	677.11	0.65	27.33
Motor, Auxilary Power	5	4	0.0057	0.0242	0.0385	0.0001	0.0023	2	0.05	0.19	0.31	0.00	0.02	80	3.68	15.48	24.62	0.03	1.47
Tension machine, conductor	135	2	0.1279	0.5550	0.8997	0.0010	0.0686	3	0.77	3.33	5.40	0.01	0.41	80	61.39	266.41	431.87	0.49	32.95
Tension machine, static	135	1	0.1279	0.5550	0.8997	0.0010	0.0686	2	0.26	1.11	1.80	0.00	0.14	80	20.46	88.80	143.96	0.16	10.98
									3.80	13.99	28.99	0.03	1.71		303.81	1118.84	2318.92	2.34	136.75

Segment 10

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	1	0.1083	0.3586	0.4389	0.0005	0.0414	3	0.32	1.08	1.32	0.00	0.12	50	16.25	53.79	65.84	0.07	6.20
Crane, Hydraulic, Rough Terrain 35 ton	155	3	0.1177	0.4459	0.8298	0.0008	0.0562	3	1.06	4.01	7.47	0.01	0.51	50	52.95	200.66	373.42	0.36	25.27
Crawler, Track Type, w/ blade (D8 type)	305	1	0.2241	0.7105	2.1160	0.0020	0.0854	2	0.45	1.42	4.23	0.00	0.17	50	22.41	71.05	211.60	0.20	8.54
Crawler, Track Type, Sagging (D8 type)	305	2	0.2241	0.7105	2.1160	0.0020	0.0854	2	0.90	2.84	8.46	0.01	0.34	50	44.82	142.09	423.19	0.40	17.08
Motor, Auxilary Power	5	4	0.0057	0.0242	0.0385	0.0001	0.0023	2	0.05	0.19	0.31	0.00	0.02	50	2.30	9.67	15.39	0.02	0.92
Tension machine, conductor	135	2	0.1279	0.5550	0.8997	0.0010	0.0686	3	0.77	3.33	5.40	0.01	0.41	50	38.37	166.51	269.92	0.31	20.59
Tension machine, static	135	1	0.1279	0.5550	0.8997	0.0010	0.0686	2	0.26	1.11	1.80	0.00	0.14	50	12.79	55.50	89.97	0.10	6.86
									3.80	13.99	28.99	0.03	1.71		189.88	699.27	1449.32	1.46	85.47

Segment 8

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	1	0.1083	0.3586	0.4389	0.0005	0.0414	3	0.32	1.08	1.32	0.00	0.12	66	21.45	71.00	86.90	0.10	8.19
Crane, Hydraulic, Rough Terrain 35 ton	155	3	0.1177	0.4459	0.8298	0.0008	0.0562	3	1.06	4.01	7.47	0.01	0.51	66	69.89	264.87	492.91	0.47	33.36
Crawler, Track Type, w/ blade (D8 type)	305	1	0.2241	0.7105	2.1160	0.0020	0.0854	2	0.45	1.42	4.23	0.00	0.17	66	29.58	93.78	279.31	0.27	11.27
Crawler, Track Type, Sagging (D8 type)	305	2	0.2241	0.7105	2.1160	0.0020	0.0854	2	0.90	2.84	8.46	0.01	0.34	66	59.16	187.56	558.61	0.53	22.54
Motor, Auxilary Power	5	4	0.0057	0.0242	0.0385	0.0001	0.0023	2	0.05	0.19	0.31	0.00	0.02	66	3.03	12.77	20.31	0.03	1.21
Tension machine, conductor	135	2	0.1279	0.5550	0.8997	0.0010	0.0686	3	0.77	3.33	5.40	0.01	0.41	66	50.65	219.79	356.29	0.40	27.18
Tension machine, static	135	1	0.1279	0.5550	0.8997	0.0010	0.0686	2	0.26	1.11	1.80	0.00	0.14	66	16.88	73.26	118.76	0.13	9.06
									3.80	13.99	28.99	0.03	1.71		250.64	923.04	1913.11	1.93	112.82

Restoration & Guard Poles

Segment 4

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Backhoe	85	1	0.1083	0.3586	0.4389	0.0005	0.0414	5	0.54	1.79	2.19	0.00	0.21	8	4.33	14.34	17.56	0.02	1.65
Motor Grader	140	1	0.1622	0.6168	1.0818	0.0011	0.0825	8	1.30	4.93	8.65	0.01	0.66	8	10.38	39.47	69.24	0.07	5.28
									1.84	6.73	10.85	0.01	0.87		14.71	53.82	86.79	0.09	6.93

Segment 7

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Backhoe	85	1	0.1083	0.3586	0.4389	0.0005	0.0414	5	0.54	1.79	2.19	0.00	0.21	2	1.08	3.59	4.39	0.00	0.41
Motor Grader	140	1	0.1622	0.6168	1.0818	0.0011	0.0825	8	1.30	4.93	8.65	0.01	0.66	2	2.60	9.87	17.31	0.02	1.32
									1.84	6.73	10.85	0.01	0.87		3.68	13.45	21.70	0.02	1.73

Segment 8

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Backhoe	85	1	0.1083	0.3586	0.4389	0.0005	0.0414	5	0.54	1.79	2.19	0.00	0.21	10	5.42	17.93	21.95	0.02	2.07
Motor Grader	140	1	0.1622	0.6168	1.0818	0.0011	0.0825	8	1.30	4.93	8.65	0.01	0.66	10	12.98	49.34	86.55	0.09	6.60
									1.84	6.73	10.85	0.01	0.87		18.39	67.27	108.49	0.11	8.67

Segment 10

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Backhoe	85	1	0.1083	0.3586	0.4389	0.0005	0.0414	5	0.54	1.79	2.19	0.00	0.21	5	2.71	8.96	10.97	0.01	1.03
Motor Grader	140	1	0.1622	0.6168	1.0818	0.0011	0.0825	8	1.30	4.93	8.65	0.01	0.66	5	6.49	24.67	43.27	0.04	3.30
									1.84	6.73	10.85	0.01	0.87		9.20	33.64	54.25	0.06	4.33

Offroad Equipment Emission Calculations

Wreck-Out (conductors, structures, & Foundations)

Segment 5

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Tension Machine	135	2	0.1279	0.5550	0.8997	0.0010	0.0686	3	0.77	3.33	5.40	0.01	0.41	192	147.33	639.39	1036.49	1.17	79.08
Crawler, Track Type, w/ blade (D8 type)	305	1	0.2241	0.7105	2.1160	0.0020	0.0854	8	1.79	5.68	16.93	0.02	0.68	192	344.22	1091.27	3250.12	3.10	131.16
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	4	0.1083	0.3586	0.4389	0.0005	0.0414	8	3.47	11.47	14.05	0.02	1.32	192	665.49	2203.13	2696.67	3.07	254.06
Crane, Hydraulic, Rough Terrain 35 ton	155	2	0.1177	0.4459	0.8298	0.0008	0.0562	4	0.94	3.57	6.64	0.01	0.45	192	180.72	684.92	1274.60	1.21	86.26
Motor, Auxilary Power	5	3	0.0057	0.0242	0.0385	0.0001	0.0023	2	0.03	0.15	0.23	0.00	0.01	192	6.62	27.86	44.32	0.06	2.64
									7.00	24.20	43.24	0.04	2.88		1344.39	4646.58	8302.19	8.61	553.21

Segment 6

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Tension Machine, Conductor or Static	135	2	0.1279	0.5550	0.8997	0.0010	0.0686	3	0.77	3.33	5.40	0.01	0.41	133	102.06	442.91	717.99	0.81	54.78
Crawler, Track Type, w/ blade (D8 type)	305	1	0.2241	0.7105	2.1160	0.0020	0.0854	8	1.79	5.68	16.93	0.02	0.68	133	238.44	755.93	2251.38	2.15	90.86
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	4	0.1083	0.3586	0.4389	0.0005	0.0414	8	3.47	11.47	14.05	0.02	1.32	133	460.99	1526.13	1868.00	2.13	175.99
Crane, Hydraulic, Rough Terrain 35 ton	155	2	0.1177	0.4459	0.8298	0.0008	0.0562	4	0.94	3.57	6.64	0.01	0.45	133	125.19	474.45	882.92	0.84	59.76
Motor, Auxilary Power	5	3	0.0057	0.0242	0.0385	0.0001	0.0023	2	0.03	0.15	0.23	0.00	0.01	133	4.59	19.30	30.70	0.04	1.83
									7.00	24.20	43.24	0.04	2.88		931.27	3218.73	5751.00	5.97	383.21

Segment 7

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Tension Machine, Conductor or Static	135	2	0.1279	0.5550	0.8997	0.0010	0.0686	3	0.77	3.33	5.40	0.01	0.41	94	72.13	313.03	507.45	0.57	38.71
Crawler, Track Type, w/ blade (D8 type)	305	1	0.2241	0.7105	2.1160	0.0020	0.0854	8	1.79	5.68	16.93	0.02	0.68	94	168.52	534.27	1591.20	1.52	64.22
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	4	0.1083	0.3586	0.4389	0.0005	0.0414	8	3.47	11.47	14.05	0.02	1.32	94	325.81	1078.62	1320.24	1.50	124.39
Crane, Hydraulic, Rough Terrain 35 ton	155	2	0.1177	0.4459	0.8298	0.0008	0.0562	4	0.94	3.57	6.64	0.01	0.45	94	88.48	335.33	624.02	0.59	42.23
Motor, Auxilary Power	5	3	0.0057	0.0242	0.0385	0.0001	0.0023	2	0.03	0.15	0.23	0.00	0.01	94	3.24	13.64	21.70	0.03	1.29
									7.00	24.20	43.24	0.04	2.88		658.19	2274.89	4064.61	4.22	270.84

Segment 8
(Removal of 230kV Fullerton, Chino-Mesa, North RO

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Tension Machine, Conductor or Static	135	2	0.1279	0.5550	0.8997	0.0010	0.0686	3	0.77	3.33	5.40	0.01	0.41	182	139.66	606.09	982.51	1.11	74.96
Crawler, Track Type, w/ blade (D8 type)	305	1	0.2241	0.7105	2.1160	0.0020	0.0854	8	1.79	5.68	16.93	0.02	0.68	182	326.29	1034.44	3080.84	2.94	124.33
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	4	0.1083	0.3586	0.4389	0.0005	0.0414	8	3.47	11.47	14.05	0.02	1.32	182	630.83	2088.39	2556.21	2.91	240.83
Crane, Hydraulic, Rough Terrain 35 ton	155	2	0.1177	0.4459	0.8298	0.0008	0.0562	4	0.94	3.57	6.64	0.01	0.45	182	171.31	649.25	1208.21	1.15	81.77
Motor, Auxilary Power	5	3	0.0057	0.0242	0.0385	0.0001	0.0023	2	0.03	0.15	0.23	0.00	0.01	182	6.28	26.41	42.01	0.06	2.50
									7.00	24.20	43.24	0.04	2.88		1274.37	4404.57	7869.78	8.16	524.40

Grading Element

Segment 9 - Whirlwind Substation

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
980 Loader	318	3	0.1678	0.5145	1.7078	0.0019	0.0633	8	4.03	12.35	40.99	0.04	1.52	71	285.96	876.72	2910.05	3.16	107.82
Grader	285	2	0.1815	0.5297	1.8365	0.0020	0.0683	8	2.90	8.47	29.38	0.03	1.09	71	206.21	601.71	2086.29	2.25	77.55
Compactor	80	2	0.1240	0.3601	0.4737	0.0005	0.0442	6	1.49	4.32	5.68	0.01	0.53	71	105.67	306.77	403.62	0.42	37.65
									8.42	25.14	76.06	0.08	3.14		597.84	1785.20	5399.95	5.82	223.02

Segment 9 - Antelope Substation

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
980 Loader	318	3	0.1678	0.5145	1.7078	0.0019	0.0633	8	4.03	12.35	40.99	0.04	1.52	34	136.94	419.84	1393.54	1.51	51.63
Grader	285	2	0.1815	0.5297	1.8365	0.0020	0.0683	8	2.90	8.47	29.38	0.03	1.09	34	98.75	288.14	999.07	1.08	37.14
Compactor	80	2	0.1240	0.3601	0.4737	0.0005	0.0442	5	1.24	3.60	4.74	0.00	0.44	34	42.17	122.42	161.07	0.17	15.03
									8.17	24.42	75.11	0.08	3.05		277.86	830.40	2553.68	2.76	103.79

Offroad Equipment Emission Calculations

Civil Element

Segment 9 - Whirlwind Substation

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
14 ton Crane	180	1	0.1213	0.4785	0.9507	0.0009	0.0534	4	0.49	1.91	3.80	0.00	0.21	107	51.92	204.81	406.88	0.40	22.85
Driller	305	2	0.1074	0.3924	1.2992	0.0023	0.0435	8	1.72	6.28	20.79	0.04	0.70	107	183.79	671.71	2224.25	3.98	74.43
Ditch Digger	75	2	0.1720	0.4534	0.5571	0.0005	0.0538	6	2.06	5.44	6.69	0.01	0.65	107	220.85	582.22	715.31	0.70	69.02
Forklift	75	1	0.0643	0.1973	0.2233	0.0003	0.0227	4	0.26	0.79	0.89	0.00	0.09	107	27.52	84.46	95.57	0.11	9.71
Tractors	85	2	0.1083	0.3586	0.4389	0.0005	0.0414	6	1.30	4.30	5.27	0.01	0.50	107	139.08	460.42	563.56	0.64	53.10
									5.82	18.73	37.44	0.05	2.14		623.16	2003.62	4005.57	5.82	229.10

Segment 9 - Antelope Substation

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
14 ton Crane	180	1	0.1213	0.4785	0.9507	0.0009	0.0534	4	0.49	1.91	3.80	0.00	0.21	160	77.63	306.25	608.42	0.59	34.17
Driller	305	2	0.1074	0.3924	1.2992	0.0023	0.0435	8	1.72	6.28	20.79	0.04	0.70	160	274.83	1004.42	3325.98	5.95	111.30
Ditch Digger	75	1	0.1720	0.4534	0.5571	0.0005	0.0538	6	1.03	2.72	3.34	0.00	0.32	160	165.12	435.31	534.81	0.52	51.60
Forklift	75	1	0.0643	0.1973	0.2233	0.0003	0.0227	4	0.26	0.79	0.89	0.00	0.09	160	41.15	126.30	142.90	0.16	14.52
Tractors	85	2	0.1083	0.3586	0.4389	0.0005	0.0414	6	1.30	4.30	5.27	0.01	0.50	160	207.97	688.48	842.71	0.96	79.39
									4.79	16.00	34.09	0.05	1.82		766.70	2560.76	5454.82	8.19	290.98

Electrical Element

Segment 9 - Whirlwind Substation

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
14 ton Crane	180	2	0.1213	0.4785	0.9507	0.0009	0.0534	6	1.46	5.74	11.41	0.01	0.64	108	157.21	620.17	1232.05	1.20	69.19
Crane, Hydraulic, 150 Ton (150 ton crane)	350	2	0.1474	0.4728	1.4512	0.0015	0.0556	6	1.77	5.67	17.41	0.02	0.67	108	191.07	612.76	1880.80	1.90	72.04
Forklift	75	1	0.0643	0.1973	0.2233	0.0003	0.0227	6	0.39	1.18	1.34	0.00	0.14	108	41.66	127.88	144.69	0.16	14.70
Manlifts	75	4	0.0643	0.1973	0.2233	0.0003	0.0227	6	1.54	4.74	5.36	0.01	0.54	108	166.66	511.52	578.76	0.66	58.79
									5.15	17.34	35.52	0.04	1.99		556.59	1872.32	3836.30	3.92	214.72

Segment 9 - Antelope Substation

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
14 ton Crane	180	2	0.1213	0.4785	0.9507	0.0009	0.0534	6	1.46	5.74	11.41	0.01	0.64	157	228.53	901.54	1791.04	1.75	100.58
Crane, Hydraulic, 150 Ton (150 ton crane)	350	2	0.1474	0.4728	1.4512	0.0015	0.0556	6	1.77	5.67	17.41	0.02	0.67	157	277.75	890.77	2734.13	2.76	104.73
Forklift	75	1	0.0643	0.1973	0.2233	0.0003	0.0227	6	0.39	1.18	1.34	0.00	0.14	157	60.57	185.90	210.33	0.24	21.37
Manlifts	75	4	0.0643	0.1973	0.2233	0.0003	0.0227	6	1.54	4.74	5.36	0.01	0.54	157	242.27	743.60	841.34	0.95	85.46
									5.15	17.34	35.52	0.04	1.99		809.12	2721.80	5576.84	5.70	312.14

Transformer Assembly and Processing Element

Segment 9 - Antelope Substation

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
50 ton Crane	200	2	0.1222	0.4408	1.0325	0.0010	0.0516	6	1.47	5.29	12.39	0.01	0.62	57	83.55	301.48	706.25	0.70	35.27
Forklift	75	1	0.0643	0.1973	0.2233	0.0003	0.0227	6	0.39	1.18	1.34	0.00	0.14	57	21.99	67.49	76.36	0.09	7.76
Manlifts	75	1	0.0643	0.1973	0.2233	0.0003	0.0227	6	0.39	1.18	1.34	0.00	0.14	57	21.99	67.49	76.36	0.09	7.76
									2.24	7.66	15.07	0.02	0.89		127.53	436.47	858.98	0.87	50.78

Segment 9 - Vincent Substation

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
50 ton Crane	200	2	0.1222	0.4408	1.0325	0.0010	0.0516	6	1.47	5.29	12.39	0.01	0.62	67	98.21	354.37	830.16	0.82	41.45
Forklift	75	1	0.0643	0.1973	0.2233	0.0003	0.0227	6	0.39	1.18	1.34	0.00	0.14	67	25.85	79.33	89.76	0.10	9.12
Manlifts	75	1	0.0643	0.1973	0.2233	0.0003	0.0227	6	0.39	1.18	1.34	0.00	0.14	67	25.85	79.33	89.76	0.10	9.12
									2.24	7.66	15.07	0.02	0.89		149.91	513.04	1009.68	1.03	59.69

Segment 9 - Mira Loma Substation

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
50 ton Crane	200	2	0.1222	0.4408	1.0325	0.0010	0.0516	6	1.47	5.29	12.39	0.01	0.62	25	36.65	132.23	309.76	0.31	15.47
Forklift	75	1	0.0643	0.1973	0.2233	0.0003	0.0227	6	0.39	1.18	1.34	0.00	0.14	25	9.64	29.60	33.49	0.04	3.40
Manlifts	75	1	0.0643	0.1973	0.2233	0.0003	0.0227	6	0.39	1.18	1.34	0.00	0.14	25	9.64	29.60	33.49	0.04	3.40
									2.24	7.66	15.07	0.02	0.89		55.94	191.43	376.75	0.38	22.27

Offroad Equipment Emission Calculations

Segment 9 - Chino Substation

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
50 ton Crane	200	2	0.1222	0.4408	1.0325	0.0010	0.0516	6	1.47	5.29	12.39	0.01	0.62	53	77.69	280.33	656.69	0.65	32.79
Forklift	75	1	0.0643	0.1973	0.2233	0.0003	0.0227	6	0.39	1.18	1.34	0.00	0.14	53	20.45	62.76	71.00	0.08	7.21
Manlifts	75	1	0.0643	0.1973	0.2233	0.0003	0.0227	6	0.39	1.18	1.34	0.00	0.14	53	20.45	62.76	71.00	0.08	7.21
									2.24	7.66	15.07	0.02	0.89		118.58	405.84	798.70	0.81	47.22

Construction - 66kV (or other subtransmission lines)

Segment 4 - Relocate at Antelope

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Drill Rig	250	1	0.0957	0.3460	1.1847	0.0021	0.0384	4	0.38	1.38	4.74	0.01	0.15	70	26.78	96.89	331.70	0.59	10.76
Backhoe	85	1	0.1083	0.3586	0.4389	0.0005	0.0414	4	0.43	1.43	1.76	0.00	0.17	70	30.33	100.40	122.89	0.14	11.58
									0.82	2.82	6.49	0.01	0.32		57.11	197.29	454.60	0.73	22.34

Segment 5 - Sagebrush/Ant. & Sagebrush Vincent

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Drill Rig	250	1	0.0957	0.3460	1.1847	0.0021	0.0384	4	0.38	1.38	4.74	0.01	0.15	81	30.99	112.12	383.83	0.69	12.45
Backhoe	85	1	0.1083	0.3586	0.4389	0.0005	0.0414	4	0.43	1.43	1.76	0.00	0.17	81	35.09	116.18	142.21	0.16	13.40
									0.82	2.82	6.49	0.01	0.32		66.09	228.30	526.03	0.85	25.85

Segment 7

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Drill Rig	250	1	0.0957	0.3460	1.1847	0.0021	0.0384	4	0.38	1.38	4.74	0.01	0.15	218	83.41	301.75	1033.02	1.85	33.50
Backhoe	85	1	0.1083	0.3586	0.4389	0.0005	0.0414	4	0.43	1.43	1.76	0.00	0.17	218	94.45	312.68	382.73	0.44	36.06
									0.82	2.82	6.49	0.01	0.32		177.86	614.43	1415.75	2.28	69.56

Segment 8

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Drill Rig	250	1	0.0957	0.3460	1.1847	0.0021	0.0384	4	0.38	1.38	4.74	0.01	0.15	90	34.43	124.57	426.47	0.76	13.83
Backhoe	85	1	0.1083	0.3586	0.4389	0.0005	0.0414	4	0.43	1.43	1.76	0.00	0.17	90	38.99	129.09	158.01	0.18	14.89
									0.82	2.82	6.49	0.01	0.32		73.43	253.66	584.48	0.94	28.72

Wreckout - 66kV (or other subtransmission lines)

Segment 4 - Relocate at Antelope

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Puller, Wire Puller 1 Drum	310	1	0.1391	0.5970	1.4037	0.0017	0.0599	4	0.56	2.39	5.61	0.01	0.24	35	19.48	83.58	196.52	0.24	8.39
Backhoe	85	1	0.1083	0.3586	0.4389	0.0005	0.0414	4	0.43	1.43	1.76	0.00	0.17	35	15.16	50.20	61.45	0.07	5.79
									0.99	3.82	7.37	0.01	0.41		34.64	133.78	257.97	0.31	14.18

Segment 5 - Sagebrush/Ant. & Sagebrush Vincent

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Puller, Wire Puller 1 Drum	310	1	0.1391	0.5970	1.4037	0.0017	0.0599	4	0.56	2.39	5.61	0.01	0.24	37	20.59	88.36	207.75	0.26	8.87
Backhoe	85	1	0.1083	0.3586	0.4389	0.0005	0.0414	4	0.43	1.43	1.76	0.00	0.17	37	16.03	53.07	64.96	0.07	6.12
									0.99	3.82	7.37	0.01	0.41		36.62	141.43	272.71	0.33	14.99

Segment 7

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Puller, Wire Puller 1 Drum	310	1	0.1391	0.5970	1.4037	0.0017	0.0599	4	0.56	2.39	5.61	0.01	0.24	47	26.16	112.24	263.90	0.33	11.26
Backhoe	85	1	0.1083	0.3586	0.4389	0.0005	0.0414	4	0.43	1.43	1.76	0.00	0.17	47	20.36	67.41	82.52	0.09	7.77
									0.99	3.82	7.37	0.01	0.41		46.52	179.65	346.41	0.42	19.04

Segment 8

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Puller, Wire Puller 1 Drum	310	1	0.1391	0.5970	1.4037	0.0017	0.0599	4	0.56	2.39	5.61	0.01	0.24	48	26.71	114.62	269.51	0.33	11.50
Backhoe	85	1	0.1083	0.3586	0.4389	0.0005	0.0414	4	0.43	1.43	1.76	0.00	0.17	48	20.80	68.85	84.27	0.10	7.94
									0.99	3.82	7.37	0.01	0.41		47.51	183.47	353.78	0.43	19.44

Offroad Equipment Emission Calculations

66 kV Underground Construction

Segment 7
Trenching

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Excavator Cat 320	138	1	0.1420	0.5771	0.9299	0.0010	0.0742	8	1.14	4.62	7.44	0.01	0.59	3	3.41	13.85	22.32	0.02	1.78
Forklift - 10 ton	85	1	0.0634	0.2033	0.2514	0.0003	0.0252	4	0.25	0.81	1.01	0.00	0.10	3	0.76	2.44	3.02	0.00	0.30
Backhoe	85	1	0.1083	0.3586	0.4389	0.0005	0.0414	4	0.43	1.43	1.76	0.00	0.17	3	1.30	4.30	5.27	0.01	0.50
Water Pumps - 100 hp	100	1	0.1412	0.4648	0.7577	0.0008	0.0627	4	0.56	1.86	3.03	0.00	0.25	3	1.69	5.58	9.09	0.01	0.75
Loader, Front End w/ Bucket	145	1	0.1329	0.5203	0.9175	0.0009	0.0662	4	0.53	2.08	3.67	0.00	0.26	3	1.59	6.24	11.01	0.01	0.79
									2.92	10.80	16.90	0.02	1.38		8.76	32.41	50.70	0.05	4.13

End Structures

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Drill Rig	250	1	0.0957	0.3460	1.1847	0.0021	0.0384	4	0.38	1.38	4.74	0.01	0.15	4	1.53	5.54	18.95	0.03	0.61
Loader, Front End w/ Bucket	145	1	0.1329	0.5203	0.9175	0.0009	0.0662	2	0.27	1.04	1.84	0.00	0.13	4	1.06	4.16	7.34	0.01	0.53
Backhoe	85	1	0.1083	0.3586	0.4389	0.0005	0.0414	2	0.22	0.72	0.88	0.00	0.08	4	0.87	2.87	3.51	0.00	0.33
									0.86	3.14	7.45	0.01	0.37		3.46	12.57	29.81	0.05	1.48

Segment 8
Trenching

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Excavator Cat 320	138	1	0.1420	0.5771	0.9299	0.0010	0.0742	8	1.14	4.62	7.44	0.01	0.59	27	30.68	124.65	200.85	0.21	16.03
Forklift - 10 ton	85	1	0.0634	0.2033	0.2514	0.0003	0.0252	4	0.25	0.81	1.01	0.00	0.10	27	6.84	21.96	27.15	0.03	2.73
Backhoe	85	1	0.1083	0.3586	0.4389	0.0005	0.0414	4	0.43	1.43	1.76	0.00	0.17	27	11.70	38.73	47.40	0.05	4.47
Water Pumps - 100 hp	100	1	0.1412	0.4648	0.7577	0.0008	0.0627	4	0.56	1.86	3.03	0.00	0.25	27	15.25	50.20	81.83	0.08	6.77
Loader, Front End w/ Bucket	145	1	0.1329	0.5203	0.9175	0.0009	0.0662	4	0.53	2.08	3.67	0.00	0.26	27	14.35	56.20	99.09	0.10	7.15
									2.92	10.80	16.90	0.02	1.38		78.82	291.73	456.33	0.48	37.14

Vault Construction

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Excavator Cat 320	138	1	0.1420	0.5771	0.9299	0.0010	0.0742	6	0.85	3.46	5.58	0.01	0.45	6	5.11	20.77	33.48	0.04	2.67
Water Pumps - 100 hp	100	1	0.1412	0.4648	0.7577	0.0008	0.0627	6	0.85	2.79	4.55	0.00	0.38	6	5.08	16.73	27.28	0.03	2.26
Forklift, 10 ton	85	1	0.0634	0.2033	0.2514	0.0003	0.0252	2	0.13	0.41	0.50	0.00	0.05	6	0.76	2.44	3.02	0.00	0.30
Loader, Front End w/ Bucket	145	1	0.1329	0.5203	0.9175	0.0009	0.0662	1	0.13	0.52	0.92	0.00	0.07	6	0.80	3.12	5.51	0.01	0.40
									1.96	7.18	11.55	0.01	0.94		11.75	43.07	69.27	0.07	5.63

End Structures

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Drill Rig	250	1	0.0957	0.3460	1.1847	0.0021	0.0384	4	0.38	1.38	4.74	0.01	0.15	10	3.83	13.84	47.39	0.08	1.54
Loader, Front End w/ Bucket	145	1	0.1329	0.5203	0.9175	0.0009	0.0662	2	0.27	1.04	1.84	0.00	0.13	10	2.66	10.41	18.35	0.02	1.32
Backhoe	85	1	0.1083	0.3586	0.4389	0.0005	0.0414	2	0.22	0.72	0.88	0.00	0.08	10	2.17	7.17	8.78	0.01	0.83
									0.86	3.14	7.45	0.01	0.37		8.65	31.42	74.51	0.11	3.69

2011 Emission Calculations

Marshalling Yards

Segment 4

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.1112	0.4431	0.7838	0.0008	0.0535	3	0.28	1.11	1.96	0.00	0.13	21	5.84	23.26	41.15	0.04	2.81
Forklift, 5 ton	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	5	0.29	0.96	1.07	0.00	0.10	21	6.01	20.13	22.41	0.03	2.18
Forklift, 10 ton	85	1	0.0566	0.1984	0.2384	0.0003	0.0231	5	0.28	0.99	1.19	0.00	0.12	21	5.94	20.83	25.04	0.03	2.42
									0.85	3.06	4.22	0.00	0.35		17.79	64.22	88.59	0.10	7.41

Segment 5

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.1112	0.4431	0.7838	0.0008	0.0535	3	0.28	1.11	1.96	0.00	0.13	153	42.54	169.50	299.82	0.30	20.47
Forklift, 5 ton	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	5	0.29	0.96	1.07	0.00	0.10	153	43.78	146.64	163.24	0.19	15.88
Forklift, 10 ton	85	1	0.0566	0.1984	0.2384	0.0003	0.0231	5	0.28	0.99	1.19	0.00	0.12	153	43.31	151.76	182.41	0.21	17.66
									0.85	3.06	4.22	0.00	0.35		129.64	467.90	645.47	0.71	54.00

Offroad Equipment Emission Calculations

Segment 6

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.1112	0.4431	0.7838	0.0008	0.0535	3	0.28	1.11	1.96	0.00	0.13	303	84.25	335.67	593.75	0.60	40.53
Forklift, 5 ton	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	5	0.29	0.96	1.07	0.00	0.10	303	86.71	290.40	323.27	0.38	31.44
Forklift, 10 ton	85	1	0.0566	0.1984	0.2384	0.0003	0.0231	5	0.28	0.99	1.19	0.00	0.12	303	85.78	300.55	361.25	0.42	34.97
									0.85	3.06	4.22	0.00	0.35		256.74	926.63	1278.28	1.40	106.95

Segment 7

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.1112	0.4431	0.7838	0.0008	0.0535	3	0.28	1.11	1.96	0.00	0.13	303	84.25	335.67	593.75	0.60	40.53
Forklift, 5 ton	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	5	0.29	0.96	1.07	0.00	0.10	303	86.71	290.40	323.27	0.38	31.44
Forklift, 10 ton	85	1	0.0566	0.1984	0.2384	0.0003	0.0231	5	0.28	0.99	1.19	0.00	0.12	303	85.78	300.55	361.25	0.42	34.97
									0.85	3.06	4.22	0.00	0.35		256.74	926.63	1278.28	1.40	106.95

Segment 8

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.1112	0.4431	0.7838	0.0008	0.0535	3	0.28	1.11	1.96	0.00	0.13	303	84.25	335.67	593.75	0.60	40.53
Forklift, 5 ton	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	5	0.29	0.96	1.07	0.00	0.10	303	86.71	290.40	323.27	0.38	31.44
Forklift, 10 ton	85	1	0.0566	0.1984	0.2384	0.0003	0.0231	5	0.28	0.99	1.19	0.00	0.12	303	85.78	300.55	361.25	0.42	34.97
									0.85	3.06	4.22	0.00	0.35		256.74	926.63	1278.28	1.40	106.95

Segment 10

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.1112	0.4431	0.7838	0.0008	0.0535	3	0.28	1.11	1.96	0.00	0.13	16	4.45	17.73	31.35	0.03	2.14
Forklift, 5 ton	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	5	0.29	0.96	1.07	0.00	0.10	16	4.58	15.33	17.07	0.02	1.66
Forklift, 10 ton	85	1	0.0566	0.1984	0.2384	0.0003	0.0231	5	0.28	0.99	1.19	0.00	0.12	16	4.53	15.87	19.08	0.02	1.85
									0.85	3.06	4.22	0.00	0.35		13.56	48.93	67.50	0.07	5.65

Segment 11

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.1112	0.4431	0.7838	0.0008	0.0535	3	0.28	1.11	1.96	0.00	0.13	110	30.59	121.86	215.55	0.22	14.72
Forklift, 5 ton	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	5	0.29	0.96	1.07	0.00	0.10	110	31.48	105.43	117.36	0.14	11.42
Forklift, 10 ton	85	1	0.0566	0.1984	0.2384	0.0003	0.0231	5	0.28	0.99	1.19	0.00	0.12	110	31.14	109.11	131.15	0.15	12.69
									0.85	3.06	4.22	0.00	0.35		93.20	336.40	464.06	0.51	38.83

Road Maintenance

Segment 4

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Motor Grader	140	1	0.1521	0.6125	1.0195	0.0011	0.0781	2	0.30	1.22	2.04	0.00	0.16	16	4.87	19.60	32.62	0.03	2.50
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.1862	0.7264	1.4567	0.0014	0.0806	2	0.37	1.45	2.91	0.00	0.16	16	5.96	23.25	46.62	0.05	2.58
									0.68	2.68	4.95	0.00	0.32		10.82	42.85	79.24	0.08	5.08

Segment 5

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Motor Grader	140	1	0.1521	0.6125	1.0195	0.0011	0.0781	2	0.30	1.22	2.04	0.00	0.16	146	44.41	178.84	297.68	0.31	22.79
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.1862	0.7264	1.4567	0.0014	0.0806	2	0.37	1.45	2.91	0.00	0.16	146	54.36	212.12	425.36	0.42	23.53
									0.68	2.68	4.95	0.00	0.32		98.77	390.96	723.04	0.73	46.32

Segment 6

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Motor Grader	140	1	0.1521	0.6125	1.0195	0.0011	0.0781	2	0.30	1.22	2.04	0.00	0.16	278	84.56	340.53	566.82	0.59	43.40
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.1862	0.7264	1.4567	0.0014	0.0806	2	0.37	1.45	2.91	0.00	0.16	278	103.51	403.91	809.94	0.80	44.81
									0.68	2.68	4.95	0.00	0.32		188.06	744.43	1376.76	1.39	88.20

Segment 8

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Motor Grader	140	1	0.1521	0.6125	1.0195	0.0011	0.0781	2	0.30	1.22	2.04	0.00	0.16	303	92.16	371.15	617.79	0.65	47.30
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.1862	0.7264	1.4567	0.0014	0.0806	2	0.37	1.45	2.91	0.00	0.16	303	112.81	440.23	882.77	0.87	48.83
									0.68	2.68	4.95	0.00	0.32		204.97	811.38	1500.56	1.51	96.14

Offroad Equipment Emission Calculations

Segment 10

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Motor Grader	140	1	0.1521	0.6125	1.0195	0.0011	0.0781	2	0.30	1.22	2.04	0.00	0.16	11	3.35	13.47	22.43	0.02	1.72
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.1862	0.7264	1.4567	0.0014	0.0806	2	0.37	1.45	2.91	0.00	0.16	11	4.10	15.98	32.05	0.03	1.77
									0.68	2.68	4.95	0.00	0.32		7.44	29.46	54.48	0.05	3.49

Segment 11

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Motor Grader	140	1	0.1521	0.6125	1.0195	0.0011	0.0781	2	0.30	1.22	2.04	0.00	0.16	7	2.13	8.57	14.27	0.01	1.09
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.1862	0.7264	1.4567	0.0014	0.0806	2	0.37	1.45	2.91	0.00	0.16	7	2.61	10.17	20.39	0.02	1.13
									0.68	2.68	4.95	0.00	0.32		4.74	18.74	34.67	0.03	2.22

Roads & Landing Work (Road Work)

Segment 11

(Upgrade Existing Road, Construct New Roads and L	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crawler, Track Type, w/ blade (D8 type)	305	2	0.2133	0.6694	1.9821	0.0020	0.0789	8	3.41	10.71	31.71	0.03	1.26	48	163.82	514.08	1522.26	1.55	60.63
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.1862	0.7264	1.4567	0.0014	0.0806	8	1.49	5.81	11.65	0.01	0.64	48	71.49	278.96	559.38	0.55	30.94
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	2	0.0980	0.3505	0.4179	0.0005	0.0383	3	0.59	2.10	2.51	0.00	0.23	48	28.22	100.95	120.35	0.14	11.04
Excavator, Grade - All	165	2	0.1359	0.6430	0.9906	0.0012	0.0644	8	2.17	10.29	15.85	0.02	1.03	48	104.36	493.82	760.78	0.91	49.49
Motor Grader	140	1	0.1521	0.6125	1.0195	0.0011	0.0781	5	0.76	3.06	5.10	0.01	0.39	48	36.50	146.99	244.67	0.26	18.73
									8.42	31.97	66.82	0.07	3.56		404.39	1534.80	3207.44	3.41	170.84

Install Foundations

Segment 6

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.1862	0.7264	1.4567	0.0014	0.0806	3	0.56	2.18	4.37	0.00	0.24	23	12.85	50.12	100.51	0.10	5.56
Crawler, track type, drill dig, Pheumatic D8	305	1	0.2133	0.6694	1.9821	0.0020	0.0789	8	1.71	5.36	15.86	0.02	0.63	23	39.25	123.17	364.71	0.37	14.53
Generator, Concrete Batch Plant	50	1	0.1043	0.2826	0.3020	0.0004	0.0270	6	0.63	1.70	1.81	0.00	0.16	23	14.39	39.00	41.68	0.05	3.73
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	2	0.0980	0.3505	0.4179	0.0005	0.0383	4	0.78	2.80	3.34	0.00	0.31	23	18.03	64.49	76.89	0.09	7.06
Motor, Auxilary Power	5	2	0.0055	0.0237	0.0370	0.0001	0.0022	2	0.02	0.09	0.15	0.00	0.01	23	0.50	2.18	3.40	0.00	0.20
Excavator, Grade - All	165	1	0.1359	0.6430	0.9906	0.0012	0.0644	4	0.54	2.57	3.96	0.00	0.26	23	12.50	59.16	91.14	0.11	5.93
									4.24	14.70	29.49	0.03	1.61		97.52	338.13	678.33	0.73	37.00

Segment 7

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.1862	0.7264	1.4567	0.0014	0.0806	3	0.56	2.18	4.37	0.00	0.24	77	43.00	167.81	336.50	0.33	18.62
Crawler, track type, drill dig, Pheumatic D8	305	1	0.2133	0.6694	1.9821	0.0020	0.0789	8	1.71	5.36	15.86	0.02	0.63	77	131.40	412.34	1220.98	1.24	48.63
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	2	0.0980	0.3505	0.4179	0.0005	0.0383	4	0.78	2.80	3.34	0.00	0.31	77	60.36	215.91	257.42	0.31	23.62
Motor, Auxilary Power	5	2	0.0055	0.0237	0.0370	0.0001	0.0022	2	0.02	0.09	0.15	0.00	0.01	77	1.69	7.31	11.39	0.02	0.67
Excavator, Grade - All	165	1	0.1359	0.6430	0.9906	0.0012	0.0644	4	0.54	2.57	3.96	0.00	0.26	77	41.85	198.04	305.10	0.37	19.85
									3.61	13.01	27.68	0.03	1.45		278.31	1001.42	2131.40	2.26	111.38

Segment 8

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.1862	0.7264	1.4567	0.0014	0.0806	3	0.56	2.18	4.37	0.00	0.24	69	38.54	150.37	301.54	0.30	16.68
Crawler, track type, drill dig, Pheumatic D8	305	1	0.2133	0.6694	1.9821	0.0020	0.0789	8	1.71	5.36	15.86	0.02	0.63	69	117.75	369.50	1094.12	1.11	43.58
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	2	0.0980	0.3505	0.4179	0.0005	0.0383	4	0.78	2.80	3.34	0.00	0.31	69	54.09	193.48	230.67	0.28	21.17
Motor, Auxilary Power	5	2	0.0055	0.0237	0.0370	0.0001	0.0022	2	0.02	0.09	0.15	0.00	0.01	69	1.51	6.55	10.21	0.01	0.60
Excavator, Grade - All	165	1	0.1359	0.6430	0.9906	0.0012	0.0644	4	0.54	2.57	3.96	0.00	0.26	69	37.50	177.47	273.41	0.33	17.79
									3.61	13.01	27.68	0.03	1.45		249.39	897.37	1909.95	2.03	99.81

Segment 11

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.1862	0.7264	1.4567	0.0014	0.0806	3	0.56	2.18	4.37	0.00	0.24	13	7.26	28.33	56.81	0.06	3.14
Crawler, track type, drill dig, Pheumatic D8	305	1	0.2133	0.6694	1.9821	0.0020	0.0789	8	1.71	5.36	15.86	0.02	0.63	13	22.18	69.62	206.14	0.21	8.21
Generator, Concrete Batch Plant	50	1	0.1043	0.2826	0.3020	0.0004	0.0270	6	0.63	1.70	1.81	0.00	0.16	13	8.14	22.04	23.56	0.03	2.11
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	2	0.0980	0.3505	0.4179	0.0005	0.0383	4	0.78	2.80	3.34	0.00	0.31	13	10.19	36.45	43.46	0.05	3.99
Motor, Auxilary Power	5	2	0.0055	0.0237	0.0370	0.0001	0.0022	2	0.02	0.09	0.15	0.00	0.01	13	0.29	1.23	1.92	0.00	0.11
Excavator, Grade - All	165	1	0.1359	0.6430	0.9906	0.0012	0.0644	4	0.54	2.57	3.96	0.00	0.26	13	7.07	33.44	51.51	0.06	3.35
									4.24	14.70	29.49	0.03	1.61		55.12	191.12	383.41	0.41	20.91

Offroad Equipment Emission Calculations

Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)

Segment 5

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, 150/300 Ton	450	1	0.1615	0.5565	1.5499	0.0017	0.0587	8	1.29	4.45	12.40	0.01	0.47	85	109.80	378.42	1053.93	1.13	39.92
Crane, Hydraulic, Rough Terrain 35 ton	155	3	0.1112	0.4431	0.7838	0.0008	0.0535	8	2.67	10.64	18.81	0.02	1.28	85	226.89	903.99	1599.01	1.61	109.16
Compressor, Air	75	5	0.1044	0.2947	0.3538	0.0004	0.0350	7.5	3.92	11.05	13.27	0.01	1.31	85	332.91	939.50	1127.83	1.22	111.44
Motor, Auxilary Power	5	2	0.0055	0.0237	0.0370	0.0001	0.0022	2	0.02	0.09	0.15	0.00	0.01	85	1.86	8.07	12.58	0.02	0.74
									7.90	26.24	44.63	0.05	3.07		671.47	2229.99	3793.35	3.98	261.26

Segment 6

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, 150/300 Ton	450	1	0.1615	0.5565	1.5499	0.0017	0.0587	8	1.29	4.45	12.40	0.01	0.47	221	285.48	983.90	2740.21	2.95	103.80
Crane, Hydraulic, Rough Terrain 35 ton	155	3	0.1112	0.4431	0.7838	0.0008	0.0535	8	2.67	10.64	18.81	0.02	1.28	221	589.91	2350.37	4157.44	4.19	283.82
Compressor, Air	75	5	0.1044	0.2947	0.3538	0.0004	0.0350	7.5	3.92	11.05	13.27	0.01	1.31	221	865.58	2442.71	2932.36	3.16	289.75
Motor, Auxilary Power	5	2	0.0055	0.0237	0.0370	0.0001	0.0022	2	0.02	0.09	0.15	0.00	0.01	221	4.85	20.99	32.70	0.05	1.92
									7.90	26.24	44.63	0.05	3.07		1745.82	5797.97	9862.71	10.34	679.28

Segment 7

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, 150/300 Ton	450	1	0.1615	0.5565	1.5499	0.0017	0.0587	8	1.29	4.45	12.40	0.01	0.47	265	342.32	1179.80	3285.78	3.53	124.46
Crane, Hydraulic, Rough Terrain 35 ton	155	3	0.1112	0.4431	0.7838	0.0008	0.0535	8	2.67	10.64	18.81	0.02	1.28	265	707.36	2818.31	4985.16	5.02	340.33
Compressor, Air	75	5	0.1044	0.2947	0.3538	0.0004	0.0350	7.5	3.92	11.05	13.27	0.01	1.31	265	1037.91	2929.04	3516.17	3.79	347.44
Motor, Auxilary Power	5	2	0.0055	0.0237	0.0370	0.0001	0.0022	2	0.02	0.09	0.15	0.00	0.01	265	5.81	25.17	39.21	0.06	2.30
									7.90	26.24	44.63	0.05	3.07		2093.40	6952.32	11826.33	12.40	814.52

Segment 8

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, 150/300 Ton	450	1	0.1615	0.5565	1.5499	0.0017	0.0587	8	1.29	4.45	12.40	0.01	0.47	353	456.00	1571.58	4376.90	4.71	165.79
Crane, Hydraulic, Rough Terrain 35 ton	155	3	0.1112	0.4431	0.7838	0.0008	0.0535	8	2.67	10.64	18.81	0.02	1.28	353	942.25	3754.21	6640.61	6.69	453.34
Compressor, Air	75	5	0.1044	0.2947	0.3538	0.0004	0.0350	7.5	3.92	11.05	13.27	0.01	1.31	353	1382.58	3901.70	4683.81	5.05	462.81
Motor, Auxilary Power	5	2	0.0055	0.0237	0.0370	0.0001	0.0022	2	0.02	0.09	0.15	0.00	0.01	353	7.74	33.53	52.24	0.07	3.06
									7.90	26.24	44.63	0.05	3.07		2788.57	9261.01	15753.56	16.52	1085.01

Segment 11

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, 150/300 Ton	450	1	0.1615	0.5565	1.5499	0.0017	0.0587	8	1.29	4.45	12.40	0.01	0.47	13	16.79	57.88	161.19	0.17	6.11
Crane, Hydraulic, Rough Terrain 35 ton	155	3	0.1112	0.4431	0.7838	0.0008	0.0535	8	2.67	10.64	18.81	0.02	1.28	13	34.70	138.26	244.56	0.25	16.70
Compressor, Air	75	5	0.1044	0.2947	0.3538	0.0004	0.0350	7.5	3.92	11.05	13.27	0.01	1.31	13	50.92	143.69	172.49	0.19	17.04
Motor, Auxilary Power	5	2	0.0055	0.0237	0.0370	0.0001	0.0022	2	0.02	0.09	0.15	0.00	0.01	13	0.29	1.23	1.92	0.00	0.11
									7.90	26.24	44.63	0.05	3.07		102.70	341.06	580.16	0.61	39.96

Conductor & OHGW Installation

Segment 4

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	1	0.0980	0.3505	0.4179	0.0005	0.0383	3	0.29	1.05	1.25	0.00	0.12	22	6.47	23.13	27.58	0.03	2.53
Crane, Hydraulic, Rough Terrain 35 ton	155	3	0.1112	0.4431	0.7838	0.0008	0.0535	3	1.00	3.99	7.05	0.01	0.48	22	22.02	87.74	155.20	0.16	10.60
Crawler, Track Type, w/ blade (D8 type)	305	1	0.2133	0.6694	1.9821	0.0020	0.0789	2	0.43	1.34	3.96	0.00	0.16	22	9.39	29.45	87.21	0.09	3.47
Crawler, Track Type, Sagging (D8 type)	305	2	0.2133	0.6694	1.9821	0.0020	0.0789	2	0.85	2.68	7.93	0.01	0.32	22	18.77	58.91	174.43	0.18	6.95
Motor, Auxilary Power	5	4	0.0055	0.0237	0.0370	0.0001	0.0022	2	0.04	0.19	0.30	0.00	0.02	22	0.97	4.18	6.51	0.01	0.38
Tension machine, conductor	135	2	0.1176	0.5510	0.8413	0.0010	0.0645	3	0.71	3.31	5.05	0.01	0.39	22	15.52	72.73	111.05	0.13	8.52
Tension machine, static	135	1	0.1176	0.5510	0.8413	0.0010	0.0645	2	0.24	1.10	1.68	0.00	0.13	22	5.17	24.24	37.02	0.04	2.84
									3.56	13.65	27.23	0.03	1.60		78.31	300.38	598.99	0.64	35.28

Offroad Equipment Emission Calculations

Segment 5

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	1	0.0980	0.3505	0.4179	0.0005	0.0383	3	0.29	1.05	1.25	0.00	0.12	72	21.17	75.71	90.26	0.11	8.28
Crane, Hydraulic, Rough Terrain 35 ton	155	3	0.1112	0.4431	0.7838	0.0008	0.0535	3	1.00	3.99	7.05	0.01	0.48	72	72.07	287.15	507.92	0.51	34.67
Crawler, Track Type, w/ blade (D8 type)	305	1	0.2133	0.6694	1.9821	0.0020	0.0789	2	0.43	1.34	3.96	0.00	0.16	72	30.72	96.39	285.42	0.29	11.37
Crawler, Track Type, Sagging (D8 type)	305	2	0.2133	0.6694	1.9821	0.0020	0.0789	2	0.85	2.68	7.93	0.01	0.32	72	61.43	192.78	570.85	0.58	22.74
Motor, Auxilary Power	5	4	0.0055	0.0237	0.0370	0.0001	0.0022	2	0.04	0.19	0.30	0.00	0.02	72	3.16	13.68	21.31	0.03	1.25
Tension machine, conductor	135	2	0.1176	0.5510	0.8413	0.0010	0.0645	3	0.71	3.31	5.05	0.01	0.39	72	50.79	238.02	363.42	0.44	27.87
Tension machine, static	135	1	0.1176	0.5510	0.8413	0.0010	0.0645	2	0.24	1.10	1.68	0.00	0.13	72	16.93	79.34	121.14	0.15	9.29
									3.56	13.65	27.23	0.03	1.60		256.27	983.07	1960.33	2.11	115.47

Segment 6

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	1	0.0980	0.3505	0.4179	0.0005	0.0383	3	0.29	1.05	1.25	0.00	0.12	99	29.10	104.10	124.11	0.15	11.39
Crane, Hydraulic, Rough Terrain 35 ton	155	3	0.1112	0.4431	0.7838	0.0008	0.0535	3	1.00	3.99	7.05	0.01	0.48	99	99.10	394.83	698.39	0.70	47.68
Crawler, Track Type, w/ blade (D8 type)	305	1	0.2133	0.6694	1.9821	0.0020	0.0789	2	0.43	1.34	3.96	0.00	0.16	99	42.24	132.54	392.46	0.40	15.63
Crawler, Track Type, Sagging (D8 type)	305	2	0.2133	0.6694	1.9821	0.0020	0.0789	2	0.85	2.68	7.93	0.01	0.32	99	84.47	265.07	784.92	0.80	31.26
Motor, Auxilary Power	5	4	0.0055	0.0237	0.0370	0.0001	0.0022	2	0.04	0.19	0.30	0.00	0.02	99	4.34	18.81	29.30	0.04	1.72
Tension machine, conductor	135	2	0.1176	0.5510	0.8413	0.0010	0.0645	3	0.71	3.31	5.05	0.01	0.39	99	69.84	327.28	499.70	0.60	38.32
Tension machine, static	135	1	0.1176	0.5510	0.8413	0.0010	0.0645	2	0.24	1.10	1.68	0.00	0.13	99	23.28	109.09	166.57	0.20	12.77
									3.56	13.65	27.23	0.03	1.60		352.37	1351.72	2695.45	2.90	158.77

Segment 8

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	1	0.0980	0.3505	0.4179	0.0005	0.0383	3	0.29	1.05	1.25	0.00	0.12	242	71.14	254.47	303.39	0.36	27.84
Crane, Hydraulic, Rough Terrain 35 ton	155	3	0.1112	0.4431	0.7838	0.0008	0.0535	3	1.00	3.99	7.05	0.01	0.48	242	242.24	965.14	1707.18	1.72	116.55
Crawler, Track Type, w/ blade (D8 type)	305	1	0.2133	0.6694	1.9821	0.0020	0.0789	2	0.43	1.34	3.96	0.00	0.16	242	103.24	323.98	959.34	0.98	38.21
Crawler, Track Type, Sagging (D8 type)	305	2	0.2133	0.6694	1.9821	0.0020	0.0789	2	0.85	2.68	7.93	0.01	0.32	242	206.48	647.96	1918.68	1.95	76.42
Motor, Auxilary Power	5	4	0.0055	0.0237	0.0370	0.0001	0.0022	2	0.04	0.19	0.30	0.00	0.02	242	10.62	45.97	71.62	0.10	4.20
Tension machine, conductor	135	2	0.1176	0.5510	0.8413	0.0010	0.0645	3	0.71	3.31	5.05	0.01	0.39	242	170.73	800.02	1221.50	1.48	93.67
Tension machine, static	135	1	0.1176	0.5510	0.8413	0.0010	0.0645	2	0.24	1.10	1.68	0.00	0.13	242	56.91	266.67	407.17	0.49	31.22
									3.56	13.65	27.23	0.03	1.60		861.36	3304.21	6588.88	7.08	388.11

Segment 10

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	1	0.0980	0.3505	0.4179	0.0005	0.0383	3	0.29	1.05	1.25	0.00	0.12	9	2.65	9.46	11.28	0.01	1.04
Crane, Hydraulic, Rough Terrain 35 ton	155	3	0.1112	0.4431	0.7838	0.0008	0.0535	3	1.00	3.99	7.05	0.01	0.48	9	9.01	35.89	63.49	0.06	4.33
Crawler, Track Type, w/ blade (D8 type)	305	1	0.2133	0.6694	1.9821	0.0020	0.0789	2	0.43	1.34	3.96	0.00	0.16	9	3.84	12.05	35.68	0.04	1.42
Crawler, Track Type, Sagging (D8 type)	305	2	0.2133	0.6694	1.9821	0.0020	0.0789	2	0.85	2.68	7.93	0.01	0.32	9	7.68	24.10	71.36	0.07	2.84
Motor, Auxilary Power	5	4	0.0055	0.0237	0.0370	0.0001	0.0022	2	0.04	0.19	0.30	0.00	0.02	9	0.39	1.71	2.66	0.00	0.16
Tension machine, conductor	135	2	0.1176	0.5510	0.8413	0.0010	0.0645	3	0.71	3.31	5.05	0.01	0.39	9	6.35	29.75	45.43	0.05	3.48
Tension machine, static	135	1	0.1176	0.5510	0.8413	0.0010	0.0645	2	0.24	1.10	1.68	0.00	0.13	9	2.12	9.92	15.14	0.02	1.16
									3.56	13.65	27.23	0.03	1.60		32.03	122.88	245.04	0.26	14.43

Segment 11

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	1	0.0980	0.3505	0.4179	0.0005	0.0383	3	0.29	1.05	1.25	0.00	0.12	13	3.82	13.67	16.30	0.02	1.50
Crane, Hydraulic, Rough Terrain 35 ton	155	3	0.1112	0.4431	0.7838	0.0008	0.0535	3	1.00	3.99	7.05	0.01	0.48	13	13.01	51.85	91.71	0.09	6.26
Crawler, Track Type, w/ blade (D8 type)	305	1	0.2133	0.6694	1.9821	0.0020	0.0789	2	0.43	1.34	3.96	0.00	0.16	13	5.55	17.40	51.53	0.05	2.05
Crawler, Track Type, Sagging (D8 type)	305	2	0.2133	0.6694	1.9821	0.0020	0.0789	2	0.85	2.68	7.93	0.01	0.32	13	11.09	34.81	103.07	0.10	4.11
Motor, Auxilary Power	5	4	0.0055	0.0237	0.0370	0.0001	0.0022	2	0.04	0.19	0.30	0.00	0.02	13	0.57	2.47	3.85	0.01	0.23
Tension machine, conductor	135	2	0.1176	0.5510	0.8413	0.0010	0.0645	3	0.71	3.31	5.05	0.01	0.39	13	9.17	42.98	65.62	0.08	5.03
Tension machine, static	135	1	0.1176	0.5510	0.8413	0.0010	0.0645	2	0.24	1.10	1.68	0.00	0.13	13	3.06	14.33	21.87	0.03	1.68
									3.56	13.65	27.23	0.03	1.60		46.27	177.50	353.95	0.38	20.85

Offroad Equipment Emission Calculations

Restoration & Guard Poles

Segment 4

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Backhoe	85	1	0.0980	0.3505	0.4179	0.0005	0.0383	5	0.49	1.75	2.09	0.00	0.19	14	6.86	24.54	29.25	0.03	2.68
Motor Grader	140	1	0.1521	0.6125	1.0195	0.0011	0.0781	8	1.22	4.90	8.16	0.01	0.62	14	17.03	68.60	114.18	0.12	8.74
									1.71	6.65	10.25	0.01	0.82		23.89	93.13	143.43	0.15	11.43

Segment 5

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Backhoe	85	1	0.0980	0.3505	0.4179	0.0005	0.0383	5	0.49	1.75	2.09	0.00	0.19	18	8.82	31.55	37.61	0.04	3.45
Motor Grader	140	1	0.1521	0.6125	1.0195	0.0011	0.0781	8	1.22	4.90	8.16	0.01	0.62	18	21.90	88.19	146.80	0.15	11.24
									1.71	6.65	10.25	0.01	0.82		30.72	119.74	184.41	0.20	14.69

Segment 6

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Backhoe	85	1	0.0980	0.3505	0.4179	0.0005	0.0383	5	0.49	1.75	2.09	0.00	0.19	27	13.23	47.32	56.41	0.07	5.18
Motor Grader	140	1	0.1521	0.6125	1.0195	0.0011	0.0781	8	1.22	4.90	8.16	0.01	0.62	27	32.85	132.29	220.20	0.23	16.86
									1.71	6.65	10.25	0.01	0.82		46.08	179.61	276.62	0.30	22.04

Segment 8

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Backhoe	85	1	0.0980	0.3505	0.4179	0.0005	0.0383	5	0.49	1.75	2.09	0.00	0.19	6	2.94	10.52	12.54	0.01	1.15
Motor Grader	140	1	0.1521	0.6125	1.0195	0.0011	0.0781	8	1.22	4.90	8.16	0.01	0.62	6	7.30	29.40	48.93	0.05	3.75
									1.71	6.65	10.25	0.01	0.82		10.24	39.91	61.47	0.07	4.90

Segment 10

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Backhoe	85	1	0.0980	0.3505	0.4179	0.0005	0.0383	5	0.49	1.75	2.09	0.00	0.19	12	5.88	21.03	25.07	0.03	2.30
Motor Grader	140	1	0.1521	0.6125	1.0195	0.0011	0.0781	8	1.22	4.90	8.16	0.01	0.62	12	14.60	58.80	97.87	0.10	7.49
									1.71	6.65	10.25	0.01	0.82		20.48	79.83	122.94	0.13	9.79

Segment 11

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Backhoe	85	1	0.0980	0.3505	0.4179	0.0005	0.0383	5	0.49	1.75	2.09	0.00	0.19	2	0.98	3.51	4.18	0.00	0.38
Motor Grader	140	1	0.1521	0.6125	1.0195	0.0011	0.0781	8	1.22	4.90	8.16	0.01	0.62	2	2.43	9.80	16.31	0.02	1.25
									1.71	6.65	10.25	0.01	0.82		3.41	13.30	20.49	0.02	1.63

Wreck-Out (Conductors, Structures & Foundations)

Segment 5

(Antelope-Mesa & Antelope-Vincent)	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Tension Machine	135	2	0.1176	0.5510	0.8413	0.0010	0.0645	3	0.71	3.31	5.05	0.01	0.39	14	9.88	46.28	70.67	0.09	5.42
Crawler, Track Type, w/ blade (D8 type)	305	1	0.2133	0.6694	1.9821	0.0020	0.0789	8	1.71	5.36	15.86	0.02	0.63	14	23.89	74.97	222.00	0.23	8.84
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	4	0.0980	0.3505	0.4179	0.0005	0.0383	8	3.14	11.22	13.37	0.02	1.23	14	43.90	157.03	187.21	0.22	17.18
Crane, Hydraulic, Rough Terrain 35 ton	155	2	0.1112	0.4431	0.7838	0.0008	0.0535	4	0.89	3.55	6.27	0.01	0.43	14	12.46	49.63	87.79	0.09	5.99
Motor, Auxilary Power	5	3	0.0055	0.0237	0.0370	0.0001	0.0022	2	0.03	0.14	0.22	0.00	0.01	14	0.46	1.99	3.11	0.00	0.18
									6.47	23.56	40.77	0.04	2.69		90.58	329.91	570.77	0.63	37.62

Segment 11

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Tension Machine	135	2	0.1176	0.5510	0.8413	0.0010	0.0645	3	0.71	3.31	5.05	0.01	0.39	7	4.94	23.14	35.33	0.04	2.71
Crawler, Track Type, w/ blade (D8 type)	305	1	0.2133	0.6694	1.9821	0.0020	0.0789	8	1.71	5.36	15.86	0.02	0.63	7	11.95	37.49	111.00	0.11	4.42
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	4	0.0980	0.3505	0.4179	0.0005	0.0383	8	3.14	11.22	13.37	0.02	1.23	7	21.95	78.51	93.61	0.11	8.59
Crane, Hydraulic, Rough Terrain 35 ton	155	2	0.1112	0.4431	0.7838	0.0008	0.0535	4	0.89	3.55	6.27	0.01	0.43	7	6.23	24.82	43.89	0.04	3.00
Motor, Auxilary Power	5	3	0.0055	0.0237	0.0370	0.0001	0.0022	2	0.03	0.14	0.22	0.00	0.01	7	0.23	1.00	1.55	0.00	0.09
									6.47	23.56	40.77	0.04	2.69		45.29	164.95	285.39	0.31	18.81

Construction - 66kV (or other subtransmission lines)

Segment 7 - Rio Hondo/SG River & SG River to Mesa

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Drill Rig	250	1	0.0892	0.3445	1.0129	0.0021	0.0323	4	0.36	1.38	4.05	0.01	0.13	220	78.53	303.15	891.31	1.86	28.41
Backhoe	85	1	0.0980	0.3505	0.4179	0.0005	0.0383	4	0.39	1.40	1.67	0.00	0.15	220	86.23	308.45	367.74	0.44	33.75
									0.75	2.78	5.72	0.01	0.28		164.76	611.60	1259.05	2.30	62.16

Offroad Equipment Emission Calculations

Wreckout - 66kV (or other subtransmission lines)

Segment 4 - Relocate at Antelope			SCAQMD Emission Factor lbs/hour						Daily Emissions lbs						Annual Emissions lbs				
	HP	Number	ROG	CO	NOX	SOX	PM	Hours/day	ROG	CO	NOX	SOX	PM	Days	ROG	CO	NOX	SOX	PM
Puller, Wire Puller 1 Drum	310	1	0.1298	0.5804	1.2927	0.0017	0.0553	4	0.52	2.32	5.17	0.01	0.22	96	49.85	222.86	496.40	0.67	21.22
Backhoe	85	1	0.0980	0.3505	0.4179	0.0005	0.0383	4	0.39	1.40	1.67	0.00	0.15	96	37.63	134.60	160.47	0.19	14.73
									0.91	3.72	6.84	0.01	0.37		87.48	357.46	656.87	0.86	35.94

Electrical Element

Segment 9 - Whirlwind Substation			SCAQMD Emission Factor lbs/hour						Daily Emissions lbs						Annual Emissions lbs				
	HP	Number	ROG	CO	NOX	SOX	PM	Hours/day	ROG	CO	NOX	SOX	PM	Days	ROG	CO	NOX	SOX	PM
14 ton Crane	180	2	0.1150	0.4752	0.8960	0.0009	0.0509	6	1.38	5.70	10.75	0.01	0.61	91	125.60	518.92	978.39	1.01	55.55
Crane, Hydraulic, 150 Ton (150 ton crane)	350	2	0.1393	0.4421	1.3511	0.0015	0.0508	6	1.67	5.30	16.21	0.02	0.61	91	152.09	482.73	1475.35	1.60	55.43
Forklift	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	6	0.34	1.15	1.28	0.00	0.12	91	31.25	104.66	116.51	0.14	11.33
Manlifts	75	4	0.0572	0.1917	0.2134	0.0003	0.0208	6	1.37	4.60	5.12	0.01	0.50	91	125.00	418.64	466.03	0.55	45.33
									4.77	16.76	33.37	0.04	1.84		433.95	1524.95	3036.28	3.30	167.65

Transformer Assembly and Processing Element

Segment 9 - Whirlwind Substation			SCAQMD Emission Factor lbs/hour						Daily Emissions lbs						Annual Emissions lbs				
	HP	Number	ROG	CO	NOX	SOX	PM	Hours/day	ROG	CO	NOX	SOX	PM	Days	ROG	CO	NOX	SOX	PM
50 ton Crane	200	2	0.1156	0.4330	0.9692	0.0010	0.0486	6	1.39	5.20	11.63	0.01	0.58	161	223.36	836.62	1872.45	1.98	93.84
Forklift	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	6	0.34	1.15	1.28	0.00	0.12	161	55.29	185.17	206.13	0.24	20.05
Manlifts	75	2	0.0572	0.1917	0.2134	0.0003	0.0208	6	0.69	2.30	2.56	0.00	0.25	161	110.58	370.34	412.25	0.49	40.10
									2.42	8.65	15.47	0.02	0.96		389.23	1392.12	2490.83	2.71	153.99

Segment 9 - Antelope Substation			SCAQMD Emission Factor lbs/hour						Daily Emissions lbs						Annual Emissions lbs				
	HP	Number	ROG	CO	NOX	SOX	PM	Hours/day	ROG	CO	NOX	SOX	PM	Days	ROG	CO	NOX	SOX	PM
50 ton Crane	200	2	0.1156	0.4330	0.9692	0.0010	0.0486	6	1.39	5.20	11.63	0.01	0.58	179	248.33	930.15	2081.80	2.20	104.33
Forklift	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	6	0.34	1.15	1.28	0.00	0.12	179	61.47	205.87	229.17	0.27	22.29
Manlifts	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	6	0.34	1.15	1.28	0.00	0.12	179	61.47	205.87	229.17	0.27	22.29
									2.07	7.50	14.19	0.02	0.83		371.27	1341.89	2540.14	2.74	148.91

Segment 9 - Vincent Substation			SCAQMD Emission Factor lbs/hour						Daily Emissions lbs						Annual Emissions lbs				
	HP	Number	ROG	CO	NOX	SOX	PM	Hours/day	ROG	CO	NOX	SOX	PM	Days	ROG	CO	NOX	SOX	PM
50 ton Crane	200	2	0.1156	0.4330	0.9692	0.0010	0.0486	6	1.39	5.20	11.63	0.01	0.58	22	30.52	114.32	255.86	0.27	12.82
Forklift	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	6	0.34	1.15	1.28	0.00	0.12	22	7.56	25.30	28.17	0.03	2.74
Manlifts	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	6	0.34	1.15	1.28	0.00	0.12	22	7.56	25.30	28.17	0.03	2.74
									2.07	7.50	14.19	0.02	0.83		45.63	164.93	312.20	0.34	18.30

Segment 9 - Gould Substation			SCAQMD Emission Factor lbs/hour						Daily Emissions lbs						Annual Emissions lbs				
	HP	Number	ROG	CO	NOX	SOX	PM	Hours/day	ROG	CO	NOX	SOX	PM	Days	ROG	CO	NOX	SOX	PM
50 ton Crane	200	2	0.1156	0.4330	0.9692	0.0010	0.0486	6	1.39	5.20	11.63	0.01	0.58	59	81.85	306.59	686.18	0.72	34.39
Forklift	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	6	0.34	1.15	1.28	0.00	0.12	59	20.26	67.86	75.54	0.09	7.35
Manlifts	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	6	0.34	1.15	1.28	0.00	0.12	59	20.26	67.86	75.54	0.09	7.35
									2.07	7.50	14.19	0.02	0.83		122.37	442.30	837.25	0.90	49.08

2012 Emission Calculations

Construction of Marshalling Yards

Segment 11			SCAQMD Emission Factor lbs/hour						Daily Emissions lbs						Annual Emissions lbs				
	HP	Number	ROG	CO	NOX	SOX	PM	Hours/day	ROG	CO	NOX	SOX	PM	Days	ROG	CO	NOX	SOX	PM
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.1050	0.4406	0.7381	0.0008	0.0499	2	0.21	0.88	1.48	0.00	0.10	75	15.75	66.09	110.71	0.12	7.49
Forklift, 5 ton	75	1	0.0505	0.1866	0.2034	0.0003	0.0187	6	0.30	1.12	1.22	0.00	0.11	75	22.72	83.95	91.52	0.11	8.40
Forklift, 10 ton	85	1	0.0501	0.1939	0.2252	0.0003	0.0207	6	0.30	1.16	1.35	0.00	0.12	75	22.56	87.25	101.35	0.13	9.30
Motor, Auxilary Power	5	1	0.0052	0.0233	0.0354	0.0001	0.0020	1	0.01	0.02	0.04	0.00	0.00	75	0.39	1.75	2.66	0.00	0.15
									0.82	3.19	4.08	0.00	0.34		61.42	239.04	306.25	0.36	25.34

Offroad Equipment Emission Calculations

Marshalling Yards

Segment 6

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.1050	0.4406	0.7381	0.0008	0.0499	3	0.26	1.10	1.85	0.00	0.12	135	35.43	148.71	249.11	0.27	16.84
Forklift, 5 ton	75	1	0.0505	0.1866	0.2034	0.0003	0.0187	5	0.25	0.93	1.02	0.00	0.09	135	34.08	125.93	137.29	0.17	12.60
Forklift, 10 ton	85	1	0.0501	0.1939	0.2252	0.0003	0.0207	5	0.25	0.97	1.13	0.00	0.10	135	33.84	130.88	152.03	0.19	13.95
									0.77	3.00	3.99	0.00	0.32		103.34	405.51	538.42	0.62	43.39

Segment 7

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.1050	0.4406	0.7381	0.0008	0.0499	3	0.26	1.10	1.85	0.00	0.12	189	49.60	208.19	348.75	0.37	23.58
Forklift, 5 ton	75	1	0.0505	0.1866	0.2034	0.0003	0.0187	5	0.25	0.93	1.02	0.00	0.09	189	47.71	176.30	192.20	0.24	17.64
Forklift, 10 ton	85	1	0.0501	0.1939	0.2252	0.0003	0.0207	5	0.25	0.97	1.13	0.00	0.10	189	47.38	183.23	212.84	0.26	19.53
									0.77	3.00	3.99	0.00	0.32		144.68	567.72	753.79	0.87	60.75

Segment 8

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.1050	0.4406	0.7381	0.0008	0.0499	3	0.26	1.10	1.85	0.00	0.12	99	25.98	109.05	182.68	0.20	12.35
Forklift, 5 ton	75	1	0.0505	0.1866	0.2034	0.0003	0.0187	5	0.25	0.93	1.02	0.00	0.09	99	24.99	92.35	100.68	0.13	9.24
Forklift, 10 ton	85	1	0.0501	0.1939	0.2252	0.0003	0.0207	5	0.25	0.97	1.13	0.00	0.10	99	24.82	95.98	111.49	0.14	10.23
									0.77	3.00	3.99	0.00	0.32		75.79	297.38	394.84	0.46	31.82

Segment 11

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.1050	0.4406	0.7381	0.0008	0.0499	3	0.26	1.10	1.85	0.00	0.12	303	79.52	333.76	559.11	0.60	37.80
Forklift, 5 ton	75	1	0.0505	0.1866	0.2034	0.0003	0.0187	5	0.25	0.93	1.02	0.00	0.09	303	76.48	282.64	308.13	0.38	28.28
Forklift, 10 ton	85	1	0.0501	0.1939	0.2252	0.0003	0.0207	5	0.25	0.97	1.13	0.00	0.10	303	75.95	293.75	341.22	0.42	31.32
									0.77	3.00	3.99	0.00	0.32		231.95	910.15	1208.46	1.40	97.39

Road Maintenance

Segment 6

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Motor Grader	140	1	0.1423	0.6085	0.9571	0.0011	0.0721	2	0.28	1.22	1.91	0.00	0.14	130	37.00	158.22	248.85	0.28	18.75
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.1771	0.7189	1.3752	0.0014	0.0752	2	0.35	1.44	2.75	0.00	0.15	130	46.05	186.90	357.54	0.37	19.55
									0.64	2.65	4.66	0.00	0.29		83.04	345.12	606.39	0.65	38.30

Segment 8

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Motor Grader	140	1	0.1423	0.6085	0.9571	0.0011	0.0721	2	0.28	1.22	1.91	0.00	0.14	94	26.75	114.40	179.93	0.20	13.56
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.1771	0.7189	1.3752	0.0014	0.0752	2	0.35	1.44	2.75	0.00	0.15	94	33.30	135.15	258.53	0.27	14.14
									0.64	2.65	4.66	0.00	0.29		60.05	249.55	438.46	0.47	27.70

Segment 11

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Motor Grader	140	1	0.1423	0.6085	0.9571	0.0011	0.0721	2	0.28	1.22	1.91	0.00	0.14	303	86.23	368.76	580.00	0.65	43.70
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.1771	0.7189	1.3752	0.0014	0.0752	2	0.35	1.44	2.75	0.00	0.15	303	107.32	435.63	833.34	0.87	45.58
									0.64	2.65	4.66	0.00	0.29		193.56	804.39	1413.35	1.51	89.27

Construct New Roads & Landing Work

Segment 11

(500kV 2nd Circuit Vincent-Gould)	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crawler, Track Type, w/ blade (D8 type)	305	2	0.2031	0.6323	1.8555	0.0020	0.0728	8	3.25	10.12	29.69	0.03	1.16	50	162.50	505.83	1484.43	1.61	58.23
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.1771	0.7189	1.3752	0.0014	0.0752	8	1.42	5.75	11.00	0.01	0.60	50	70.84	287.54	550.06	0.57	30.08
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	2	0.0883	0.3431	0.3970	0.0005	0.0349	3	0.53	2.06	2.38	0.00	0.21	50	26.49	102.93	119.11	0.15	10.48
Excavator, Grade - All	165	2	0.1269	0.6413	0.9192	0.0012	0.0585	8	2.03	10.26	14.71	0.02	0.94	50	101.54	513.01	735.38	0.95	46.79
Motor Grader	140	1	0.1423	0.6085	0.9571	0.0011	0.0721	5	0.71	3.04	4.79	0.01	0.36	50	35.57	152.13	239.28	0.27	18.03
									7.94	31.23	62.57	0.07	3.27		396.94	1561.45	3128.26	3.56	163.62

Offroad Equipment Emission Calculations

Install Foundations

Segment 6

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.1771	0.7189	1.3752	0.0014	0.0752	3	0.53	2.16	4.13	0.00	0.23	24	12.75	51.76	99.01	0.10	5.42
Crawler, track type, drill dig, Pheumatic D8	305	1	0.2031	0.6323	1.8555	0.0020	0.0728	8	1.62	5.06	14.84	0.02	0.58	24	39.00	121.40	356.26	0.39	13.98
Generator, Concrete Batch Plant	50	1	0.0959	0.2734	0.2966	0.0004	0.0255	6	0.58	1.64	1.78	0.00	0.15	24	13.81	39.37	42.71	0.06	3.67
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	2	0.0883	0.3431	0.3970	0.0005	0.0349	4	0.71	2.74	3.18	0.00	0.28	24	16.95	65.87	76.23	0.10	6.71
Motor, Auxilary Power	5	2	0.0052	0.0233	0.0354	0.0001	0.0020	2	0.02	0.09	0.14	0.00	0.01	24	0.50	2.23	3.40	0.01	0.20
Excavator, Grade - All	165	1	0.1269	0.6413	0.9192	0.0012	0.0585	4	0.51	2.57	3.68	0.00	0.23	24	12.18	61.56	88.25	0.11	5.61
									3.97	14.26	27.74	0.03	1.48		95.20	342.20	665.86	0.76	35.58

Segment 11

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.1771	0.7189	1.3752	0.0014	0.0752	3	0.53	2.16	4.13	0.00	0.23	49	26.03	105.67	202.15	0.21	11.06
Crawler, track type, drill dig, Pheumatic D8	305	1	0.2031	0.6323	1.8555	0.0020	0.0728	8	1.62	5.06	14.84	0.02	0.58	49	79.62	247.86	727.37	0.79	28.53
Generator, Concrete Batch Plant	50	1	0.0959	0.2734	0.2966	0.0004	0.0255	6	0.58	1.64	1.78	0.00	0.15	49	28.19	80.39	87.20	0.12	7.49
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	2	0.0883	0.3431	0.3970	0.0005	0.0349	4	0.71	2.74	3.18	0.00	0.28	49	34.61	134.49	155.64	0.20	13.69
Motor, Auxilary Power	5	2	0.0052	0.0233	0.0354	0.0001	0.0020	2	0.02	0.09	0.14	0.00	0.01	49	1.02	4.56	6.94	0.01	0.40
Excavator, Grade - All	165	1	0.1269	0.6413	0.9192	0.0012	0.0585	4	0.51	2.57	3.68	0.00	0.23	49	24.88	125.69	180.17	0.23	11.46
									3.97	14.26	27.74	0.03	1.48		194.37	698.66	1359.47	1.56	72.64

Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)

Segment 6

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, 150/300 Ton	450	1	0.1529	0.5173	1.4404	0.0017	0.0534	8	1.22	4.14	11.52	0.01	0.43	73	89.27	302.13	841.20	0.97	31.21
Crane, Hydraulic, Rough Terrain 35 ton	155	3	0.1050	0.4406	0.7381	0.0008	0.0499	8	2.52	10.57	17.71	0.02	1.20	73	183.91	771.95	1293.15	1.38	87.43
Compressor, Air	75	5	0.0967	0.2875	0.3390	0.0004	0.0329	7.5	3.63	10.78	12.71	0.01	1.23	73	264.83	786.98	927.89	1.05	90.15
Motor, Auxilary Power	5	2	0.0052	0.0233	0.0354	0.0001	0.0020	2	0.02	0.09	0.14	0.00	0.01	73	1.53	6.80	10.34	0.02	0.60
									7.39	25.59	42.09	0.05	2.87		539.54	1867.86	3072.58	3.42	209.39

Segment 7

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, 150/300 Ton	450	1	0.1529	0.5173	1.4404	0.0017	0.0534	8	1.22	4.14	11.52	0.01	0.43	111	135.73	459.40	1279.09	1.48	47.46
Crane, Hydraulic, Rough Terrain 35 ton	155	3	0.1050	0.4406	0.7381	0.0008	0.0499	8	2.52	10.57	17.71	0.02	1.20	111	279.65	1173.79	1966.29	2.10	132.94
Compressor, Air	75	5	0.0967	0.2875	0.3390	0.0004	0.0329	7.5	3.63	10.78	12.71	0.01	1.23	111	402.69	1196.65	1410.90	1.59	137.08
Motor, Auxilary Power	5	2	0.0052	0.0233	0.0354	0.0001	0.0020	2	0.02	0.09	0.14	0.00	0.01	111	2.32	10.33	15.73	0.02	0.91
									7.39	25.59	42.09	0.05	2.87		820.39	2840.17	4672.01	5.20	318.39

Segment 11

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, 150/300 Ton	450	1	0.1529	0.5173	1.4404	0.0017	0.0534	8	1.22	4.14	11.52	0.01	0.43	136	166.30	562.87	1567.17	1.81	58.15
Crane, Hydraulic, Rough Terrain 35 ton	155	3	0.1050	0.4406	0.7381	0.0008	0.0499	8	2.52	10.57	17.71	0.02	1.20	136	342.64	1438.16	2409.15	2.58	162.88
Compressor, Air	75	5	0.0967	0.2875	0.3390	0.0004	0.0329	7.5	3.63	10.78	12.71	0.01	1.23	136	493.38	1466.16	1728.67	1.95	167.96
Motor, Auxilary Power	5	2	0.0052	0.0233	0.0354	0.0001	0.0020	2	0.02	0.09	0.14	0.00	0.01	136	2.84	12.66	19.27	0.03	1.11
									7.39	25.59	42.09	0.05	2.87		1005.16	3479.85	5724.26	6.37	390.10

Conductor & OHGW Installation

Segment 6

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	1	0.0883	0.3431	0.3970	0.0005	0.0349	3	0.26	1.03	1.19	0.00	0.10	25	6.62	25.73	29.78	0.04	2.62
Crane, Hydraulic, Rough Terrain 35 ton	155	3	0.1050	0.4406	0.7381	0.0008	0.0499	3	0.94	3.97	6.64	0.01	0.45	25	23.62	99.14	166.07	0.18	11.23
Crawler, Track Type, w/ blade (D8 type)	305	1	0.2031	0.6323	1.8555	0.0020	0.0728	2	0.41	1.26	3.71	0.00	0.15	25	10.16	31.61	92.78	0.10	3.64
Crawler, Track Type, Sagging (D8 type)	305	2	0.2031	0.6323	1.8555	0.0020	0.0728	2	0.81	2.53	7.42	0.01	0.29	25	20.31	63.23	185.55	0.20	7.28
Motor, Auxilary Power	5	4	0.0052	0.0233	0.0354	0.0001	0.0020	2	0.04	0.19	0.28	0.00	0.02	25	1.04	4.65	7.09	0.01	0.41
Tension machine, conductor	135	2	0.1078	0.5473	0.7829	0.0010	0.0588	3	0.65	3.28	4.70	0.01	0.35	25	16.17	82.09	117.43	0.15	8.82
Tension machine, static	135	1	0.1078	0.5473	0.7829	0.0010	0.0588	2	0.22	1.09	1.57	0.00	0.12	25	5.39	27.36	39.14	0.05	2.94
									3.33	13.35	25.51	0.03	1.48		83.31	333.83	637.84	0.73	36.93

Offroad Equipment Emission Calculations

Segment 7

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	1	0.0883	0.3431	0.3970	0.0005	0.0349	3	0.26	1.03	1.19	0.00	0.10	156	41.32	160.57	185.81	0.23	16.35
Crane, Hydraulic, Rough Terrain 35 ton	155	3	0.1050	0.4406	0.7381	0.0008	0.0499	3	0.94	3.97	6.64	0.01	0.45	156	147.38	618.62	1036.29	1.11	70.06
Crawler, Track Type, w/ blade (D8 type)	305	1	0.2031	0.6323	1.8555	0.0020	0.0728	2	0.41	1.26	3.71	0.00	0.15	156	63.37	197.27	578.93	0.63	22.71
Crawler, Track Type, Sagging (D8 type)	305	2	0.2031	0.6323	1.8555	0.0020	0.0728	2	0.81	2.53	7.42	0.01	0.29	156	126.75	394.55	1157.86	1.26	45.42
Motor, Auxilary Power	5	4	0.0052	0.0233	0.0354	0.0001	0.0020	2	0.04	0.19	0.28	0.00	0.02	156	6.52	29.04	44.21	0.07	2.55
Tension machine, conductor	135	2	0.1078	0.5473	0.7829	0.0010	0.0588	3	0.65	3.28	4.70	0.01	0.35	156	100.89	512.26	732.75	0.95	55.03
Tension machine, static	135	1	0.1078	0.5473	0.7829	0.0010	0.0588	2	0.22	1.09	1.57	0.00	0.12	156	33.63	170.75	244.25	0.32	18.34
									3.33	13.35	25.51	0.03	1.48		519.87	2083.07	3980.10	4.57	230.47

Segment 8

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	1	0.0883	0.3431	0.3970	0.0005	0.0349	3	0.26	1.03	1.19	0.00	0.10	91	24.11	93.66	108.39	0.14	9.54
Crane, Hydraulic, Rough Terrain 35 ton	155	3	0.1050	0.4406	0.7381	0.0008	0.0499	3	0.94	3.97	6.64	0.01	0.45	91	85.97	360.86	604.50	0.65	40.87
Crawler, Track Type, w/ blade (D8 type)	305	1	0.2031	0.6323	1.8555	0.0020	0.0728	2	0.41	1.26	3.71	0.00	0.15	91	36.97	115.08	337.71	0.37	13.25
Crawler, Track Type, Sagging (D8 type)	305	2	0.2031	0.6323	1.8555	0.0020	0.0728	2	0.81	2.53	7.42	0.01	0.29	91	73.94	230.15	675.42	0.73	26.50
Motor, Auxilary Power	5	4	0.0052	0.0233	0.0354	0.0001	0.0020	2	0.04	0.19	0.28	0.00	0.02	91	3.80	16.94	25.79	0.04	1.49
Tension machine, conductor	135	2	0.1078	0.5473	0.7829	0.0010	0.0588	3	0.65	3.28	4.70	0.01	0.35	91	58.85	298.82	427.44	0.56	32.10
Tension machine, static	135	1	0.1078	0.5473	0.7829	0.0010	0.0588	2	0.22	1.09	1.57	0.00	0.12	91	19.62	99.61	142.48	0.19	10.70
									3.33	13.35	25.51	0.03	1.48		303.26	1215.12	2321.72	2.66	134.44

Segment 11

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	1	0.0883	0.3431	0.3970	0.0005	0.0349	3	0.26	1.03	1.19	0.00	0.10	103	27.28	106.02	122.68	0.15	10.80
Crane, Hydraulic, Rough Terrain 35 ton	155	3	0.1050	0.4406	0.7381	0.0008	0.0499	3	0.94	3.97	6.64	0.01	0.45	103	97.31	408.45	684.22	0.73	46.26
Crawler, Track Type, w/ blade (D8 type)	305	1	0.2031	0.6323	1.8555	0.0020	0.0728	2	0.41	1.26	3.71	0.00	0.15	103	41.84	130.25	382.24	0.42	15.00
Crawler, Track Type, Sagging (D8 type)	305	2	0.2031	0.6323	1.8555	0.0020	0.0728	2	0.81	2.53	7.42	0.01	0.29	103	83.69	260.50	764.48	0.83	29.99
Motor, Auxilary Power	5	4	0.0052	0.0233	0.0354	0.0001	0.0020	2	0.04	0.19	0.28	0.00	0.02	103	4.30	19.18	29.19	0.04	1.68
Tension machine, conductor	135	2	0.1078	0.5473	0.7829	0.0010	0.0588	3	0.65	3.28	4.70	0.01	0.35	103	66.61	338.23	483.80	0.63	36.33
Tension machine, static	135	1	0.1078	0.5473	0.7829	0.0010	0.0588	2	0.22	1.09	1.57	0.00	0.12	103	22.20	112.74	161.27	0.21	12.11
									3.33	13.35	25.51	0.03	1.48		343.25	1375.36	2627.88	3.01	152.17

Restoration & Guard Poles

Segment 6

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Backhoe	85	1	0.0883	0.3431	0.3970	0.0005	0.0349	5	0.44	1.72	1.99	0.00	0.17	5	2.21	8.58	9.93	0.01	0.87
Motor Grader	140	1	0.1423	0.6085	0.9571	0.0011	0.0721	8	1.14	4.87	7.66	0.01	0.58	5	5.69	24.34	38.28	0.04	2.88
									1.58	6.58	9.64	0.01	0.75		7.90	32.92	48.21	0.06	3.76

Segment 7

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Backhoe	85	1	0.0883	0.3431	0.3970	0.0005	0.0349	5	0.44	1.72	1.99	0.00	0.17	16	7.06	27.45	31.76	0.04	2.79
Motor Grader	140	1	0.1423	0.6085	0.9571	0.0011	0.0721	8	1.14	4.87	7.66	0.01	0.58	16	18.21	77.89	122.51	0.14	9.23
									1.58	6.58	9.64	0.01	0.75		25.28	105.34	154.27	0.18	12.02

Segment 8

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Backhoe	85	1	0.0883	0.3431	0.3970	0.0005	0.0349	5	0.44	1.72	1.99	0.00	0.17	27	11.92	46.32	53.60	0.07	4.72
Motor Grader	140	1	0.1423	0.6085	0.9571	0.0011	0.0721	8	1.14	4.87	7.66	0.01	0.58	27	30.74	131.44	206.73	0.23	15.57
									1.58	6.58	9.64	0.01	0.75		42.66	177.76	260.33	0.30	20.29

Segment 11

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Backhoe	85	1	0.0883	0.3431	0.3970	0.0005	0.0349	5	0.44	1.72	1.99	0.00	0.17	9	3.97	15.44	17.87	0.02	1.57
Motor Grader	140	1	0.1423	0.6085	0.9571	0.0011	0.0721	8	1.14	4.87	7.66	0.01	0.58	9	10.25	43.81	68.91	0.08	5.19
									1.58	6.58	9.64	0.01	0.75		14.22	59.25	86.78	0.10	6.76

Offroad Equipment Emission Calculations

Wreck-Out (conductors, structures, & Foundations)

Segment 6

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Tension Machine, Conductor or Static	135	2	0.1078	0.5473	0.7829	0.0010	0.0588	3	0.65	3.28	4.70	0.01	0.35	17	10.99	55.82	79.85	0.10	6.00
Crawler, Track Type, w/ blade (D8 type)	305	1	0.2031	0.6323	1.8555	0.0020	0.0728	8	1.62	5.06	14.84	0.02	0.58	17	27.62	85.99	252.35	0.27	9.90
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	4	0.0883	0.3431	0.3970	0.0005	0.0349	8	2.83	10.98	12.70	0.02	1.12	17	48.04	186.64	215.98	0.27	19.01
Crane, Hydraulic, Rough Terrain 35 ton	155	2	0.1050	0.4406	0.7381	0.0008	0.0499	4	0.84	3.52	5.90	0.01	0.40	17	14.28	59.92	100.38	0.11	6.79
Motor, Auxilary Power	5	3	0.0052	0.0233	0.0354	0.0001	0.0020	2	0.03	0.14	0.21	0.00	0.01	17	0.53	2.37	3.61	0.01	0.21
									5.97	22.99	38.36	0.04	2.46		101.46	390.75	652.18	0.76	41.90

Segment 11

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
Tension Machine, Conductor or Static	135	2	0.1078	0.5473	0.7829	0.0010	0.0588	3	0.65	3.28	4.70	0.01	0.35	52	33.63	170.75	244.25	0.32	18.34
Crawler, Track Type, w/ blade (D8 type)	305	1	0.2031	0.6323	1.8555	0.0020	0.0728	8	1.62	5.06	14.84	0.02	0.58	52	84.50	263.03	771.91	0.84	30.28
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	4	0.0883	0.3431	0.3970	0.0005	0.0349	8	2.83	10.98	12.70	0.02	1.12	52	146.93	570.91	660.66	0.83	58.13
Crane, Hydraulic, Rough Terrain 35 ton	155	2	0.1050	0.4406	0.7381	0.0008	0.0499	4	0.84	3.52	5.90	0.01	0.40	52	43.67	183.29	307.05	0.33	20.76
Motor, Auxilary Power	5	3	0.0052	0.0233	0.0354	0.0001	0.0020	2	0.03	0.14	0.21	0.00	0.01	52	1.63	7.26	11.05	0.02	0.64
									5.97	22.99	38.36	0.04	2.46		310.36	1195.25	1994.91	2.33	128.16

Electrical Element

Segment 9 - Antelope Substation

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
14 ton Crane	180	2	0.1089	0.4722	0.8423	0.0009	0.0473	6	1.31	5.67	10.11	0.01	0.57	47	61.45	266.34	475.04	0.52	26.70
Crane, Hydraulic, 150 Ton (150 ton crane)	350	2	0.1316	0.4138	1.2558	0.0015	0.0461	6	1.58	4.97	15.07	0.02	0.55	47	74.21	233.39	708.28	0.83	26.02
Forklift	75	1	0.0505	0.1866	0.2034	0.0003	0.0187	6	0.30	1.12	1.22	0.00	0.11	47	14.24	52.61	57.36	0.07	5.26
Manlifts	75	4	0.0505	0.1866	0.2034	0.0003	0.0187	6	1.21	4.48	4.88	0.01	0.45	47	56.95	210.44	229.42	0.29	21.05
									4.40	16.23	31.28	0.04	1.68		206.84	762.78	1470.10	1.71	79.04

Segment 9 - Vincent Substation

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
14 ton Crane	180	2	0.1089	0.4722	0.8423	0.0009	0.0473	6	1.31	5.67	10.11	0.01	0.57	59	77.13	334.34	596.33	0.66	33.52
Crane, Hydraulic, 150 Ton (150 ton crane)	350	2	0.1316	0.4138	1.2558	0.0015	0.0461	6	1.58	4.97	15.07	0.02	0.55	59	93.16	292.98	889.12	1.04	32.67
Forklift	75	1	0.0505	0.1866	0.2034	0.0003	0.0187	6	0.30	1.12	1.22	0.00	0.11	59	17.87	66.04	72.00	0.09	6.61
Manlifts	75	4	0.0505	0.1866	0.2034	0.0003	0.0187	6	1.21	4.48	4.88	0.01	0.45	59	71.48	264.17	288.00	0.36	26.43
									4.40	16.23	31.28	0.04	1.68		259.65	957.53	1845.44	2.14	99.22

Transformer Assembly and Processing Element

Segment 9 - Vincent Substation

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
50 ton Crane	200	2	0.1093	0.4260	0.9077	0.0010	0.0449	6	1.31	5.11	10.89	0.01	0.54	40	52.48	204.46	435.69	0.49	21.56
Forklift	75	1	0.0505	0.1866	0.2034	0.0003	0.0187	6	0.30	1.12	1.22	0.00	0.11	40	12.12	44.78	48.81	0.06	4.48
Manlifts	75	1	0.0505	0.1866	0.2034	0.0003	0.0187	6	0.30	1.12	1.22	0.00	0.11	40	12.12	44.78	48.81	0.06	4.48
									1.92	7.35	13.33	0.02	0.76		76.71	294.01	533.31	0.61	30.52

Segment 9 - Mira Loma Substation

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM
50 ton Crane	200	2	0.1093	0.4260	0.9077	0.0010	0.0449	6	1.31	5.11	10.89	0.01	0.54	29	38.05	148.23	315.87	0.36	15.63
Forklift	75	1	0.0505	0.1866	0.2034	0.0003	0.0187	6	0.30	1.12	1.22	0.00	0.11	29	8.78	32.46	35.39	0.04	3.25
Manlifts	75	1	0.0505	0.1866	0.2034	0.0003	0.0187	6	0.30	1.12	1.22	0.00	0.11	29	8.78	32.46	35.39	0.04	3.25
									1.92	7.35	13.33	0.02	0.76		55.62	213.16	386.65	0.44	22.12

Offroad Equipment Emission Calculations

2013 Emission Calculations

Marshalling Yards

Segment 11			SCAQMD Emission Factor lbs/hour						Daily Emissions lbs						Annual Emissions lbs				
	HP	Number	ROG	CO	NOX	SOX	PM	Hours/day	ROG	CO	NOX	SOX	PM	Days	ROG	CO	NOX	SOX	PM
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.0990	0.4383	0.6947	0.0008	0.0462	3	0.25	1.10	1.74	0.00	0.12	15	3.71	16.44	26.05	0.03	1.73
Forklift, 5 ton	75	1	0.0443	0.1821	0.1916	0.0003	0.0164	5	0.22	0.91	0.96	0.00	0.08	15	3.32	13.66	14.37	0.02	1.23
Forklift, 10 ton	85	1	0.0442	0.1900	0.2110	0.0003	0.0181	5	0.22	0.95	1.05	0.00	0.09	15	3.31	14.25	15.82	0.02	1.36
									0.69	2.96	3.75	0.00	0.29		10.35	44.34	56.24	0.07	4.32

Road Maintenance

Segment 11			SCAQMD Emission Factor lbs/hour						Daily Emissions lbs						Annual Emissions lbs				
	HP	Number	ROG	CO	NOX	SOX	PM	Hours/day	ROG	CO	NOX	SOX	PM	Days	ROG	CO	NOX	SOX	PM
Motor Grader	140	1	0.1331	0.6050	0.8989	0.0011	0.0660	2	0.27	1.21	1.80	0.00	0.13	10	2.66	12.10	17.98	0.02	1.32
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.1686	0.7122	1.2984	0.0014	0.0700	2	0.34	1.42	2.60	0.00	0.14	10	3.37	14.24	25.97	0.03	1.40
									0.60	2.63	4.39	0.00	0.27		6.03	26.34	43.95	0.05	2.72

Conductor & OHGW Installation

Segment 11			SCAQMD Emission Factor lbs/hour						Daily Emissions lbs						Annual Emissions lbs				
	HP	Number	ROG	CO	NOX	SOX	PM	Hours/day	ROG	CO	NOX	SOX	PM	Days	ROG	CO	NOX	SOX	PM
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	1	0.0794	0.3364	0.3729	0.0005	0.0311	3	0.24	1.01	1.12	0.00	0.09	8	1.91	8.07	8.95	0.01	0.75
Crane, Hydraulic, Rough Terrain 35 ton	155	3	0.0990	0.4383	0.6947	0.0008	0.0462	3	0.89	3.95	6.25	0.01	0.42	8	7.13	31.56	50.02	0.06	3.33
Crawler, Track Type, w/ blade (D8 type)	305	1	0.1935	0.5991	1.7363	0.0020	0.0669	2	0.39	1.20	3.47	0.00	0.13	8	3.10	9.59	27.78	0.03	1.07
Crawler, Track Type, Sagging (D8 type)	305	2	0.1935	0.5991	1.7363	0.0020	0.0669	2	0.77	2.40	6.95	0.01	0.27	8	6.19	19.17	55.56	0.06	2.14
Motor, Auxilary Power	5	4	0.0050	0.0228	0.0339	0.0001	0.0019	2	0.04	0.18	0.27	0.00	0.02	8	0.32	1.46	2.17	0.00	0.12
Tension machine, conductor	135	2	0.0987	0.5439	0.7294	0.0010	0.0527	3	0.59	3.26	4.38	0.01	0.32	8	4.74	26.11	35.01	0.05	2.53
Tension machine, static	135	1	0.0987	0.5439	0.7294	0.0010	0.0527	2	0.20	1.09	1.46	0.00	0.11	8	1.58	8.70	11.67	0.02	0.84
									3.12	13.08	23.89	0.03	1.35		24.96	104.66	191.16	0.23	10.78

Restoration & Guard Poles

Segment 11			SCAQMD Emission Factor lbs/hour						Daily Emissions lbs						Annual Emissions lbs				
	HP	Number	ROG	CO	NOX	SOX	PM	Hours/day	ROG	CO	NOX	SOX	PM	Days	ROG	CO	NOX	SOX	PM
Backhoe	85	1	0.0794	0.3364	0.3729	0.0005	0.0311	5	0.40	1.68	1.86	0.00	0.16	10	3.97	16.82	18.65	0.02	1.55
Motor Grader	140	1	0.1331	0.6050	0.8989	0.0011	0.0660	8	1.07	4.84	7.19	0.01	0.53	10	10.65	48.40	71.91	0.09	5.28
									1.46	6.52	9.06	0.01	0.68		14.62	65.22	90.55	0.11	6.83

Transformer Assembly & Processing Element

Segment 9 - Vincent Substation			SCAQMD Emission Factor lbs/hour						Daily Emissions lbs						Annual Emissions lbs				
	HP	Number	ROG	CO	NOX	SOX	PM	Hours/day	ROG	CO	NOX	SOX	PM	Days	ROG	CO	NOX	SOX	PM
50 ton Crane	200	2	0.1034	0.4197	0.8495	0.0010	0.0414	6	1.24	5.04	10.19	0.01	0.50	132	163.84	664.75	1345.60	1.62	65.54
Forklift	75	1	0.0443	0.1821	0.1916	0.0003	0.0164	6	0.27	1.09	1.15	0.00	0.10	132	35.05	144.21	151.73	0.20	12.99
Manlifts	75	1	0.0443	0.1821	0.1916	0.0003	0.0164	6	0.27	1.09	1.15	0.00	0.10	132	35.05	144.21	151.73	0.20	12.99
									1.77	7.22	12.49	0.02	0.69		233.95	953.16	1649.06	2.02	91.51

Offroad Equipment Emissions Calculation

Segement 4

			Annual Emissions lbs				
			ROG	CO	NOX	SOX	PM
2009	Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	47.77	172.41	337.04	0.30	22.62
		Forklift, 5 ton	83.24	235.75	270.51	0.29	28.51
		Forklift, 10 ton	81.69	241.53	306.58	0.32	31.73
		Motor, Auxilary Power	1.16	4.72	7.66	0.01	0.47
	Construction - 66kV (or other subtransmission lines)	Drill Rig	14.79	51.49	194.07	0.31	5.85
	Segment 4 - Relocate at Antelope	Backhoe	17.66	54.36	68.35	0.07	6.59
	2009 Total Emission		**246.32**	**760.26**	**1,184.22**	**1.31**	**95.78**

			Annual Emissions lbs				
			ROG	CO	NOX	SOX	PM
2010	Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	67.36	255.29	475.07	0.45	32.15
		Forklift, 5 ton	73.62	225.96	255.66	0.29	25.97
		Forklift, 10 ton	72.56	232.82	287.84	0.32	28.91
	Road Maintenance	Motor Grader	71.05	270.15	473.85	0.47	36.13
		Crawler, Track Type, w/ blade (D6 Type)	85.67	321.93	674.90	0.63	37.07
	Roads & Landing Work	Crawler, Track Type, w/ blade (D8 type)	233.96	741.72	2,209.06	2.11	89.15
		Crawler, Track Type, w/ blade (D6 Type)	204.20	767.33	1,608.66	1.49	88.35
		Motor Grader	94.08	357.74	627.47	0.62	47.84
		Backhoe w/ Bucket; backhoe w/ concrete hammer	37.69	124.79	152.74	0.17	14.39
	Install Foundations	Crawler, Track Type, w/ blade (D6 Type)	80.98	304.29	637.92	0.59	35.04
		Excavator, Grade - All	80.20	356.01	587.58	0.66	37.77
		Crawler, track type, drill dig, Pheumatic D8	247.41	784.35	2,336.02	2.23	94.27
		Backhoe w/ Bucket; backhoe w/ concrete hammer	119.58	395.88	484.56	0.55	45.65
		Motor, Auxilary Power	3.17	13.35	21.24	0.03	1.27
	Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton	307.02	1,078.65	2,997.44	3.00	115.55
		Crane, Hydraulic, Rough Terrain 35 ton	635.35	2,407.94	4,481.01	4.26	303.27
		Compressor, Air	936.55	2,535.56	3,095.00	3.22	307.78
		Motor, Auxilary Power	5.17	21.77	34.62	0.05	2.06
	Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	26.00	86.06	105.34	0.12	9.92
		Crane, Hydraulic, Rough Terrain 35 ton	84.71	321.06	597.47	0.57	40.44
		Crawler, Track Type, w/ blade (D8 type)	35.86	113.67	338.55	0.32	13.66
		Crawler, Track Type, Sagging (D8 type)	71.71	227.35	677.11	0.65	27.33
		Motor, Auxilary Power	3.68	15.48	24.62	0.03	1.47
		Tension machine, conductor	61.39	266.41	431.87	0.49	32.95
		Tension machine, static	20.46	88.80	143.96	0.16	10.98
	Restoration & Guard Poles	Backhoe	4.33	14.34	17.56	0.02	1.65
		Motor Grader	10.38	39.47	69.24	0.07	5.28
	Construction - 66kV (or other subtransmission lines)	Drill Rig	26.78	96.89	331.70	0.59	10.76
	Segment 4 - Relocate at Antelope	Backhoe	30.33	100.40	122.89	0.14	11.58
	Wreckout - 66kV (or other subtransmission lines)	Puller, Wire Puller 1 Drum	19.48	83.58	196.52	0.24	8.39
	Segment 4 - Relocate at Antelope	Backhoe	15.16	50.20	61.45	0.07	5.79
	2010 Total Emission		**3,765.91**	**12,699.25**	**24,558.90**	**24.61**	**1,522.82**

			Annual Emissions lbs				
			ROG	CO	NOX	SOX	PM
2011	Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	5.84	23.26	41.15	0.04	2.81
		Forklift, 5 ton	6.01	20.13	22.41	0.03	2.18
		Forklift, 10 ton	5.94	20.83	25.04	0.03	2.42
	Road Maintenance	Motor Grader	4.87	19.60	32.62	0.03	2.50
		Crawler, Track Type, w/ blade (D6 Type)	5.96	23.25	46.62	0.05	2.58
	Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	6.47	23.13	27.58	0.03	2.53
		Crane, Hydraulic, Rough Terrain 35 ton	22.02	87.74	155.20	0.16	10.60
		Crawler, Track Type, w/ blade (D8 type)	9.39	29.45	87.21	0.09	3.47
		Crawler, Track Type, Sagging (D8 type)	18.77	58.91	174.43	0.18	6.95
		Motor, Auxilary Power	0.97	4.18	6.51	0.01	0.38
		Tension machine, conductor	15.52	72.73	111.05	0.13	8.52
		Tension machine, static	5.17	24.24	37.02	0.04	2.84
	Restoration & Guard Poles	Backhoe	6.86	24.54	29.25	0.03	2.68
		Motor Grader	17.03	68.60	114.18	0.12	8.74
	Wreckout - 66kV (or other subtransmission lines)	Puller, Wire Puller 1 Drum	49.85	222.86	496.40	0.67	21.22
	Segment 4 - Relocate at Antelope	Backhoe	37.63	134.60	160.47	0.19	14.73
	2011 Total Emission		**218.29**	**858.04**	**1,567.12**	**1.83**	**95.14**

Offroad Equipment Emissions Calculation

Segment 5

			Annual Emissions lbs				
			ROG	CO	NOX	SOX	PM
2009	Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	35.83	129.31	252.78	0.23	16.96
		Forklift, 5 ton	62.43	176.81	202.89	0.22	21.39
		Forklift, 10 ton	61.27	181.15	229.94	0.24	23.80
		Motor, Auxilary Power	0.87	3.54	5.74	0.01	0.35
	Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	13.06	47.14	92.16	0.08	6.18
		Forklift, 5 ton	15.17	42.97	49.31	0.05	5.20
		Forklift, 10 ton	14.89	44.03	55.89	0.06	5.78
	Construction - 66kV (or other subtransmission lines)	Drill Rig	29.58	102.97	388.15	0.63	11.70
	Segment 5 - Sagebrush/Ant. & Sage	Backhoe	35.32	108.73	136.70	0.15	13.19
	2009 Total Emission		**268.43**	**836.66**	**1,413.55**	**1.66**	**104.56**

			Annual Emissions lbs				
			ROG	CO	NOX	SOX	PM
2010	Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	38.59	146.26	272.18	0.26	18.42
		Forklift, 5 ton	63.27	194.19	219.71	0.25	22.32
		Forklift, 10 ton	62.36	200.08	247.36	0.27	24.84
		Motor, Auxilary Power	0.94	3.97	6.31	0.01	0.38
	Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	88.83	336.67	626.51	0.60	42.40
		Forklift, 5 ton	97.09	297.99	337.16	0.38	34.25
		Forklift, 10 ton	95.69	307.03	379.59	0.42	38.12
	Road Maintenance	Motor Grader	70.72	268.92	471.68	0.47	35.96
		Crawler, Track Type, w/ blade (D6 Type)	85.28	320.46	671.82	0.62	36.90
	Roads & Landing Work	Crawler, Track Type, w/ blade (D8 type)	78.66	249.37	742.70	0.71	29.97
		Crawler, Track Type, w/ blade (D6 Type)	68.65	257.98	540.84	0.50	29.70
		Motor Grader	31.63	120.27	210.96	0.21	16.08
		Backhoe w/ Bucket; backhoe w/ concrete hammer	12.67	41.95	51.35	0.06	4.84
	Install Foundations	Crawler, Track Type, w/ blade (D6 Type)	34.03	127.89	268.11	0.25	14.73
		Excavator, Grade - All	33.71	149.63	246.95	0.28	15.88
		Crawler, track type, drill dig, Pheumatic D8	103.98	329.66	981.81	0.94	39.62
		Backhoe w/ Bucket; backhoe w/ concrete hammer	50.26	166.38	203.65	0.23	19.19
		Motor, Auxilary Power	1.33	5.61	8.92	0.01	0.53
	Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton	76.41	268.46	746.03	0.75	28.76
		Crane, Hydraulic, Rough Terrain 35 ton	158.13	599.31	1,115.27	1.06	75.48
		Compressor, Air	233.10	631.07	770.31	0.80	76.60
		Motor, Auxilary Power	1.29	5.42	8.62	0.01	0.51
	Wreck-Out (conductors, structures, & Foundations)	Tension Machine	147.33	639.39	1,036.49	1.17	79.08
		Crawler, Track Type, w/ blade (D8 type)	344.22	1,091.27	3,250.12	3.10	131.16
		Backhoe w/ Bucket; backhoe w/ concrete hammer	665.49	2,203.13	2,696.67	3.07	254.06
		Crane, Hydraulic, Rough Terrain 35 ton	180.72	684.92	1,274.60	1.21	86.26
		Motor, Auxilary Power	6.62	27.86	44.32	0.06	2.64
	Construction - 66kV (or other subtransmission lines)	Drill Rig	30.99	112.12	383.83	0.69	12.45
	Segment 5 - Sagebrush/Ant. & Sagebrush Vincent	Backhoe	35.09	116.18	142.21	0.16	13.40
	Wreckout - 66kV (or other subtransmission lines)	Puller, Wire Puller 1 Drum	20.59	88.36	207.75	0.26	8.87
	Segment 5 - Sagebrush/Ant. & Sagebrush Vincent	Backhoe	16.03	53.07	64.96	0.07	6.12
	2010 Total Emission		**2,933.73**	**10,044.88**	**18,228.80**	**18.87**	**1,199.53**

			Annual Emissions lbs				
			ROG	CO	NOX	SOX	PM
2011	Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	42.54	169.50	299.82	0.30	20.47
		Forklift, 5 ton	43.78	146.64	163.24	0.19	15.88
		Forklift, 10 ton	43.31	151.76	182.41	0.21	17.66
	Road Maintenance	Motor Grader	44.41	178.84	297.68	0.31	22.79
		Crawler, Track Type, w/ blade (D6 Type)	54.36	212.12	425.36	0.42	23.53
	Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton	109.80	378.42	1,053.93	1.13	39.92
		Crane, Hydraulic, Rough Terrain 35 ton	226.89	903.99	1,599.01	1.61	109.16
		Compressor, Air	332.91	939.50	1,127.83	1.22	111.44
		Motor, Auxilary Power	1.86	8.07	12.58	0.02	0.74
	Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	21.17	75.71	90.26	0.11	8.28
		Crane, Hydraulic, Rough Terrain 35 ton	72.07	287.15	507.92	0.51	34.67
		Crawler, Track Type, w/ blade (D8 type)	30.72	96.39	285.42	0.29	11.37
		Crawler, Track Type, Sagging (D8 type)	61.43	192.78	570.85	0.58	22.74
		Motor, Auxilary Power	3.16	13.68	21.31	0.03	1.25
		Tension machine, conductor	50.79	238.02	363.42	0.44	27.87
		Tension machine, static	16.93	79.34	121.14	0.15	9.29
	Wreck-Out (Conductors, Structures & Foundations)	Tension Machine	9.88	46.28	70.67	0.09	5.42
	(Antelope-Mesa & Antelope-Vincent)	Crawler, Track Type, w/ blade (D8 type)	23.89	74.97	222.00	0.23	8.84
		Backhoe w/ Bucket; backhoe w/ concrete hammer	43.90	157.03	187.21	0.22	17.18
		Crane, Hydraulic, Rough Terrain 35 ton	12.46	49.63	87.79	0.09	5.99
		Motor, Auxilary Power	0.46	1.99	3.11	0.00	0.18
	Restoration & Guard Poles	Backhoe	8.82	31.55	37.61	0.04	3.45
		Motor Grader	21.90	88.19	146.80	0.15	11.24
	2011 Total Emission		**1,277.45**	**4,521.57**	**7,877.37**	**8.35**	**529.37**

Offroad Equipment Emissions Calculation

Segment 6

			Annual Emissions lbs				
			ROG	CO	NOX	SOX	PM
2009	Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	41.55	149.96	293.15	0.26	19.67
		Forklift, 5 ton	72.40	205.05	235.29	0.25	24.80
		Forklift, 10 ton	71.06	210.08	266.66	0.28	27.60
		Motor, Auxilary Power	1.01	4.11	6.66	0.01	0.41
	2009 Total Emission		**186.02**	**569.20**	**801.77**	**0.80**	**72.48**

			Annual Emissions lbs				
			ROG	CO	NOX	SOX	PM
2010	Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	70.83	268.44	499.55	0.48	33.81
		Forklift, 5 ton	116.12	356.41	403.25	0.46	40.96
		Forklift, 10 ton	114.45	367.22	454.00	0.50	45.59
		Motor, Auxilary Power	1.73	7.28	11.58	0.02	0.69
	Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	67.36	255.29	475.07	0.45	32.15
		Forklift, 5 ton	73.62	225.96	255.66	0.29	25.97
		Forklift, 10 ton	72.56	232.82	287.84	0.32	28.91
	Road Maintenance	Motor Grader	40.55	154.20	270.46	0.27	20.62
		Crawler, Track Type, w/ blade (D6 Type)	48.90	183.75	385.22	0.36	21.16
	Roads & Landing Work	Crawler, Track Type, w/ blade (D8 type)	498.40	1,580.07	4,705.90	4.49	189.91
		Crawler, Track Type, w/ blade (D6 Type)	217.50	817.31	1,713.44	1.59	94.11
		Backhoe w/ Bucket; backhoe w/ concrete hammer	90.34	299.06	366.05	0.42	34.49
		Excavator, Grade - All	323.14	1,434.38	2,367.36	2.65	152.19
		Motor Grader	112.73	428.67	751.88	0.74	57.33
	Install Foundations	Crawler, Track Type, w/ blade (D6 Type)	47.53	178.60	374.43	0.35	20.56
		Excavator, Grade - All	47.08	208.97	344.89	0.39	22.17
		Crawler, track type, drill dig, Pheumatic D8	145.22	460.38	1,371.14	1.31	55.33
		Generator, Concrete Batch Plant	54.28	141.15	149.20	0.19	13.80
		Backhoe w/ Bucket; backhoe w/ concrete hammer	70.19	232.36	284.41	0.32	26.80
		Motor, Auxilary Power	1.86	7.84	12.46	0.02	0.74
	Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton	23.20	81.50	226.47	0.23	8.73
		Crane, Hydraulic, Rough Terrain 35 ton	48.00	181.93	338.57	0.32	22.91
		Compressor, Air	70.76	191.58	233.84	0.24	23.25
		Motor, Auxilary Power	0.39	1.64	2.62	0.00	0.16
	Wreck-Out (conductors, structures, & Foundations)	Tension Machine, Conductor or Static	102.06	442.91	717.99	0.81	54.78
		Crawler, Track Type, w/ blade (D8 type)	238.44	755.93	2,251.38	2.15	90.86
		Backhoe w/ Bucket; backhoe w/ concrete hammer	460.99	1,526.13	1,868.00	2.13	175.99
		Crane, Hydraulic, Rough Terrain 35 ton	125.19	474.45	882.92	0.84	59.76
		Motor, Auxilary Power	4.59	19.30	30.70	0.04	1.83
	2010 Total Emission		**3,288.00**	**11,515.51**	**22,036.28**	**22.35**	**1,355.56**

			Annual Emissions lbs				
			ROG	CO	NOX	SOX	PM
2011	Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	84.25	335.67	593.75	0.60	40.53
		Forklift, 5 ton	86.71	290.40	323.27	0.38	31.44
		Forklift, 10 ton	85.78	300.55	361.25	0.42	34.97
	Road Maintenance	Motor Grader	84.56	340.53	566.82	0.59	43.40
		Crawler, Track Type, w/ blade (D6 Type)	103.51	403.91	809.94	0.80	44.81
	Install Foundations	Crawler, Track Type, w/ blade (D6 Type)	12.85	50.12	100.51	0.10	5.56
		Crawler, track type, drill dig, Pheumatic D8	39.25	123.17	364.71	0.37	14.53
		Generator, Concrete Batch Plant	14.39	39.00	41.68	0.05	3.73
		Backhoe w/ Bucket; backhoe w/ concrete hammer	18.03	64.49	76.89	0.09	7.06
		Motor, Auxilary Power	0.50	2.18	3.40	0.00	0.20
		Excavator, Grade - All	12.50	59.16	91.14	0.11	5.93
	Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton	285.48	983.90	2,740.21	2.95	103.80
		Crane, Hydraulic, Rough Terrain 35 ton	589.91	2,350.37	4,157.44	4.19	283.82
		Compressor, Air	865.58	2,442.71	2,932.36	3.16	289.75
		Motor, Auxilary Power	4.85	20.99	32.70	0.05	1.92
	Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	29.10	104.10	124.11	0.15	11.39
		Crane, Hydraulic, Rough Terrain 35 ton	99.10	394.83	698.39	0.70	47.68
		Crawler, Track Type, w/ blade (D8 type)	42.24	132.54	392.46	0.40	15.63
		Crawler, Track Type, Sagging (D8 type)	84.47	265.07	784.92	0.80	31.26
		Motor, Auxilary Power	4.34	18.81	29.30	0.04	1.72
		Tension machine, conductor	69.84	327.28	499.70	0.60	38.32
		Tension machine, static	23.28	109.09	166.57	0.20	12.77
	Restoration & Guard Poles	Backhoe	13.23	47.32	56.41	0.07	5.18
		Motor Grader	32.85	132.29	220.20	0.23	16.86
	2011 Total Emission		**2,686.59**	**9,338.49**	**16,168.14**	**17.06**	**1,092.24**

Offroad Equipment Emissions Calculation

			Annual Emissions lbs				
			ROG	CO	NOX	SOX	PM
2012	Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	35.43	148.71	249.11	0.27	16.84
		Forklift, 5 ton	34.08	125.93	137.29	0.17	12.60
		Forklift, 10 ton	33.84	130.88	152.03	0.19	13.95
	Road Maintenance	Motor Grader	37.00	158.22	248.85	0.28	18.75
		Crawler, Track Type, w/ blade (D6 Type)	46.05	186.90	357.54	0.37	19.55
	Install Foundations	Crawler, Track Type, w/ blade (D6 Type)	12.75	51.76	99.01	0.10	5.42
		Crawler, track type, drill dig, Pheumatic D8	39.00	121.40	356.26	0.39	13.98
		Generator, Concrete Batch Plant	13.81	39.37	42.71	0.06	3.67
		Backhoe w/ Bucket; backhoe w/ concrete hammer	16.95	65.87	76.23	0.10	6.71
		Motor, Auxilary Power	0.50	2.23	3.40	0.01	0.20
		Excavator, Grade - All	12.18	61.56	88.25	0.11	5.61
	Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton	89.27	302.13	841.20	0.97	31.21
		Crane, Hydraulic, Rough Terrain 35 ton	183.91	771.95	1,293.15	1.38	87.43
		Compressor, Air	264.83	786.98	927.89	1.05	90.15
		Motor, Auxilary Power	1.53	6.80	10.34	0.02	0.60
	Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	6.62	25.73	29.78	0.04	2.62
		Crane, Hydraulic, Rough Terrain 35 ton	23.62	99.14	166.07	0.18	11.23
		Crawler, Track Type, w/ blade (D8 type)	10.16	31.61	92.78	0.10	3.64
		Crawler, Track Type, Sagging (D8 type)	20.31	63.23	185.55	0.20	7.28
		Motor, Auxilary Power	1.04	4.65	7.09	0.01	0.41
		Tension machine, conductor	16.17	82.09	117.43	0.15	8.82
		Tension machine, static	5.39	27.36	39.14	0.05	2.94
	Wreck-Out (conductors, structures, & Foundations)	Tension Machine, Conductor or Static	10.99	55.82	79.85	0.10	6.00
		Crawler, Track Type, w/ blade (D8 type)	27.62	85.99	252.35	0.27	9.90
		Backhoe w/ Bucket; backhoe w/ concrete hammer	48.04	186.64	215.98	0.27	19.01
		Crane, Hydraulic, Rough Terrain 35 ton	14.28	59.92	100.38	0.11	6.79
		Motor, Auxilary Power	0.53	2.37	3.61	0.01	0.21
	Restoration & Guard Poles	Backhoe	2.21	8.58	9.93	0.01	0.87
		Motor Grader	5.69	24.34	38.28	0.04	2.88
	2012 Total Emission		**1,013.80**	**3,718.19**	**6,221.48**	**7.00**	**409.25**

Offroad Equipment Emissions Calculation

Segment 7

			Annual Emissions lbs				
			ROG	CO	NOX	SOX	PM
2010	Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	22.35	84.72	157.67	0.15	10.67
		Forklift, 5 ton	36.65	112.49	127.27	0.14	12.93
		Forklift, 10 ton	36.12	115.90	143.29	0.16	14.39
		Motor, Auxilary Power	0.55	2.30	3.65	0.01	0.22
	Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	46.18	175.02	325.70	0.31	22.04
		Forklift, 5 ton	50.47	154.92	175.28	0.20	17.80
		Forklift, 10 ton	49.75	159.62	197.34	0.22	19.82
	Roads & Landing Work	Crawler, Track Type, w/ blade (D6 Type)	22.88	85.99	180.28	0.17	9.90
		Excavator, Grade - All	17.00	75.46	124.54	0.14	8.01
		Motor Grader	18.98	72.16	126.58	0.12	9.65
	Install Foundations	Crawler, Track Type, w/ blade (D6 Type)	31.10	116.86	245.00	0.23	13.46
		Excavator, Grade - All	30.80	136.73	225.67	0.25	14.51
		Crawler, track type, drill dig, Pheumatic D8	95.02	301.24	897.17	0.86	36.21
		Backhoe w/ Bucket; backhoe w/ concrete hammer	45.93	152.04	186.10	0.21	17.53
		Motor, Auxilary Power	1.22	5.13	8.16	0.01	0.49
	Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton	17.74	62.32	173.19	0.17	6.68
		Crane, Hydraulic, Rough Terrain 35 ton	36.71	139.13	258.90	0.25	17.52
		Compressor, Air	54.11	146.50	178.82	0.19	17.78
		Motor, Auxilary Power	0.30	1.26	2.00	0.00	0.12
	Restoration & Guard Poles	Backhoe	1.08	3.59	4.39	0.00	0.41
		Motor Grader	2.60	9.87	17.31	0.02	1.32
	Wreck-Out (conductors, structures, & Foundations)	Tension Machine, Conductor or Static	72.13	313.03	507.45	0.57	38.71
		Crawler, Track Type, w/ blade (D8 type)	168.52	534.27	1,591.20	1.52	64.22
		Backhoe w/ Bucket; backhoe w/ concrete hammer	325.81	1,078.62	1,320.24	1.50	124.39
		Crane, Hydraulic, Rough Terrain 35 ton	88.48	335.33	624.02	0.59	42.23
		Motor, Auxilary Power	3.24	13.64	21.70	0.03	1.29
	Construction - 66kV (or other subtransmission lines)	Drill Rig	83.41	301.75	1,033.02	1.85	33.50
		Backhoe	94.45	312.68	382.73	0.44	36.06
	Wreckout - 66kV (or other subtransmission lines)	Puller, Wire Puller 1 Drum	26.16	112.24	263.90	0.33	11.26
		Backhoe	20.36	67.41	82.52	0.09	7.77
	66 kV Underground Construction						
	Trenching	Excavator Cat 320	3.41	13.85	22.32	0.02	1.78
		Forklift - 10 ton	0.76	2.44	3.02	0.00	0.30
		Backhoe	1.30	4.30	5.27	0.01	0.50
		Water Pumps - 100 hp	1.69	5.58	9.09	0.01	0.75
		Loader, Front End w/ Bucket	1.59	6.24	11.01	0.01	0.79
	Vault Construction	Excavator Cat 320	0.00	0.00	0.00	0.00	0.00
		Water Pumps - 100 hp	0.00	0.00	0.00	0.00	0.00
		Forklift, 10 ton	0.00	0.00	0.00	0.00	0.00
		Loader, Front End w/ Bucket	0.00	0.00	0.00	0.00	0.00
	End Structures	Drill Rig	1.53	5.54	18.95	0.03	0.61
		Loader, Front End w/ Bucket	1.06	4.16	7.34	0.01	0.53
		Backhoe	0.87	2.87	3.51	0.00	0.33
	2010 Total Emission		**1,512.33**	**5,227.19**	**9,665.58**	**10.82**	**616.49**

			Annual Emissions lbs				
			ROG	CO	NOX	SOX	PM
2011	Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	84.25	335.67	593.75	0.60	40.53
		Forklift, 5 ton	86.71	290.40	323.27	0.38	31.44
		Forklift, 10 ton	85.78	300.55	361.25	0.42	34.97
	Install Foundations	Crawler, Track Type, w/ blade (D6 Type)	43.00	167.81	336.50	0.33	18.62
		Crawler, track type, drill dig, Pheumatic D8	131.40	412.34	1,220.98	1.24	48.63
		Backhoe w/ Bucket; backhoe w/ concrete hammer	60.36	215.91	257.42	0.31	23.62
		Motor, Auxilary Power	1.69	7.31	11.39	0.02	0.67
		Excavator, Grade - All	41.85	198.04	305.10	0.37	19.85
	Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton	342.32	1,179.80	3,285.78	3.53	124.46
		Crane, Hydraulic, Rough Terrain 35 ton	707.36	2,818.31	4,985.16	5.02	340.33
		Compressor, Air	1,037.91	2,929.04	3,516.17	3.79	347.44
		Motor, Auxilary Power	5.81	25.17	39.21	0.06	2.30
	Construction - 66kV (or other subtransmission lines)	Drill Rig	78.53	303.15	891.31	1.86	28.41
	Segment 7 - Rio Hondo/SG River & S	Backhoe	86.23	308.45	367.74	0.44	33.75
	2011 Total Emission		**2,793.21**	**9,491.96**	**16,495.05**	**18.37**	**1,095.01**

Offroad Equipment Emissions Calculation

			Annual Emissions lbs				
			ROG	CO	NOX	SOX	PM
2012	Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	49.60	208.19	348.75	0.37	23.58
		Forklift, 5 ton	47.71	176.30	192.20	0.24	17.64
		Forklift, 10 ton	47.38	183.23	212.84	0.26	19.53
	Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton	135.73	459.40	1,279.09	1.48	47.46
		Crane, Hydraulic, Rough Terrain 35 ton	279.65	1,173.79	1,966.29	2.10	132.94
		Compressor, Air	402.69	1,196.65	1,410.90	1.59	137.08
		Motor, Auxilary Power	2.32	10.33	15.73	0.02	0.91
	Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	41.32	160.57	185.81	0.23	16.35
		Crane, Hydraulic, Rough Terrain 35 ton	147.38	618.62	1,036.29	1.11	70.06
		Crawler, Track Type, w/ blade (D8 type)	63.37	197.27	578.93	0.63	22.71
		Crawler, Track Type, Sagging (D8 type)	126.75	394.55	1,157.86	1.26	45.42
		Motor, Auxilary Power	6.52	29.04	44.21	0.07	2.55
		Tension machine, conductor	100.89	512.26	732.75	0.95	55.03
		Tension machine, static	33.63	170.75	244.25	0.32	18.34
	Restoration & Guard Poles	Backhoe	7.06	27.45	31.76	0.04	2.79
		Motor Grader	18.21	77.89	122.51	0.14	9.23
	2012 Total Emission		**1,510.22**	**5,596.30**	**9,560.17**	**10.81**	**621.63**

Offroad Equipment Emissions Calculation

Segment 8

			Annual Emissions lbs				
			ROG	CO	NOX	SOX	PM
2009	Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	23.39	84.41	165.01	0.15	11.07
		Forklift, 5 ton	40.75	115.42	132.44	0.14	13.96
		Forklift, 10 ton	40.00	118.25	150.10	0.16	15.54
		Motor, Auxilary Power	0.57	2.31	3.75	0.00	0.23
	Roads & Landing Work	Crawler, Track Type, w/ blade (D8 type)	16.90	54.41	160.76	0.15	6.50
		Crawler, Track Type, w/ blade (D6 Type)	14.80	53.61	117.12	0.10	6.39
		Motor Grader	6.92	24.87	45.93	0.04	3.48
		Backhoe w/ Bucket; backhoe w/ concrete hammer	2.86	8.82	11.08	0.01	1.07
	2009 Total Emission		**146.19**	**462.09**	**786.19**	**0.76**	**58.24**

			Annual Emissions lbs				
			ROG	CO	NOX	SOX	PM
2010	Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	22.12	83.83	156.01	0.15	10.56
		Forklift, 5 ton	36.26	111.30	125.93	0.14	12.79
		Forklift, 10 ton	35.74	114.68	141.78	0.16	14.24
		Motor, Auxilary Power	0.54	2.27	3.62	0.00	0.22
	Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	67.36	255.29	475.07	0.45	32.15
		Forklift, 5 ton	73.62	225.96	255.66	0.29	25.97
		Forklift, 10 ton	72.56	232.82	287.84	0.32	28.91
	Road Maintenance	Motor Grader	71.05	270.15	473.85	0.47	36.13
		Crawler, Track Type, w/ blade (D6 Type)	85.67	321.93	674.90	0.63	37.07
	Roads & Landing Work	Crawler, Track Type, w/ blade (D6 Type)	89.78	337.36	707.26	0.66	38.84
		Motor Grader	74.45	283.11	496.56	0.49	37.86
		Excavator, Grade - All	66.69	296.03	488.59	0.55	31.41
	Install Foundations	Crawler, Track Type, w/ blade (D6 Type)	183.08	687.95	1,442.25	1.34	79.21
		Excavator, Grade - All	181.33	804.90	1,328.45	1.49	85.40
		Crawler, track type, drill dig, Pheumatic D8	559.36	1,773.32	5,281.44	5.04	213.14
		Backhoe w/ Bucket; backhoe w/ concrete hammer	270.36	895.02	1,095.52	1.25	103.21
		Motor, Auxilary Power	7.17	30.19	48.01	0.07	2.86
	Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton	223.78	786.21	2,184.80	2.19	84.22
		Crane, Hydraulic, Rough Terrain 35 ton	463.10	1,755.12	3,266.16	3.11	221.05
		Compressor, Air	682.64	1,848.14	2,255.91	2.35	224.34
		Motor, Auxilary Power	3.77	15.87	25.24	0.03	1.50
	Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	21.45	71.00	86.90	0.10	8.19
		Crane, Hydraulic, Rough Terrain 35 ton	69.89	264.87	492.91	0.47	33.36
		Crawler, Track Type, w/ blade (D8 type)	29.58	93.78	279.31	0.27	11.27
		Crawler, Track Type, Sagging (D8 type)	59.16	187.56	558.61	0.53	22.54
		Motor, Auxilary Power	3.03	12.77	20.31	0.03	1.21
		Tension machine, conductor	50.65	219.79	356.29	0.40	27.18
		Tension machine, static	16.88	73.26	118.76	0.13	9.06
	Restoration & Guard Poles	Backhoe	5.42	17.93	21.95	0.02	2.07
		Motor Grader	12.98	49.34	86.55	0.09	6.60
	Wreck-Out (conductors, structures, & Foundations)	Tension Machine, Conductor or Static	139.66	606.09	982.51	1.11	74.96
		Crawler, Track Type, w/ blade (D8 type)	326.29	1,034.44	3,080.84	2.94	124.33
		Backhoe w/ Bucket; backhoe w/ concrete hammer	630.83	2,088.39	2,556.21	2.91	240.83
		Crane, Hydraulic, Rough Terrain 35 ton	171.31	649.25	1,208.21	1.15	81.77
		Motor, Auxilary Power	6.28	26.41	42.01	0.06	2.50
	Construction - 66kV (or other subtransmission lines)	Drill Rig	34.43	124.57	426.47	0.76	13.83
		Backhoe	38.99	129.09	158.01	0.18	14.89
	Wreckout - 66kV (or other subtransmission lines)	Puller, Wire Puller 1 Drum	26.71	114.62	269.51	0.33	11.50
		Backhoe	20.80	68.85	84.27	0.10	7.94
	66 kV Underground Construction						
	Trenching	Excavator Cat 320	30.68	124.65	200.85	0.21	16.03
		Forklift - 10 ton	6.84	21.96	27.15	0.03	2.73
		Backhoe	11.70	38.73	47.40	0.05	4.47
		Water Pumps - 100 hp	15.25	50.20	81.83	0.08	6.77
		Loader, Front End w/ Bucket	14.35	56.20	99.09	0.10	7.15
	Vault Construction	Excavator Cat 320	5.11	20.77	33.48	0.04	2.67
		Water Pumps - 100 hp	5.08	16.73	27.28	0.03	2.26
		Forklift, 10 ton	0.76	2.44	3.02	0.00	0.30
		Loader, Front End w/ Bucket	0.80	3.12	5.51	0.01	0.40
	End Structures	Drill Rig	3.83	13.84	47.39	0.08	1.54
		Loader, Front End w/ Bucket	2.66	10.41	18.35	0.02	1.32
		Backhoe	2.17	7.17	8.78	0.01	0.83
	2010 Total Emission		**5,034.00**	**17,329.69**	**32,644.59**	**33.39**	**2,061.59**

Offroad Equipment Emissions Calculation

			Annual Emissions lbs				
			ROG	CO	NOX	SOX	PM
2011	Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	84.25	335.67	593.75	0.60	40.53
		Forklift, 5 ton	86.71	290.40	323.27	0.38	31.44
		Forklift, 10 ton	85.78	300.55	361.25	0.42	34.97
	Road Maintenance	Motor Grader	92.16	371.15	617.79	0.65	47.30
		Crawler, Track Type, w/ blade (D6 Type)	112.81	440.23	882.77	0.87	48.83
	Install Foundations	Crawler, Track Type, w/ blade (D6 Type)	38.54	150.37	301.54	0.30	16.68
		Crawler, track type, drill dig, Pheumatic D8	117.75	369.50	1,094.12	1.11	43.58
		Backhoe w/ Bucket; backhoe w/ concrete hammer	54.09	193.48	230.67	0.28	21.17
		Motor, Auxilary Power	1.51	6.55	10.21	0.01	0.60
		Excavator, Grade - All	37.50	177.47	273.41	0.33	17.79
	Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton	456.00	1,571.58	4,376.90	4.71	165.79
		Crane, Hydraulic, Rough Terrain 35 ton	942.25	3,754.21	6,640.61	6.69	453.34
		Compressor, Air	1,382.58	3,901.70	4,683.81	5.05	462.81
		Motor, Auxilary Power	7.74	33.53	52.24	0.07	3.06
	Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	71.14	254.47	303.39	0.36	27.84
		Crane, Hydraulic, Rough Terrain 35 ton	242.24	965.14	1,707.18	1.72	116.55
		Crawler, Track Type, w/ blade (D8 type)	103.24	323.98	959.34	0.98	38.21
		Crawler, Track Type, Sagging (D8 type)	206.48	647.96	1,918.68	1.95	76.42
		Motor, Auxilary Power	10.62	45.97	71.62	0.10	4.20
		Tension machine, conductor	170.73	800.02	1,221.50	1.48	93.67
		Tension machine, static	56.91	266.67	407.17	0.49	31.22
	Restoration & Guard Poles	Backhoe	2.94	10.52	12.54	0.01	1.15
		Motor Grader	7.30	29.40	48.93	0.05	3.75
	2011 Total Emission		**4,371.26**	**15,240.52**	**27,092.70**	**28.61**	**1,780.91**

			Annual Emissions lbs				
			ROG	CO	NOX	SOX	PM
2012	Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	25.98	109.05	182.68	0.20	12.35
		Forklift, 5 ton	24.99	92.35	100.68	0.13	9.24
		Forklift, 10 ton	24.82	95.98	111.49	0.14	10.23
	Road Maintenance	Motor Grader	26.75	114.40	179.93	0.20	13.56
		Crawler, Track Type, w/ blade (D6 Type)	33.30	135.15	258.53	0.27	14.14
	Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	24.11	93.66	108.39	0.14	9.54
		Crane, Hydraulic, Rough Terrain 35 ton	85.97	360.86	604.50	0.65	40.87
		Crawler, Track Type, w/ blade (D8 type)	36.97	115.08	337.71	0.37	13.25
		Crawler, Track Type, Sagging (D8 type)	73.94	230.15	675.42	0.73	26.50
		Motor, Auxilary Power	3.80	16.94	25.79	0.04	1.49
		Tension machine, conductor	58.85	298.82	427.44	0.56	32.10
		Tension machine, static	19.62	99.61	142.48	0.19	10.70
	Restoration & Guard Poles	Backhoe	11.92	46.32	53.60	0.07	4.72
		Motor Grader	30.74	131.44	206.73	0.23	15.57
	2012 Total Emission		**481.75**	**1,939.81**	**3,415.36**	**3.89**	**214.25**

Offroad Equipment Emissions Calculation

Segment 9

			Annual Emissions lbs				
			ROG	CO	NOX	SOX	PM
2009	Grading Element						
	Segment 9 - Antelope Substation	980 Loader	157.02	484.94	1,612.15	1.65	59.70
		Compactor	48.92	135.82	182.48	0.18	17.16
		Grader	113.18	331.55	1,155.22	1.17	42.95
	2009 Total Emission		**319.12**	**952.31**	**2,949.85**	**3.00**	**119.81**

			Annual Emissions lbs				
			ROG	CO	NOX	SOX	PM
2010	Grading Element						
	Segment 9 - Whirlwind Substation	980 Loader	285.96	876.72	2,910.05	3.16	107.82
		Grader	206.21	601.71	2,086.29	2.25	77.55
		Compactor	105.67	306.77	403.62	0.42	37.65
	Segment 9 - Antelope Substation	980 Loader	136.94	419.84	1,393.54	1.51	51.63
		Grader	98.75	288.14	999.07	1.08	37.14
		Compactor	42.17	122.42	161.07	0.17	15.03
	Civil Element						
	Segment 9 - Whirlwind Substation	14 ton Crane	51.92	204.81	406.88	0.40	22.85
		Driller	183.79	671.71	2,224.25	3.98	74.43
		Ditch Digger	220.85	582.22	715.31	0.70	69.02
		Forklift	27.52	84.46	95.57	0.11	9.71
		Tractors	139.08	460.42	563.56	0.64	53.10
	Segment 9 - Antelope Substation	14 ton Crane	77.63	306.25	608.42	0.59	34.17
		Driller	274.83	1,004.42	3,325.98	5.95	111.30
		Ditch Digger	165.12	435.31	534.81	0.52	51.60
		Forklift	41.15	126.30	142.90	0.16	14.52
		Tractors	207.97	688.48	842.71	0.96	79.39
	Electrical Element						
	Segment 9 - Whirlwind Substation	14 ton Crane	157.21	620.17	1,232.05	1.20	69.19
		Crane, Hydraulic, 150 Ton (150 ton crane)	191.07	612.76	1,880.80	1.90	72.04
		Forklift	41.66	127.88	144.69	0.16	14.70
		Manlifts	166.66	511.52	578.76	0.66	58.79
	Segment 9 - Antelope Substation	14 ton Crane	228.53	901.54	1,791.04	1.75	100.58
		Crane, Hydraulic, 150 Ton (150 ton crane)	277.75	890.77	2,734.13	2.76	104.73
		Forklift	60.57	185.90	210.33	0.24	21.37
		Manlifts	242.27	743.60	841.34	0.95	85.46
	Transformer Assembly and Processing Element						
	Segment 9 - Antelope Substation	50 ton Crane	83.55	301.48	706.25	0.70	35.27
		Forklift	21.99	67.49	76.36	0.09	7.76
		Manlifts	21.99	67.49	76.36	0.09	7.76
	Segment 9 - Vincent Substation	50 ton Crane	98.21	354.37	830.16	0.82	41.45
		Forklift	25.85	79.33	89.76	0.10	9.12
		Manlifts	25.85	79.33	89.76	0.10	9.12
	Segment 9 - Mira Loma Substation	50 ton Crane	36.65	132.23	309.76	0.31	15.47
		Forklift	9.64	29.60	33.49	0.04	3.40
		Manlifts	9.64	29.60	33.49	0.04	3.40
	Segment 9 - Chino Substation	50 ton Crane	77.69	280.33	656.69	0.65	32.79
		Forklift	20.45	62.76	71.00	0.08	7.21
		Manlifts	20.45	62.76	71.00	0.08	7.21
	2010 Total Emission		**4,083.23**	**13,320.89**	**29,871.27**	**35.30**	**1,553.70**

			Annual Emissions lbs				
			ROG	CO	NOX	SOX	PM
2011	Electrical Element						
	Segment 9 - Whirlwind Substation	14 ton Crane	125.60	518.92	978.39	1.01	55.55
		Crane, Hydraulic, 150 Ton (150 ton crane)	152.09	482.73	1,475.35	1.60	55.43
		Forklift	31.25	104.66	116.51	0.14	11.33
		Manlifts	125.00	418.64	466.03	0.55	45.33
	Transformer Assembly and Processing Element						
	Segment 9 - Whirlwind Substation	50 ton Crane	223.36	836.62	1,872.45	1.98	93.84
		Forklift	55.29	185.17	206.13	0.24	20.05
		Manlifts	110.58	370.34	412.25	0.49	40.10
	Segment 9 - Antelope Substation	50 ton Crane	248.33	930.15	2,081.80	2.20	104.33
		Forklift	61.47	205.87	229.17	0.27	22.29
		Manlifts	61.47	205.87	229.17	0.27	22.29
	Segment 9 - Vincent Substation	50 ton Crane	30.52	114.32	255.86	0.27	12.82
		Forklift	7.56	25.30	28.17	0.03	2.74
		Manlifts	7.56	25.30	28.17	0.03	2.74
	Segment 9 - Gould Substation	50 ton Crane	81.85	306.59	686.18	0.72	34.39
		Forklift	20.26	67.86	75.54	0.09	7.35
		Manlifts	20.26	67.86	75.54	0.09	7.35
	2011 Total Emission		**1,362.45**	**4,866.19**	**9,216.70**	**9.99**	**537.94**

Offroad Equipment Emissions Calculation

			Annual Emissions lbs				
			ROG	CO	NOX	SOX	PM
2012	Electrical Element						
	Segment 9 - Antelope Substation	14 ton Crane	61.45	266.34	475.04	0.52	26.70
		Crane, Hydraulic, 150 Ton (150 ton crane)	74.21	233.39	708.28	0.83	26.02
		Forklift	14.24	52.61	57.36	0.07	5.26
		Manlifts	56.95	210.44	229.42	0.29	21.05
	Segment 9 - Vincent Substation	14 ton Crane	77.13	334.34	596.33	0.66	33.52
		Crane, Hydraulic, 150 Ton (150 ton crane)	93.16	292.98	889.12	1.04	32.67
		Forklift	17.87	66.04	72.00	0.09	6.61
		Manlifts	71.48	264.17	288.00	0.36	26.43
	Transformer Assembly and Processing Element						
	Segment 9 - Vincent Substation	50 ton Crane	52.48	204.46	435.69	0.49	21.56
		Forklift	12.12	44.78	48.81	0.06	4.48
		Manlifts	12.12	44.78	48.81	0.06	4.48
	Segment 9 - Mira Loma Substation	50 ton Crane	38.05	148.23	315.87	0.36	15.63
		Forklift	8.78	32.46	35.39	0.04	3.25
		Manlifts	8.78	32.46	35.39	0.04	3.25
	2012 Total Emission		**598.81**	**2,227.47**	**4,235.50**	**4.90**	**230.89**

			Annual Emissions lbs				
			ROG	CO	NOX	SOX	PM
2013	Transformer Assembly & Processing Element						
	Segment 9 - Vincent Substation	50 ton Crane	163.84	664.75	1,345.60	1.62	65.54
		Forklift	35.05	144.21	151.73	0.20	12.99
		Manlifts	35.05	144.21	151.73	0.20	12.99
	2013 Total Emission		**233.95**	**953.16**	**1,649.06**	**2.02**	**91.51**

Offroad Equipment Emissions Calculation

Segment 10

			Annual Emissions lbs				
			ROG	CO	NOX	SOX	PM
2010	Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	67.36	255.29	475.07	0.45	32.15
		Forklift, 5 ton	73.62	225.96	255.66	0.29	25.97
		Forklift, 10 ton	72.56	232.82	287.84	0.32	28.91
	Road Maintenance	Motor Grader	71.05	270.15	473.85	0.47	36.13
		Crawler, Track Type, w/ blade (D6 Type)	85.67	321.93	674.90	0.63	37.07
	Roads & Landing Work	Crawler, Track Type, w/ blade (D8 type)	78.66	249.37	742.70	0.71	29.97
		Crawler, Track Type, w/ blade (D6 Type)	68.65	257.98	540.84	0.50	29.70
		Motor Grader	31.63	120.27	210.96	0.21	16.08
		Backhoe w/ Bucket; backhoe w/ concrete hammer	12.67	41.95	51.35	0.06	4.84
	Install Foundations	Crawler, Track Type, w/ blade (D6 Type)	31.10	116.86	245.00	0.23	13.46
		Excavator, Grade - All	30.80	136.73	225.67	0.25	14.51
		Crawler, track type, drill dig, Pheumatic D8	95.02	301.24	897.17	0.86	36.21
		Backhoe w/ Bucket; backhoe w/ concrete hammer	45.93	152.04	186.10	0.21	17.53
		Motor, Auxilary Power	1.22	5.13	8.16	0.01	0.49
	Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton	184.21	647.19	1,798.46	1.80	69.33
		Crane, Hydraulic, Rough Terrain 35 ton	381.21	1,444.76	2,688.61	2.56	181.96
		Compressor, Air	561.93	1,521.34	1,857.00	1.93	184.67
		Motor, Auxilary Power	3.10	13.06	20.77	0.03	1.24
	Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	16.25	53.79	65.84	0.07	6.20
		Crane, Hydraulic, Rough Terrain 35 ton	52.95	200.66	373.42	0.36	25.27
		Crawler, Track Type, w/ blade (D8 type)	22.41	71.05	211.60	0.20	8.54
		Crawler, Track Type, Sagging (D8 type)	44.82	142.09	423.19	0.40	17.08
		Motor, Auxilary Power	2.30	9.67	15.39	0.02	0.92
		Tension machine, conductor	38.37	166.51	269.92	0.31	20.59
		Tension machine, static	12.79	55.50	89.97	0.10	6.86
	Restoration & Guard Poles	Backhoe	2.71	8.96	10.97	0.01	1.03
		Motor Grader	6.49	24.67	43.27	0.04	3.30
	2010 Total Emission		**2,095.47**	**7,046.98**	**13,143.66**	**13.03**	**850.01**

			Annual Emissions lbs				
			ROG	CO	NOX	SOX	PM
2011	Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	4.45	17.73	31.35	0.03	2.14
		Forklift, 5 ton	4.58	15.33	17.07	0.02	1.66
		Forklift, 10 ton	4.53	15.87	19.08	0.02	1.85
	Road Maintenance	Motor Grader	3.35	13.47	22.43	0.02	1.72
		Crawler, Track Type, w/ blade (D6 Type)	4.10	15.98	32.05	0.03	1.77
	Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	2.65	9.46	11.28	0.01	1.04
		Crane, Hydraulic, Rough Terrain 35 ton	9.01	35.89	63.49	0.06	4.33
		Crawler, Track Type, w/ blade (D8 type)	3.84	12.05	35.68	0.04	1.42
		Crawler, Track Type, Sagging (D8 type)	7.68	24.10	71.36	0.07	2.84
		Motor, Auxilary Power	0.39	1.71	2.66	0.00	0.16
		Tension machine, conductor	6.35	29.75	45.43	0.05	3.48
		Tension machine, static	2.12	9.92	15.14	0.02	1.16
	Restoration & Guard Poles	Backhoe	5.88	21.03	25.07	0.03	2.30
		Motor Grader	14.60	58.80	97.87	0.10	7.49
	2011 Total Emission		**73.51**	**281.10**	**489.96**	**0.52**	**33.37**

Offroad Equipment Emissions Calculation

Segment 11

			Annual Emissions lbs				
			ROG	CO	NOX	SOX	PM
2009	Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	39.31	141.88	277.36	0.25	18.61
		Forklift, 5 ton	68.50	194.00	222.61	0.24	23.47
		Forklift, 10 ton	67.23	198.76	252.29	0.26	26.11
		Motor, Auxilary Power	0.95	3.89	6.30	0.01	0.38
	2009 Total Emission		**176.00**	**538.53**	**758.56**	**0.76**	**68.58**

			Annual Emissions lbs				
			ROG	CO	NOX	SOX	PM
2010	Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	7.29	27.65	51.45	0.05	3.48
		Forklift, 5 ton	11.96	36.71	41.53	0.05	4.22
		Forklift, 10 ton	11.79	37.82	46.76	0.05	4.70
		Motor, Auxilary Power	0.18	0.75	1.19	0.00	0.07
	2010 Total Emission		**31.22**	**102.92**	**140.93**	**0.15**	**12.47**

			Annual Emissions lbs				
			ROG	CO	NOX	SOX	PM
2011	Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	30.59	121.86	215.55	0.22	14.72
		Forklift, 5 ton	31.48	105.43	117.36	0.14	11.42
		Forklift, 10 ton	31.14	109.11	131.15	0.15	12.69
	Road Maintenance	Motor Grader	2.13	8.57	14.27	0.01	1.09
		Crawler, Track Type, w/ blade (D6 Type)	2.61	10.17	20.39	0.02	1.13
	Roads & Landing Work (Road Work)	Crawler, Track Type, w/ blade (D8 type)	163.82	514.08	1,522.26	1.55	60.63
	(Upgrade Existing Road, Construct New Roads and Landing Work)	Crawler, Track Type, w/ blade (D6 Type)	71.49	278.96	559.38	0.55	30.94
		Backhoe w/ Bucket; backhoe w/ concrete hammer	28.22	100.95	120.35	0.14	11.04
		Excavator, Grade - All	104.36	493.82	760.78	0.91	49.49
		Motor Grader	36.50	146.99	244.67	0.26	18.73
	Install Foundations	Crawler, Track Type, w/ blade (D6 Type)	7.26	28.33	56.81	0.06	3.14
		Crawler, track type, drill dig, Pheumatic D8	22.18	69.62	206.14	0.21	8.21
		Generator, Concrete Batch Plant	8.14	22.04	23.56	0.03	2.11
		Backhoe w/ Bucket; backhoe w/ concrete hammer	10.19	36.45	43.46	0.05	3.99
		Motor, Auxilary Power	0.29	1.23	1.92	0.00	0.11
		Excavator, Grade - All	7.07	33.44	51.51	0.06	3.35
	Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton	16.79	57.88	161.19	0.17	6.11
		Crane, Hydraulic, Rough Terrain 35 ton	34.70	138.26	244.56	0.25	16.70
		Compressor, Air	50.92	143.69	172.49	0.19	17.04
		Motor, Auxilary Power	0.29	1.23	1.92	0.00	0.11
	Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	3.82	13.67	16.30	0.02	1.50
		Crane, Hydraulic, Rough Terrain 35 ton	13.01	51.85	91.71	0.09	6.26
		Crawler, Track Type, w/ blade (D8 type)	5.55	17.40	51.53	0.05	2.05
		Crawler, Track Type, Sagging (D8 type)	11.09	34.81	103.07	0.10	4.11
		Motor, Auxilary Power	0.57	2.47	3.85	0.01	0.23
		Tension machine, conductor	9.17	42.98	65.62	0.08	5.03
		Tension machine, static	3.06	14.33	21.87	0.03	1.68
	Wreck-Out (Conductors, Structures & Foundations)	Tension Machine	4.94	23.14	35.33	0.04	2.71
		Crawler, Track Type, w/ blade (D8 type)	11.95	37.49	111.00	0.11	4.42
		Backhoe w/ Bucket; backhoe w/ concrete hammer	21.95	78.51	93.61	0.11	8.59
		Crane, Hydraulic, Rough Terrain 35 ton	6.23	24.82	43.89	0.04	3.00
		Motor, Auxilary Power	0.23	1.00	1.55	0.00	0.09
	Restoration & Guard Poles	Backhoe	0.98	3.51	4.18	0.00	0.38
		Motor Grader	2.43	9.80	16.31	0.02	1.25
	2011 Total Emission		**755.12**	**2,777.87**	**5,329.56**	**5.70**	**314.05**

Offroad Equipment Emissions Calculation

			Annual Emissions lbs				
			ROG	CO	NOX	SOX	PM
2012	Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	15.75	66.09	110.71	0.12	7.49
		Forklift, 5 ton	22.72	83.95	91.52	0.11	8.40
		Forklift, 10 ton	22.56	87.25	101.35	0.13	9.30
		Motor, Auxilary Power	0.39	1.75	2.66	0.00	0.15
	Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	79.52	333.76	559.11	0.60	37.80
		Forklift, 5 ton	76.48	282.64	308.13	0.38	28.28
		Forklift, 10 ton	75.95	293.75	341.22	0.42	31.32
	Road Maintenance	Motor Grader	86.23	368.76	580.00	0.65	43.70
		Crawler, Track Type, w/ blade (D6 Type)	107.32	435.63	833.34	0.87	45.58
	Construct New Roads & Landing Work (500kV 2nd Circuit Vincent-Gould)	Crawler, Track Type, w/ blade (D8 type)	162.50	505.83	1,484.43	1.61	58.23
		Crawler, Track Type, w/ blade (D6 Type)	70.84	287.54	550.06	0.57	30.08
		Backhoe w/ Bucket; backhoe w/ concrete hammer	26.49	102.93	119.11	0.15	10.48
		Excavator, Grade - All	101.54	513.01	735.38	0.95	46.79
		Motor Grader	35.57	152.13	239.28	0.27	18.03
	Install Foundations	Crawler, Track Type, w/ blade (D6 Type)	26.03	105.67	202.15	0.21	11.06
		Crawler, track type, drill dig, Pheumatic D8	79.62	247.86	727.37	0.79	28.53
		Generator, Concrete Batch Plant	28.19	80.39	87.20	0.12	7.49
		Backhoe w/ Bucket; backhoe w/ concrete hammer	34.61	134.49	155.64	0.20	13.69
		Motor, Auxilary Power	1.02	4.56	6.94	0.01	0.40
		Excavator, Grade - All	24.88	125.69	180.17	0.23	11.46
	Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton	166.30	562.87	1,567.17	1.81	58.15
		Crane, Hydraulic, Rough Terrain 35 ton	342.64	1,438.16	2,409.15	2.58	162.88
		Compressor, Air	493.38	1,466.16	1,728.67	1.95	167.96
		Motor, Auxilary Power	2.84	12.66	19.27	0.03	1.11
	Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	27.28	106.02	122.68	0.15	10.80
		Crane, Hydraulic, Rough Terrain 35 ton	97.31	408.45	684.22	0.73	46.26
		Crawler, Track Type, w/ blade (D8 type)	41.84	130.25	382.24	0.42	15.00
		Crawler, Track Type, Sagging (D8 type)	83.69	260.50	764.48	0.83	29.99
		Motor, Auxilary Power	4.30	19.18	29.19	0.04	1.68
		Tension machine, conductor	66.61	338.23	483.80	0.63	36.33
		Tension machine, static	22.20	112.74	161.27	0.21	12.11
	Wreck-Out (conductors, structures, & Foundations)	Tension Machine, Conductor or Static	33.63	170.75	244.25	0.32	18.34
		Crawler, Track Type, w/ blade (D8 type)	84.50	263.03	771.91	0.84	30.28
		Backhoe w/ Bucket; backhoe w/ concrete hammer	146.93	570.91	660.66	0.83	58.13
		Crane, Hydraulic, Rough Terrain 35 ton	43.67	183.29	307.05	0.33	20.76
		Motor, Auxilary Power	1.63	7.26	11.05	0.02	0.64
	Restoration & Guard Poles	Backhoe	3.97	15.44	17.87	0.02	1.57
		Motor Grader	10.25	43.81	68.91	0.08	5.19
	2012 Total Emission		**2,751.22**	**10,323.41**	**17,849.62**	**20.20**	**1,125.45**

			Annual Emissions lbs				
			ROG	CO	NOX	SOX	PM
2013	Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	3.71	16.44	26.05	0.03	1.73
		Forklift, 5 ton	3.32	13.66	14.37	0.02	1.23
		Forklift, 10 ton	3.31	14.25	15.82	0.02	1.36
	Road Maintenance	Motor Grader	2.66	12.10	17.98	0.02	1.32
		Crawler, Track Type, w/ blade (D6 Type)	3.37	14.24	25.97	0.03	1.40
	Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	1.91	8.07	8.95	0.01	0.75
		Crane, Hydraulic, Rough Terrain 35 ton	7.13	31.56	50.02	0.06	3.33
		Crawler, Track Type, w/ blade (D8 type)	3.10	9.59	27.78	0.03	1.07
		Crawler, Track Type, Sagging (D8 type)	6.19	19.17	55.56	0.06	2.14
		Motor, Auxilary Power	0.32	1.46	2.17	0.00	0.12
		Tension machine, conductor	4.74	26.11	35.01	0.05	2.53
		Tension machine, static	1.58	8.70	11.67	0.02	0.84
	Restoration & Guard Poles	Backhoe	3.97	16.82	18.65	0.02	1.55
		Motor Grader	10.65	48.40	71.91	0.09	5.28
	2013 Total Emission		**55.96**	**240.56**	**381.89**	**0.46**	**24.65**

Summary - Offroad Equipment Emissions Calculation by Segment

	Total Annual Emissions (lbs)					
Segment	Year	ROG	CO	NOx	SOx	PM
4	2009	246.32	760.26	1,184.22	1.31	95.78
	2010	3,765.91	12,699.25	24,558.90	24.61	1,522.82
	2011	218.29	858.04	1,567.12	1.83	95.14
5	2009	268.43	836.66	1,413.55	1.66	104.56
	2010	2,933.73	10,044.88	18,228.80	18.87	1,199.53
	2011	1,277.45	4,521.57	7,877.37	8.35	529.37
6	2009	186.02	569.20	801.77	0.80	72.48
	2010	3,288.00	11,515.51	22,036.28	22.35	1,355.56
	2011	2,686.59	9,338.49	16,168.14	17.06	1,092.24
	2012	1,013.80	3,718.19	6,221.48	7.00	409.25
7	2010	1,512.33	5,227.19	9,665.58	10.82	616.49
	2011	2,793.21	9,491.96	16,495.05	18.37	1,095.01
	2012	1,510.22	5,596.30	9,560.17	10.81	621.63
8	2009	146.19	462.09	786.19	0.76	58.24
	2010	5,034.00	17,329.69	32,644.59	33.39	2,061.59
	2011	4,371.26	15,240.52	27,092.70	28.61	1,780.91
	2012	481.75	1,939.81	3,415.36	3.89	214.25
9	2009	319.12	952.31	2,949.85	3.00	119.81
	2010	4,083.23	13,320.89	29,871.27	35.30	1,553.70
	2011	1,362.45	4,866.19	9,216.70	9.99	537.94
	2012	598.81	2,227.47	4,235.50	4.90	230.89
	2013	233.95	953.16	1,649.06	2.02	91.51
10	2010	2,095.47	7,046.98	13,143.66	13.03	850.01
	2011	73.51	281.10	489.96	0.52	33.37
11	2009	176.00	538.53	758.56	0.76	68.58
	2010	31.22	102.92	140.93	0.15	12.47
	2011	755.12	2,777.87	5,329.56	5.70	314.05
	2012	2,751.22	10,323.41	17,849.62	20.20	1,125.45
	2013	55.96	240.56	381.89	0.46	24.65

Summary - Offroad Equipment Emissions Calculation by Segment

	Total Annual Emissions (ton)					
Segment	Year	ROG	CO	NOx	SOx	PM
4	2009	0.12	0.38	0.59	0.00	0.05
	2010	1.88	6.35	12.28	0.01	0.76
	2011	0.11	0.43	0.78	0.00	0.05
5	2009	0.13	0.42	0.71	0.00	0.05
	2010	1.47	5.02	9.11	0.01	0.60
	2011	0.64	2.26	3.94	0.00	0.26
6	2009	0.09	0.28	0.40	0.00	0.04
	2010	1.64	5.76	11.02	0.01	0.68
	2011	1.34	4.67	8.08	0.01	0.55
	2012	0.51	1.86	3.11	0.00	0.20
7	2010	0.76	2.61	4.83	0.01	0.31
	2011	1.40	4.75	8.25	0.01	0.55
	2012	0.76	2.80	4.78	0.01	0.31
8	2009	0.07	0.23	0.39	0.00	0.03
	2010	2.52	8.66	16.32	0.02	1.03
	2011	2.19	7.62	13.55	0.01	0.89
	2012	0.24	0.97	1.71	0.00	0.11
9	2009	0.16	0.48	1.47	0.00	0.06
	2010	2.04	6.66	14.94	0.02	0.78
	2011	0.68	2.43	4.61	0.00	0.27
	2012	0.30	1.11	2.12	0.00	0.12
	2013	0.12	0.48	0.82	0.00	0.05
10	2010	1.05	3.52	6.57	0.01	0.43
	2011	0.04	0.14	0.24	0.00	0.02
11	2009	0.09	0.27	0.38	0.00	0.03
	2010	0.02	0.05	0.07	0.00	0.01
	2011	0.38	1.39	2.66	0.00	0.16
	2012	1.38	5.16	8.92	0.01	0.56
	2013	0.03	0.12	0.19	0.00	0.01

Summary - Offroad Equipment Emissions Calculation by Substation

Substation	Total Annual Emissions (lbs)					
	Year	ROG	CO	NOx	SOx	PM
Antelope	2009	319.12	952.31	2,949.85	3.00	119.81
	2010	1,981.21	6,549.44	14,444.32	17.51	757.68
	2011	371.27	1,341.89	2,540.14	2.74	148.91
	2012	206.84	762.78	1,470.10	1.71	79.04
Whirlwind	2010	1,777.59	5,661.15	13,241.82	15.57	666.84
	2011	823.17	2,917.07	5,527.11	6.01	321.64
Vincent	2010	149.91	513.04	1,009.68	1.03	59.69
	2011	45.63	164.93	312.20	0.34	18.30
	2012	336.36	1,251.54	2,378.75	2.75	129.73
	2013	233.95	953.16	1,649.06	2.02	91.51
Mira Loma	2010	55.94	191.43	376.75	0.38	22.27
	2012	55.62	213.16	386.65	0.44	22.12
Chino	2010	118.58	405.84	798.70	0.81	47.22
Gould	2011	122.37	442.30	837.25	0.90	49.08

Substation	Total Annual Emissions (ton)					
	Year	ROG	CO	NOx	SOx	PM
Antelope	2009	0.160	0.476	1.475	0.001	0.060
	2010	0.991	3.275	7.222	0.009	0.379
	2011	0.186	0.671	1.270	0.001	0.074
	2012	0.103	0.381	0.735	0.001	0.040
Whirlwind	2010	0.889	2.831	6.621	0.008	0.333
	2011	0.412	1.459	2.764	0.003	0.161
Vincent	2010	0.075	0.257	0.505	0.001	0.030
	2011	0.023	0.082	0.156	0.000	0.009
	2012	0.168	0.626	1.189	0.001	0.065
	2013	0.117	0.477	0.825	0.001	0.046
Mira Loma	2010	0.028	0.096	0.188	0.000	0.011
	2012	0.028	0.107	0.193	0.000	0.011
Chino	2010	0.059	0.203	0.399	0.000	0.024
Gould	2011	0.061	0.221	0.419	0.000	0.025

Summary - Offroad Equipment Emissions Calculation by Jurisdiction

Jurisdiction	Segment	Year	Total Annual Emissions (lbs)				
			ROG	CO	NOx	SOx	PM
KCAPCD	4	2009	126.63	387.48	545.80	0.55	49.34
		2010	2,145.02	7,213.55	13,926.40	13.76	866.41
		2011	97.88	374.20	659.82	0.71	44.33
	9	2010	1,777.59	5,661.15	13,241.82	15.57	666.84
		2011	823.17	2,917.07	5,527.11	6.01	321.64
	10	2010	2,095.47	7,046.98	13,143.66	13.03	850.01
		2011	73.51	281.10	489.96	0.52	33.37
SCAQMD	6	2010	1,922.58	6,759.72	13,080.76	13.30	792.75
		2011	1,933.20	6,704.36	11,584.56	12.24	783.12
		2012	186.39	750.63	1,144.81	1.27	81.69
	7	2010	1,512.33	5,227.19	9,665.58	10.82	616.49
		2011	2,793.21	9,491.96	16,495.05	18.37	1,095.01
		2012	1,510.22	5,596.30	9,560.17	10.81	621.63
	8	2009	146.19	462.09	786.19	0.76	58.24
		2010	5,034.00	17,329.69	32,644.59	33.39	2,061.59
		2011	4,371.26	15,240.52	27,092.70	28.61	1,780.91
		2012	481.75	1,939.81	3,415.36	3.89	214.25
	9	2010	174.52	597.27	1,175.45	1.19	69.49
		2011	122.37	442.30	837.25	0.90	49.08
		2012	55.62	213.16	386.65	0.44	22.12
	11	2009	176.00	538.53	758.56	0.76	68.58
		2010	8.80	29.01	39.72	0.04	3.51
		2011	755.12	2,777.87	5,329.56	5.70	314.05
		2012	1,502.76	5,633.21	9,710.74	10.98	618.11
		2013	3.01	13.43	18.65	0.02	1.41
AVAQMD	4	2009	119.69	372.78	638.42	0.76	46.44
		2010	1,620.89	5,485.70	10,632.50	10.85	656.40
		2011	120.41	483.84	907.30	1.13	50.81
	5	2009	268.43	836.66	1,413.55	1.66	104.56
		2010	2,933.73	10,044.88	18,228.80	18.87	1,199.53
		2011	1,277.45	4,521.57	7,877.37	8.35	529.37
	6	2009	186.02	569.20	801.77	0.80	72.48
		2010	1,365.42	4,755.79	8,955.52	9.05	562.81
		2011	753.39	2,634.13	4,583.58	4.82	309.12
		2012	827.41	2,967.56	5,076.67	5.73	327.56
	9	2009	319.12	952.31	2,949.85	3.00	119.81
		2010	2,131.12	7,062.48	15,454.00	18.54	817.37
		2011	416.90	1,506.82	2,852.34	3.08	167.22
		2012	543.19	2,014.31	3,848.85	4.46	208.77
		2013	233.95	953.16	1,649.06	2.02	91.51
	11	2010	22.42	73.92	101.21	0.11	8.95
		2012	1,248.46	4,690.19	8,138.88	9.22	507.34
		2013	52.95	227.13	363.24	0.44	23.25

Jurisdiction	Segment	Year	Total Annual Emissions (ton)				
			ROG	CO	NOx	SOx	PM
KCAPCD	4	2009	0.06	0.19	0.27	0.00	0.02
		2010	1.07	3.61	6.96	0.01	0.43
		2011	0.05	0.19	0.33	0.00	0.02
	9	2010	0.89	2.83	6.62	0.01	0.33
		2011	0.41	1.46	2.76	0.00	0.16
	10	2010	1.05	3.52	6.57	0.01	0.43
		2011	0.04	0.14	0.24	0.00	0.02
SCAQMD	6	2010	0.96	3.38	6.54	0.01	0.40
		2011	0.97	3.35	5.79	0.01	0.39
		2012	0.09	0.38	0.57	0.00	0.04
	7	2010	0.76	2.61	4.83	0.01	0.31
		2011	1.40	4.75	8.25	0.01	0.55
		2012	0.76	2.80	4.78	0.01	0.31
	8	2009	0.07	0.23	0.39	0.00	0.03
		2010	2.52	8.66	16.32	0.02	1.03
		2011	2.19	7.62	13.55	0.01	0.89
		2012	0.24	0.97	1.71	0.00	0.11
	9	2010	0.09	0.30	0.59	0.00	0.03
		2011	0.06	0.22	0.42	0.00	0.02
		2012	0.03	0.11	0.19	0.00	0.01
	11	2009	0.09	0.27	0.38	0.00	0.03
		2010	0.00	0.01	0.02	0.00	0.00
		2011	0.38	1.39	2.66	0.00	0.16
		2012	0.75	2.82	4.86	0.01	0.31
		2013	0.00	0.01	0.01	0.00	0.00
AVAQMD	4	2009	0.06	0.19	0.32	0.00	0.02
		2010	0.81	2.74	5.32	0.01	0.33
		2011	0.06	0.24	0.45	0.00	0.03
	5	2009	0.13	0.42	0.71	0.00	0.05
		2010	1.47	5.02	9.11	0.01	0.60
		2011	0.64	2.26	3.94	0.00	0.26
	6	2009	0.09	0.28	0.40	0.00	0.04
		2010	0.68	2.38	4.48	0.00	0.28
		2011	0.38	1.32	2.29	0.00	0.15
		2012	0.41	1.48	2.54	0.00	0.16
	9	2009	0.16	0.48	1.47	0.00	0.06
		2010	1.07	3.53	7.73	0.01	0.41
		2011	0.21	0.75	1.43	0.00	0.08
		2012	0.27	1.01	1.92	0.00	0.10
		2013	0.12	0.48	0.82	0.00	0.05
	11	2010	0.01	0.04	0.05	0.00	0.00
		2012	0.62	2.35	4.07	0.00	0.25
		2013	0.03	0.11	0.18	0.00	0.01

Total Annual Emission for different jurisductions (lbs)

Jurisdiction	Segment	Total Annual Emissions (lbs)				
		ROG	CO	NOx	SOx	PM
KCAPCD	2009	126.63	387.48	545.80	0.55	49.34
	2010	6,018.09	19,921.68	40,311.88	42.35	2,383.26
	2011	994.57	3,572.36	6,676.89	7.24	399.34
SCAQMD	2009	322.18	1,000.62	1,544.75	1.52	126.82
	2010	8,652.22	29,942.88	56,606.09	58.75	3,543.83
	2011	9,975.17	34,657.00	61,339.12	65.82	4,022.16
	2012	3,736.73	14,133.11	24,217.73	27.40	1,557.81
	2013	3.01	13.43	18.65	0.02	1.41
AVAQMD	2009	893.26	2,730.96	5,803.58	6.23	343.29
	2010	8,073.58	27,422.76	53,372.03	57.42	3,245.06
	2011	2,568.15	9,146.36	16,220.59	17.38	1,056.51
	2012	2,619.06	9,672.07	17,064.40	19.41	1,043.66
	2013	286.90	1,180.29	2,012.30	2.46	114.76

Total Annual Emission for different jurisductions (ton)

Jurisdiction	Segment	Total Annual Emissions (ton)				
		ROG	CO	NOx	SOx	PM
KCAPCD	2009	0.06	0.19	0.27	0.00	0.02
	2010	3.01	9.96	20.16	0.02	1.19
	2011	0.50	1.79	3.34	0.00	0.20
SCAQMD	2009	0.16	0.50	0.77	0.00	0.06
	2010	4.33	14.97	28.30	0.03	1.77
	2011	4.99	17.33	30.67	0.03	2.01
	2012	1.87	7.07	12.11	0.01	0.78
	2013	0.00	0.01	0.01	0.00	0.00
AVAQMD	2009	0.45	1.37	2.90	0.00	0.17
	2010	4.04	13.71	26.69	0.03	1.62
	2011	1.28	4.57	8.11	0.01	0.53
	2012	1.31	4.84	8.53	0.01	0.52
	2013	0.14	0.59	1.01	0.00	0.06

Worst Case Daily Emissions - SCAQMD

2010 December

Onroad Emissions

Segment 6

		VMT	Emissions lbs -2010					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	5,770	5.27	47.67	5.30	0.06	0.50	0.32
	Delivery	2,014	5.21	37.13	41.53	0.05	1.51	1.29
	Heavy-Heavy Duty	1,372	4.17	16.41	52.45	0.06	2.51	2.20
		Totals	14.66	101.21	99.28	0.17	4.53	3.81

Segment 7

		VMT	Emissions lbs -2010					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	3,529	3.23	29.16	3.24	0.04	0.31	0.19
	Delivery	1,063	2.75	19.59	21.92	0.03	0.80	0.68
	Heavy-Heavy Duty	559	1.70	6.68	21.37	0.02	1.02	0.89
		Totals	7.68	55.43	46.52	0.09	2.13	1.77

Segment 8

		VMT	Emissions lbs -2010					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	4,090	3.74	33.80	3.76	0.04	0.36	0.22
	Delivery	1,292	3.35	23.82	26.64	0.03	0.97	0.83
	Heavy-Heavy Duty	818	2.49	9.78	31.26	0.03	1.50	1.31
		Totals	9.57	67.39	61.65	0.11	2.82	2.36

Onroad Emissions Total

		VMT	Emissions lbs -2010					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	13,389	12.24	110.63	12.29	0.14	1.16	0.73
	Delivery	4,368	11.31	80.54	90.09	0.12	3.28	2.81
	Heavy-Heavy Duty	2,749	8.36	32.87	105.08	0.11	5.03	4.40
		Totals	31.91	224.03	207.46	0.38	9.48	7.94

Offroad Emissions

Segment 6		2010	Daily Emissions lbs				
			ROG	CO	NOX	SOX	PM
Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton		0.24	0.89	1.66	0.00	0.11
	Forklift, 5 ton		0.39	1.18	1.34	0.00	0.14
	Forklift, 10 ton		0.38	1.22	1.51	0.00	0.15
	Motor, Auxilary Power		0.01	0.02	0.04	0.00	0.00
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton		0.29	1.11	2.07	0.00	0.14
	Forklift, 5 ton		0.32	0.99	1.12	0.00	0.11
	Forklift, 10 ton		0.32	1.02	1.26	0.00	0.13
Road Maintenance	Motor Grader		0.32	1.23	2.16	0.00	0.16
	Crawler, Track Type, w/ blade (D6 Type)		0.39	1.47	3.08	0.00	0.17
Roads & Landing Work	Crawler, Track Type, w/ blade (D8 type)		3.59	11.37	33.86	0.03	1.37
	Crawler, Track Type, w/ blade (D6 Type)		1.56	5.88	12.33	0.01	0.68
	Backhoe w/ Bucket; backhoe w/ concrete hammer		0.65	2.15	2.63	0.00	0.25
	Excavator, Grade - All		2.32	10.32	17.03	0.02	1.09
	Motor Grader		0.81	3.08	5.41	0.01	0.41
Install Foundations	Crawler, Track Type, w/ blade (D6 Type)		0.59	2.20	4.62	0.00	0.25
	Excavator, Grade - All		0.58	2.58	4.26	0.00	0.27
	Crawler, track type, drill dig, Pheumatic D8		1.79	5.68	16.93	0.02	0.68
	Generator, Concrete Batch Plant		0.67	1.74	1.84	0.00	0.17
	Backhoe w/ Bucket; backhoe w/ concrete hammer		0.87	2.87	3.51	0.00	0.33
	Motor, Auxilary Power		0.02	0.10	0.15	0.00	0.01
Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton		1.36	4.79	13.32	0.01	0.51
	Crane, Hydraulic, Rough Terrain 35 ton		2.82	10.70	19.92	0.02	1.35
	Compressor, Air		4.16	11.27	13.76	0.01	1.37
	Motor, Auxilary Power		0.02	0.10	0.15	0.00	0.01
Wreck-Out (conductors, structures, & Foundations)	Tension Machine, Conductor or Static		0.77	3.33	5.40	0.01	0.41
	Crawler, Track Type, w/ blade (D8 type)		1.79	5.68	16.93	0.02	0.68
	Backhoe w/ Bucket; backhoe w/ concrete hammer		3.47	11.47	14.05	0.02	1.32
	Crane, Hydraulic, Rough Terrain 35 ton		0.94	3.57	6.64	0.01	0.45
	Motor, Auxilary Power		0.03	0.15	0.23	0.00	0.01
2010 Total Emission			**7.00**	**24.20**	**43.24**	**0.04**	**2.88**

Segment 7		2010	Daily Emissions lbs				
			ROG	CO	NOX	SOX	PM
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton		0.29	1.11	2.07	0.00	0.14
	Forklift, 5 ton		0.32	0.99	1.12	0.00	0.11
	Forklift, 10 ton		0.32	1.02	1.26	0.00	0.13
Install Foundations	Crawler, Track Type, w/ blade (D6 Type)		0.59	2.20	4.62	0.00	0.25
	Excavator, Grade - All		0.58	2.58	4.26	0.00	0.27
	Crawler, track type, drill dig, Pheumatic D8		1.79	5.68	16.93	0.02	0.68
	Backhoe w/ Bucket; backhoe w/ concrete hammer		0.87	2.87	3.51	0.00	0.33
	Motor, Auxilary Power		0.02	0.10	0.15	0.00	0.01
Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton		1.36	4.79	13.32	0.01	0.51
	Crane, Hydraulic, Rough Terrain 35 ton		2.82	10.70	19.92	0.02	1.35
	Compressor, Air		4.16	11.27	13.76	0.01	1.37
	Motor, Auxilary Power		0.02	0.10	0.15	0.00	0.01
Construction - 66kV (or other subtransmission	Drill Rig		0.38	1.38	4.74	0.01	0.15
	Backhoe		0.43	1.43	1.76	0.00	0.17
2010 Total Emission			**0.82**	**2.82**	**6.49**	**0.01**	**0.32**

Segment 8		2010	Daily Emissions lbs				
			ROG	CO	NOX	SOX	PM
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton		0.29	1.11	2.07	0.00	0.14
	Forklift, 5 ton		0.32	0.99	1.12	0.00	0.11
	Forklift, 10 ton		0.32	1.02	1.26	0.00	0.13
Road Maintenance	Motor Grader		0.32	1.23	2.16	0.00	0.16
	Crawler, Track Type, w/ blade (D6 Type)		0.39	1.47	3.08	0.00	0.17
Install Foundations	Crawler, Track Type, w/ blade (D6 Type)		1.17	4.41	9.25	0.01	0.51
	Excavator, Grade - All		1.16	5.16	8.52	0.01	0.55
	Crawler, track type, drill dig, Pheumatic D8		3.59	11.37	33.86	0.03	1.37
	Backhoe w/ Bucket; backhoe w/ concrete hammer		1.73	5.74	7.02	0.01	0.66
	Motor, Auxilary Power		0.05	0.19	0.31	0.00	0.02
Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton		1.36	4.79	13.32	0.01	0.51
	Crane, Hydraulic, Rough Terrain 35 ton		2.82	10.70	19.92	0.02	1.35
	Compressor, Air		4.16	11.27	13.76	0.01	1.37
	Motor, Auxilary Power		0.02	0.10	0.15	0.00	0.01
2010 Total Emission			**17.72**	**59.55**	**115.79**	**0.12**	**7.05**

Offroad Emissions Total	2010	Daily Emissions lbs				
		ROG	CO	NOX	SOX	PM
		25.54	86.57	165.52	0.17	10.25

Heli Emissions - Hughes 500

No Stringing

	2010	Daily Emissions lbs				
		HC	CO	NOx	SOx	PM
Total		0.00	0.00	0.00	0.00	0.00

Heli Emissions - Bigger Helicopters

	Daily Emissions lbs				
	HC	CO	NOx	SOx	PM
Segment 6	52.67	118.01	240.96	2.00	13.11
	200.89	727.39	646.63	5.44	35.85
	22.39	158.72	204.64	1.70	11.34
Total	275.95	1,004.12	1,092.23	9.14	60.30

Total Heli Emissions

	Daily Emissions lbs				
	HC	CO	NOx	SOx	PM
2010	275.95	1,004.12	1,092.23	9.14	60.30

Total Emissions

	Daily Emissions lbs					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad	31.91	224.03	207.46	0.38	9.48	7.94
Offroad	25.54	86.57	165.52	0.17	10.25	9.43
Heli	275.95	1,004.12	1,092.23	9.14	60.30	55.47
Fugitive Dust	--	--	--	--	494.30	115.44
Total	333.41	1,314.72	1,465.21	9.68	574.33	188.29

Worst Case Daily Emissions - AVAQMD

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Onroad Emissions

Segment 4

		VMT	Emissions lbs -2012					
2012	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	0	0.00	0.00	0.00	0.00	0.00	0.00
	Delivery	0	0.00	0.00	0.00	0.00	0.00	0.00
	Heavy-Heavy Duty	0	0.00	0.00	0.00	0.00	0.00	0.00
		Totals	0.00	0.00	0.00	0.00	0.00	0.00

Segment 5

		VMT	Emissions lbs -2012					
2012	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	0	0.00	0.00	0.00	0.00	0.00	0.00
	Delivery	0	0.00	0.00	0.00	0.00	0.00	0.00
	Heavy-Heavy Duty	0	0.00	0.00	0.00	0.00	0.00	0.00
		Totals	0.00	0.00	0.00	0.00	0.00	0.00

Segment 6

		VMT	Emissions lbs -2012					
2012	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	2,043	1.63	15.64	1.59	0.02	0.18	0.12
	Delivery	981	2.20	15.16	16.99	0.03	0.64	0.54
	Heavy-Heavy Duty	379	0.96	3.87	11.72	0.02	0.57	0.49
		Totals	4.78	34.68	30.30	0.06	1.39	1.15

Segment 9 - Antelope

		VMT	Emissions lbs -2012					
2012	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	1,743	1.39	13.34	1.35	0.02	0.16	0.10
	Delivery	251	0.56	3.87	4.34	0.01	0.16	0.14
	Heavy-Heavy Duty	0	0.00	0.00	0.00	0.00	0.00	0.00
		Totals	1.95	17.21	5.69	0.03	0.32	0.24

Segment 9 - Vincent

		VMT	Emissions lbs -2012					
2012	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	0	0.00	0.00	0.00	0.00	0.00	0.00
	Delivery	0	0.00	0.00	0.00	0.00	0.00	0.00
	Heavy-Heavy Duty	0	0.00	0.00	0.00	0.00	0.00	0.00
		Totals	0.00	0.00	0.00	0.00	0.00	0.00

Segment 11

		VMT	Emissions lbs -2012					
2012	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	4,688	3.73	35.88	3.64	0.05	0.42	0.27
	Delivery	1,537	3.44	23.76	26.63	0.04	1.00	0.84
	Heavy-Heavy Duty	837	2.11	8.55	25.87	0.03	1.25	1.08
		Totals	9.29	68.19	56.14	0.13	2.67	2.20

Onroad Emissions Total

		VMT	Emissions lbs -2012					
2012	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	8,474	6.75	64.86	6.57	0.09	0.76	0.49
	Delivery	2,769	6.20	42.80	47.96	0.07	1.80	1.52
	Heavy-Heavy Duty	1,216	3.07	12.42	37.59	0.05	1.82	1.57
		Totals	16.02	120.08	92.13	0.21	4.38	3.58

Offroad Emissions

Segment 6		2012	Daily Emissions lbs				
			ROG	CO	NOX	SOX	PM
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton		0.26	1.10	1.85	0.00	0.12
	Forklift, 5 ton		0.25	0.93	1.02	0.00	0.09
	Forklift, 10 ton		0.25	0.97	1.13	0.00	0.10
Road Maintenance	Motor Grader		0.28	1.22	1.91	0.00	0.14
	Crawler, Track Type, w/ blade (D6 Type)		0.35	1.44	2.75	0.00	0.15
Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton		1.22	4.14	11.52	0.01	0.43
	Crane, Hydraulic, Rough Terrain 35 ton		2.52	10.57	17.71	0.02	1.20
	Compressor, Air		3.63	10.78	12.71	0.01	1.23
	Motor, Auxilary Power		0.02	0.09	0.14	0.00	0.01
2012 Total Emission			**8.80**	**31.25**	**50.74**	**0.06**	**3.48**

Segment 9		2012	Daily Emissions lbs				
			ROG	CO	NOX	SOX	PM
Electrical Element							
Segment 9 - Antelope Substation	14 ton Crane		1.31	5.67	10.11	0.01	0.57
	Crane, Hydraulic, 150 Ton (150 ton crane)		1.58	4.97	15.07	0.02	0.55
	Forklift		0.30	1.12	1.22	0.00	0.11
	Manlifts		1.21	4.48	4.88	0.01	0.45
2012 Total Emission			**4.40**	**16.23**	**31.28**	**0.04**	**1.68**

Segment 11		2012	Daily Emissions lbs				
			ROG	CO	NOX	SOX	PM
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton		0.26	1.10	1.85	0.00	0.12
	Forklift, 5 ton		0.25	0.93	1.02	0.00	0.09
	Forklift, 10 ton		0.25	0.97	1.13	0.00	0.10
Road Maintenance	Motor Grader		0.28	1.22	1.91	0.00	0.14
	Crawler, Track Type, w/ blade (D6 Type)		0.35	1.44	2.75	0.00	0.15
Install Foundations	Crawler, Track Type, w/ blade (D6 Type)		0.53	2.16	4.13	0.00	0.23
	Crawler, track type, drill dig, Pheumatic D8		1.62	5.06	14.84	0.02	0.58
	Generator, Concrete Batch Plant		0.58	1.64	1.78	0.00	0.15
	Backhoe w/ Bucket; backhoe w/ concrete hammer		0.71	2.74	3.18	0.00	0.28
	Motor, Auxilary Power		0.02	0.09	0.14	0.00	0.01
	Excavator, Grade - All		0.51	2.57	3.68	0.00	0.23
Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton		1.22	4.14	11.52	0.01	0.43
	Crane, Hydraulic, Rough Terrain 35 ton		2.52	10.57	17.71	0.02	1.20
	Compressor, Air		3.63	10.78	12.71	0.01	1.23
	Motor, Auxilary Power		0.02	0.09	0.14	0.00	0.01
2010 Total Emission			**18.68**	**67.33**	**115.87**	**0.13**	**7.21**

Offroad Emissions Total	2012	Daily Emissions lbs				
		ROG	CO	NOX	SOX	PM
		31.87	114.81	197.89	0.22	12.37

Heli Emissions - Hughes 500

	HC	CO	NOx	SOx	PM
2012	0.00	0.00	0.00	0.00	0.00

Heli Emissions - Bigger Helicopters

		Daily Emissions lbs				
		HC	CO	NOx	SOx	PM
Segment 11	Eurocopter	71.83	160.92	328.58	2.72	17.88
	Skyking	262.89	951.89	846.21	7.12	46.91
	Skycrane	22.39	158.72	204.64	1.70	11.34
	Total	357.11	1,271.53	1,379.43	11.54	76.13

Total Heli Emissions

	Daily Emissions lbs				
	HC	CO	NOx	SOx	PM
2012	357.11	1,271.53	1,379.43	11.54	76.13

Total Emissions

	Daily Emissions lbs					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad	16.02	120.08	92.13	0.21	4.38	3.58
Offroad	31.87	114.81	197.89	0.22	12.37	11.38
Heli	357.11	1,271.53	1,379.43	11.54	76.13	70.04
Fugitive Dust	--	--	--	--	271.90	53.29
Total	405.00	1,506.42	1,669.44	11.98	364.78	138.30

Worst Case Daily Emissions - KCACPD

2010 Oct

Onroad Emissions

Segment 4

		VMT	Emissions lbs -2010					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	7,573	6.92	62.57	6.95	0.08	0.66	0.41
	Delivery	2,403	6.22	44.31	49.57	0.06	1.81	1.54
	Heavy-Heavy Duty	1,040	3.16	12.43	39.75	0.04	1.90	1.67
		Totals	16.31	119.32	96.28	0.19	4.37	3.62

Segment 9-Whirlwind Substation

		VMT	Emissions lbs -2010					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM	PM2.5
	Passenger	2,003	1.83	16.55	1.84	0.02	0.17	0.11
	Delivery	361	0.93	6.65	7.44	0.01	0.27	0.23
	Heavy-Heavy Duty	0	0.00	0.00	0.00	0.00	0.00	0.00
		Totals	2.76	23.19	9.28	0.03	0.45	0.34

Segment 10

		VMT	Emissions lbs -2010					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM	PM2.5
	Passenger	8,010	7.32	66.18	7.35	0.09	0.70	0.44
	Delivery	2,020	5.23	37.25	41.67	0.05	1.52	1.30
	Heavy-Heavy Duty	855	2.60	10.22	32.66	0.04	1.56	1.37
		Totals	15.15	113.65	81.68	0.18	3.78	3.10

Onroad Emissions Total

		VMT	Emissions lbs -2010					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM	PM2.5
	Passenger	17,585	16.07	145.30	16.15	0.19	1.53	0.96
	Delivery	4,784	12.39	88.21	98.68	0.13	3.59	3.07
	Heavy-Heavy Duty	1,895	5.76	22.65	72.41	0.08	3.47	3.03
		Totals	34.22	256.16	187.24	0.40	8.59	7.07

Offroad Emissions

Segment 4		2010	Daily Emissions lbs				
			ROG	CO	NOX	SOX	PM
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton		0.29	1.11	2.07	0.00	0.14
	Forklift, 5 ton		0.32	0.99	1.12	0.00	0.11
	Forklift, 10 ton		0.32	1.02	1.26	0.00	0.13
Road Maintenance	Motor Grader		0.32	1.23	2.16	0.00	0.16
	Crawler, Track Type, w/ blade (D6 Type)		0.39	1.47	3.08	0.00	0.17
Install Foundations	Crawler, Track Type, w/ blade (D6 Type)		0.59	2.20	4.62	0.00	0.25
	Excavator, Grade - All		0.58	2.58	4.26	0.00	0.27
	Crawler, track type, drill dig, Pheumatic D8		1.79	5.68	16.93	0.02	0.68
	Backhoe w/ Bucket; backhoe w/ concrete hammer		0.87	2.87	3.51	0.00	0.33
	Motor, Auxilary Power		0.02	0.10	0.15	0.00	0.01
Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton		2.73	9.59	26.64	0.03	1.03
	Crane, Hydraulic, Rough Terrain 35 ton		5.65	21.40	39.83	0.04	2.70
	Compressor, Air		8.32	22.54	27.51	0.03	2.74
	Motor, Auxilary Power		0.05	0.19	0.31	0.00	0.02
2010 Total Emission			**22.25**	**72.98**	**133.46**	**0.13**	**8.74**

Segment 9		2010	Daily Emissions lbs				
			ROG	CO	NOX	SOX	PM
Electrical Element							
Segment 9 - Whirlwind Substation	14 ton Crane		1.46	5.74	11.41	0.01	0.64
	Crane, Hydraulic, 150 Ton (150 ton crane)		1.77	5.67	17.41	0.02	0.67
	Forklift		0.39	1.18	1.34	0.00	0.14
	Manlifts		1.54	4.74	5.36	0.01	0.54
2010 Total Emission			**5.15**	**17.34**	**35.52**	**0.04**	**1.99**

Segment 10		2010	Daily Emissions lbs				
			ROG	CO	NOX	SOX	PM
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton		0.29	1.11	2.07	0.00	0.14
	Forklift, 5 ton		0.32	0.99	1.12	0.00	0.11
	Forklift, 10 ton		0.32	1.02	1.26	0.00	0.13
Road Maintenance	Motor Grader		0.32	1.23	2.16	0.00	0.16
	Crawler, Track Type, w/ blade (D6 Type)		0.39	1.47	3.08	0.00	0.17
Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton		1.36	4.79	13.32	0.01	0.51
	Crane, Hydraulic, Rough Terrain 35 ton		2.82	10.70	19.92	0.02	1.35
	Compressor, Air		4.16	11.27	13.76	0.01	1.37
	Motor, Auxilary Power		0.02	0.10	0.15	0.00	0.01
Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer		0.32	1.08	1.32	0.00	0.12
	Crane, Hydraulic, Rough Terrain 35 ton		1.06	4.01	7.47	0.01	0.51
	Crawler, Track Type, w/ blade (D8 type)		0.45	1.42	4.23	0.00	0.17
	Crawler, Track Type, Sagging (D8 type)		0.90	2.84	8.46	0.01	0.34
	Motor, Auxilary Power		0.05	0.19	0.31	0.00	0.02
	Tension machine, conductor		0.77	3.33	5.40	0.01	0.41
	Tension machine, static		0.26	1.11	1.80	0.00	0.14
2010 Total Emission			**13.82**	**46.67**	**85.83**	**0.09**	**5.66**

Offroad Emissions Total	2010	Daily Emissions lbs				
		ROG	CO	NOX	SOX	PM
		41.22	136.98	254.81	0.25	16.39

Heli Emissions - Hughes 500

		HC	CO	NOx	SOx	PM
Segment 4	2010	2.095	4.694	9.584	0.079	0.522

Total Emissions

	Daily Emissions lbs					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad	34.22	256.16	187.24	0.40	8.59	7.07
Offroad	41.22	136.98	254.81	0.25	16.39	15.08
Helicopter	2.10	4.69	9.58	0.08	0.52	0.48
Fugitive Dust	--	--	--	--	445.04	88.32
Total	77.54	397.84	451.63	0.73	470.54	110.95

TRTP Alternative 2 Project Construction Emission Totals
All Jurisdictions - ANF Total

2009 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.124	0.923	0.819	0.001	0.035	0.030
Offroad Vehicles/Equipment	0.128	0.391	0.550	0.001	0.050	0.046
Helicopter	0.000	0.000	0.000	0.000	0.000	0.000
Fugitive Dust	---	---	---	---	2.258	0.454
Totals	**0.25**	**1.31**	**1.37**	**0.00**	**2.34**	**0.53**

2010 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.834	5.417	6.420	0.010	0.291	0.248
Offroad Vehicles/Equipment	1.314	4.613	8.864	0.009	0.542	0.498
Helicopter	1.495	7.724	8.674	0.072	0.479	0.441
Fugitive Dust	---	---	---	---	22.135	4.907
Totals	**3.64**	**17.75**	**23.96**	**0.09**	**23.45**	**6.09**

2011 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	1.109	8.150	6.899	0.014	0.319	0.265
Offroad Vehicles/Equipment	1.466	5.166	9.078	0.010	0.601	0.553
Helicopter	1.053	4.770	6.000	0.050	0.331	0.305
Fugitive Dust	---	---	---	---	24.427	4.900
Totals	**3.63**	**18.09**	**21.98**	**0.07**	**25.68**	**6.02**

2012 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.916	6.523	5.940	0.012	0.281	0.232
Offroad Vehicles/Equipment	1.350	5.033	8.598	0.010	0.550	0.506
Helicopter	2.355	9.121	10.335	0.086	0.571	0.525
Fugitive Dust	---	---	---	---	20.167	4.342
Totals	**4.62**	**20.68**	**24.87**	**0.11**	**21.57**	**5.60**

2013 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.009	0.061	0.071	0.000	0.003	0.003
Offroad Vehicles/Equipment	0.008	0.033	0.049	0.000	0.003	0.003
Helicopter	0.001	0.002	0.003	0.000	0.000	0.000
Fugitive Dust	---	---	---	---	0.000	0.000
Totals	**0.02**	**0.10**	**0.12**	**0.00**	**0.01**	**0.01**

TRTP Alternative 2 Project Construction Emission Totals
ANF - SCAQMD Jurisdiction

2009 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.068	0.508	0.453	0.001	0.019	0.016
Offroad Vehicles/Equipment	0.070	0.213	0.300	0.000	0.027	0.025
Helicopter	0.000	0.000	0.000	0.000	0.000	0.000
Fugitive Dust	---	---	---	---	1.592	0.314
Totals	**0.14**	**0.72**	**0.75**	**0.00**	**1.64**	**0.36**

2010 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.615	4.011	4.711	0.007	0.213	0.181
Offroad Vehicles/Equipment	0.979	3.439	6.656	0.007	0.403	0.371
Helicopter	1.495	7.724	8.674	0.072	0.479	0.441
Fugitive Dust	---	---	---	---	13.946	3.099
Totals	**3.09**	**15.17**	**20.04**	**0.09**	**15.04**	**4.09**

2011 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.872	6.391	5.463	0.011	0.253	0.210
Offroad Vehicles/Equipment	1.176	4.152	7.326	0.008	0.482	0.443
Helicopter	1.033	4.724	5.906	0.049	0.326	0.300
Fugitive Dust	---	---	---	---	19.940	4.047
Totals	**3.08**	**15.27**	**18.69**	**0.07**	**21.00**	**5.00**

2012 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.463	3.303	2.982	0.006	0.141	0.117
Offroad Vehicles/Equipment	0.645	2.409	4.039	0.005	0.264	0.243
Helicopter	0.871	3.368	3.823	0.032	0.211	0.194
Fugitive Dust	---	---	---	---	12.088	2.595
Totals	**1.98**	**9.08**	**10.84**	**0.04**	**12.71**	**3.15**

2013 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.006	0.034	0.046	0.000	0.002	0.002
Offroad Vehicles/Equipment	0.005	0.021	0.030	0.000	0.002	0.002
Helicopter	0.000	0.000	0.000	0.000	0.000	0.000
Fugitive Dust	---	---	---	---	0.000	0.000
Totals	**0.01**	**0.06**	**0.08**	**0.00**	**0.00**	**0.00**

TRTP Alternative 2 Project Construction Emission Totals
ANF - AVAQMD Jurisdiction

2009 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.056	0.415	0.366	0.001	0.016	0.013
Offroad Vehicles/Equipment	0.058	0.178	0.250	0.000	0.023	0.021
Helicopter	0.000	0.000	0.000	0.000	0.000	0.000
Fugitive Dust	---	---	---	---	0.666	0.140
Totals	**0.11**	**0.59**	**0.62**	**0.00**	**0.70**	**0.17**

2010 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.219	1.406	1.709	0.003	0.078	0.066
Offroad Vehicles/Equipment	0.336	1.174	2.208	0.002	0.138	0.127
Helicopter	0.000	0.000	0.000	0.000	0.000	0.000
Fugitive Dust	---	---	---	---	8.189	1.808
Totals	**0.55**	**2.58**	**3.92**	**0.00**	**8.41**	**2.00**

2011 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.236	1.759	1.436	0.003	0.066	0.055
Offroad Vehicles/Equipment	0.290	1.015	1.753	0.002	0.119	0.110
Helicopter	0.021	0.046	0.094	0.001	0.005	0.005
Fugitive Dust	---	---	---	---	4.487	0.853
Totals	**0.55**	**2.82**	**3.28**	**0.01**	**4.68**	**1.02**

2012 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.453	3.220	2.958	0.006	0.139	0.115
Offroad Vehicles/Equipment	0.705	2.624	4.559	0.005	0.286	0.263
Helicopter	1.484	5.753	6.512	0.054	0.360	0.331
Fugitive Dust	---	---	---	---	8.078	1.747
Totals	**2.64**	**11.60**	**14.03**	**0.07**	**8.86**	**2.46**

2013 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.004	0.027	0.025	0.000	0.001	0.001
Offroad Vehicles/Equipment	0.003	0.012	0.020	0.000	0.001	0.001
Helicopter	0.001	0.002	0.003	0.000	0.000	0.000
Fugitive Dust	---	---	---	---	0.000	0.000
Totals	**0.01**	**0.04**	**0.05**	**0.00**	**0.00**	**0.00**

Proposed Project ANF - Onroad Emissions

Segment 6

		VMT	Emissions lbs -2009					
2009	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	25,701	25.51	248.93	25.83	0.27	2.21	1.38
	Delivery	12,850	35.84	259.08	287.42	0.34	10.35	8.90
	Heavy-Heavy Duty	4,283	14.11	54.92	179.25	0.17	8.55	7.51
		Totals	75.45	562.93	492.50	0.79	21.11	17.79

		VMT	Emissions lbs -2010					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	498,864	455.96	4,121.99	458.03	5.38	43.39	27.33
	Delivery	223,500	578.77	4,120.82	4,609.61	6.04	167.90	143.56
	Heavy-Heavy Duty	197,957	602.10	2,366.49	7,566.13	8.18	362.39	316.90
		Totals	1,636.83	10,609.30	12,633.76	19.59	573.67	487.78

		VMT	Emissions lbs -2011					
2011	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	935,988	797.77	7,733.84	790.54	10.09	83.11	52.91
	Delivery	328,381	794.25	5,560.28	6,217.45	8.96	230.19	195.98
	Heavy-Heavy Duty	142,405	398.08	1,584.20	4,921.24	5.66	236.52	205.76
		Totals	1,990.10	14,878.32	11,929.23	24.70	549.81	454.65

		VMT	Emissions lbs -2012					
2012	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	153,607	122.31	1,175.82	119.17	1.65	13.79	8.83
	Delivery	64,616	144.60	998.80	1,119.43	1.72	41.98	35.51
	Heavy-Heavy Duty	45,555	115.15	465.35	1,408.72	1.84	68.13	58.93
		Totals	382.06	2,639.98	2,647.33	5.21	123.91	103.27

Segment 6 Total in ANF		VMT	Emissions lbs					
	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	1,614,160	1,401.55	13,280.58	1,393.57	17.38	142.50	90.45
	Delivery	629,348	1,553.46	10,938.98	12,233.90	17.06	450.42	383.95
	Heavy-Heavy Duty	390,200	1,129.44	4,470.97	14,075.34	15.85	675.58	589.09
		Totals	4,084.44	28,690.53	27,702.82	50.29	1,268.50	1,063.49

Segment 11

		VMT	Emissions lbs -2009					
2009	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	56,975	56.54	551.84	57.27	0.61	4.90	3.07
	Delivery	29,945	83.52	603.71	669.75	0.80	24.12	20.73
	Heavy-Heavy Duty	9,982	32.87	127.99	417.69	0.40	19.92	17.49
		Totals	172.93	1,283.53	1,144.71	1.81	48.94	41.29

		VMT	Emissions lbs -2010					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	11,179	10.22	92.37	10.26	0.12	0.97	0.61
	Delivery	5,875	15.21	108.32	121.17	0.16	4.41	3.77
	Heavy-Heavy Duty	1,958	5.96	23.41	74.85	0.08	3.59	3.14
		Totals	31.39	224.10	206.29	0.36	8.97	7.52

		VMT	Emissions lbs -2011					
2011	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	70,178	59.82	579.87	59.27	0.76	6.23	3.97
	Delivery	23,896	57.80	404.61	452.44	0.65	16.75	14.26
	Heavy-Heavy Duty	39,259	109.75	436.74	1,356.72	1.56	65.20	56.73
		Totals	227.36	1,421.22	1,868.43	2.97	88.19	74.95

		VMT	Emissions lbs -2012					
2012	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	680,466	541.84	5,208.79	527.92	7.30	61.10	39.12
	Delivery	238,395	533.47	3,684.97	4,130.01	6.36	154.90	131.01
	Heavy-Heavy Duty	147,957	373.98	1,511.41	4,575.39	5.98	221.29	191.39
		Totals	1,449.29	10,405.18	9,233.33	19.64	437.29	361.52

		VMT	Emissions lbs -2013					
2013	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	6,123	4.57	43.43	4.36	0.07	0.56	0.36
	Delivery	3,645	7.52	51.32	57.50	0.10	2.19	1.83
	Heavy-Heavy Duty	2,953	6.68	27.51	80.99	0.12	3.95	3.38
		Totals	18.77	122.26	142.84	0.28	6.69	5.57

Segment 11 Total in ANF	VMT	Emissions lbs					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	824,921	672.98	6,476.29	659.09	8.85	73.76	47.13
Delivery	301,756	697.52	4,852.93	5,430.87	8.07	202.37	171.60
Heavy-Heavy Duty	202,109	529.24	2,127.07	6,505.65	8.14	313.95	272.12
Totals		1,899.74	13,456.29	12,595.60	25.06	590.08	490.85

Onroad Emissions Total

ANF Totals (lbs)

	VMT	Emissions lbs					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	2,439,080	2,074.53	19,756.87	2,052.66	26.23	216.26	137.58
Delivery	931,104	2,250.97	15,791.91	17,664.77	25.13	652.78	555.55
Heavy-Heavy Duty	592,309	1,658.68	6,598.03	20,580.99	23.99	989.54	861.21
	Totals	5,984.18	42,146.82	40,298.42	75.35	1,858.58	1,554.34

ANF Totals (ton)

	VMT	Emissions ton					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	2,439,080	1.04	9.88	1.03	0.01	0.11	0.07
Delivery	931,104	1.13	7.90	8.83	0.01	0.33	0.28
Heavy-Heavy Duty	592,309	0.83	3.30	10.29	0.01	0.49	0.43
	Totals	2.99	21.07	20.15	0.04	0.93	0.78

Proposed Project ANF - Offroad Emissions

Segment 6

2009		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	17.73	64.00	125.11	0.11	8.40
	Forklift, 5 ton	30.90	87.51	100.42	0.11	10.58
	Forklift, 10 ton	30.33	89.66	113.81	0.12	11.78
	Motor, Auxilary Power	0.43	1.75	2.84	0.00	0.17
2009 Total Emission		**79.39**	**242.93**	**342.18**	**0.34**	**30.93**

2010		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	70.83	268.44	499.55	0.48	33.81
	Forklift, 5 ton	116.12	356.41	403.25	0.46	40.96
	Forklift, 10 ton	114.45	367.22	454.00	0.50	45.59
	Motor, Auxilary Power	1.73	7.28	11.58	0.02	0.69
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	27.23	103.19	192.04	0.18	13.00
	Forklift, 5 ton	29.76	91.34	103.35	0.12	10.50
	Forklift, 10 ton	29.33	94.11	116.35	0.13	11.68
Road Maintenance	Motor Grader	5.18	19.71	34.57	0.03	2.64
	Crawler, Track Type, w/ blade (D6 Type)	6.25	23.49	49.24	0.05	2.70
Roads & Landing Work	Crawler, Track Type, w/ blade (D8 type)	431.05	1,366.55	4,069.97	3.88	164.25
	Crawler, Track Type, w/ blade (D6 Type)	188.11	706.86	1,481.89	1.38	81.39
	Backhoe w/ Bucket; backhoe w/ concrete hammer	78.13	258.64	316.58	0.36	29.83
	Excavator, Grade - All	279.47	1,240.54	2,047.45	2.29	131.63
	Motor Grader	97.50	370.74	650.27	0.64	49.58
Install Foundations	Crawler, Track Type, w/ blade (D6 Type)	39.28	147.61	309.46	0.29	17.00
	Excavator, Grade - All	38.91	172.71	285.05	0.32	18.32
	Crawler, track type, drill dig, Pheumatic D8	120.02	380.50	1,133.24	1.08	45.73
	Generator, Concrete Batch Plant	44.86	116.66	123.31	0.16	11.40
	Backhoe w/ Bucket; backhoe w/ concrete hammer	58.01	192.05	235.07	0.27	22.15
	Motor, Auxilary Power	1.54	6.48	10.30	0.01	0.61
Wreck-Out (conductors, structures, & Foundations)	Tension Machine, Conductor or Static	89.81	389.76	631.83	0.71	48.20
	Crawler, Track Type, w/ blade (D8 type)	209.83	665.22	1,981.22	1.89	79.96
	Backhoe w/ Bucket; backhoe w/ concrete hammer	405.67	1,342.99	1,643.84	1.87	154.87
	Crane, Hydraulic, Rough Terrain 35 ton	110.17	417.52	776.97	0.74	52.58
	Motor, Auxilary Power	4.04	16.98	27.01	0.04	1.61
2010 Total Emission		**2,597.28**	**9,123.01**	**17,587.39**	**17.88**	**1,070.69**

2011		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	84.25	335.67	593.75	0.60	40.53
	Forklift, 5 ton	86.71	290.40	323.27	0.38	31.44
	Forklift, 10 ton	85.78	300.55	361.25	0.42	34.97
Road Maintenance	Motor Grader	84.56	340.53	566.82	0.59	43.40
	Crawler, Track Type, w/ blade (D6 Type)	103.51	403.91	809.94	0.80	44.81
Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton	265.90	916.40	2,552.21	2.74	96.67
	Crane, Hydraulic, Rough Terrain 35 ton	549.44	2,189.12	3,872.21	3.90	264.35
	Compressor, Air	806.19	2,275.12	2,731.18	2.95	269.87
	Motor, Auxilary Power	4.52	19.55	30.46	0.04	1.78
Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	25.17	90.03	107.34	0.13	9.85
	Crane, Hydraulic, Rough Terrain 35 ton	85.71	341.47	604.02	0.61	41.24
	Crawler, Track Type, w/ blade (D8 type)	36.53	114.63	339.42	0.35	13.52
	Crawler, Track Type, Sagging (D8 type)	73.06	229.25	678.85	0.69	27.04
	Motor, Auxilary Power	3.76	16.27	25.34	0.04	1.48
	Tension machine, conductor	60.40	283.05	432.18	0.52	33.14
	Tension machine, static	20.13	94.35	144.06	0.17	11.05
Restoration & Guard Poles	Backhoe	11.44	40.92	48.79	0.06	4.48
	Motor Grader	28.41	114.41	190.45	0.20	14.58
2011 Total Emission		**2,415.45**	**8,395.65**	**14,411.52**	**15.19**	**984.20**

2012		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	35.43	148.71	249.11	0.27	16.84
	Forklift, 5 ton	34.08	125.93	137.29	0.17	12.60
	Forklift, 10 ton	33.84	130.88	152.03	0.19	13.95
Road Maintenance	Motor Grader	37.00	158.22	248.85	0.28	18.75
	Crawler, Track Type, w/ blade (D6 Type)	46.05	186.90	357.54	0.37	19.55
Install Foundations	Crawler, Track Type, w/ blade (D6 Type)	5.46	22.18	42.43	0.04	2.32
	Crawler, track type, drill dig, Pheumatic D8	16.71	52.03	152.68	0.17	5.99
	Generator, Concrete Batch Plant	5.92	16.87	18.30	0.02	1.57
	Backhoe w/ Bucket; backhoe w/ concrete hammer	7.27	28.23	32.67	0.04	2.87
	Motor, Auxilary Power	0.21	0.96	1.46	0.00	0.08
	Excavator, Grade - All	5.22	26.38	37.82	0.05	2.41
Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton	38.26	129.48	360.51	0.42	13.38
	Crane, Hydraulic, Rough Terrain 35 ton	78.82	330.84	554.21	0.59	37.47
	Compressor, Air	113.50	337.28	397.67	0.45	38.64
	Motor, Auxilary Power	0.65	2.91	4.43	0.01	0.26
Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	2.84	11.03	12.76	0.02	1.12
	Crane, Hydraulic, Rough Terrain 35 ton	10.12	42.49	71.17	0.08	4.81
	Crawler, Track Type, w/ blade (D8 type)	4.35	13.55	39.76	0.04	1.56
	Crawler, Track Type, Sagging (D8 type)	8.71	27.10	79.52	0.09	3.12
	Motor, Auxilary Power	0.45	1.99	3.04	0.00	0.18
	Tension machine, conductor	6.93	35.18	50.33	0.07	3.78
	Tension machine, static	2.31	11.73	16.78	0.02	1.26
Wreck-Out (conductors, structures, & Foundations)	Tension Machine, Conductor or Static	4.71	23.92	34.22	0.04	2.57
	Crawler, Track Type, w/ blade (D8 type)	11.84	36.85	108.15	0.12	4.24
	Backhoe w/ Bucket; backhoe w/ concrete hammer	20.59	79.99	92.56	0.12	8.15
	Crane, Hydraulic, Rough Terrain 35 ton	6.12	25.68	43.02	0.05	2.91
	Motor, Auxilary Power	0.23	1.02	1.55	0.00	0.09
Restoration & Guard Poles	Backhoe	0.95	3.68	4.25	0.01	0.37
	Motor Grader	2.44	10.43	16.41	0.02	1.24
2012 Total Emission		**540.99**	**2,022.44**	**3,320.53**	**3.73**	**222.08**

Segment 11

2009		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	39.31	141.88	277.36	0.25	18.61
	Forklift, 5 ton	68.50	194.00	222.61	0.24	23.47
	Forklift, 10 ton	67.23	198.76	252.29	0.26	26.11
	Motor, Auxilary Power	0.95	3.89	6.30	0.01	0.38
2009 Total Emission		**176.00**	**538.53**	**758.56**	**0.76**	**68.58**

2010		Annual Emissions lbs				
		ROG	CO	NOX	SOX	PM
Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	7.29	27.65	51.45	0.05	3.48
	Forklift, 5 ton	11.96	36.71	41.53	0.05	4.22
	Forklift, 10 ton	11.79	37.82	46.76	0.05	4.70
	Motor, Auxilary Power	0.18	0.75	1.19	0.00	0.07
2010 Total Emission		**31.22**	**102.92**	**140.93**	**0.15**	**12.47**

2011		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	30.59	121.86	215.55	0.22	14.72
	Forklift, 5 ton	31.48	105.43	117.36	0.14	11.42
	Forklift, 10 ton	31.14	109.11	131.15	0.15	12.69
Road Maintenance	Motor Grader	2.13	8.57	14.27	0.01	1.09
	Crawler, Track Type, w/ blade (D6 Type)	2.61	10.17	20.39	0.02	1.13
Roads & Landing Work (Road Work)	Crawler, Track Type, w/ blade (D8 type)	151.22	474.54	1,405.16	1.43	55.97
	Crawler, Track Type, w/ blade (D6 Type)	65.99	257.50	516.35	0.51	28.56
	Backhoe w/ Bucket; backhoe w/ concrete hammer	26.05	93.18	111.09	0.13	10.19
	Excavator, Grade - All	96.33	455.84	702.26	0.84	45.68
	Motor Grader	33.69	135.68	225.85	0.24	17.29
Wreck-Out (Conductors, Structures & Foundations)	Tension Machine	4.94	23.14	35.33	0.04	2.71
	Crawler, Track Type, w/ blade (D8 type)	11.95	37.49	111.00	0.11	4.42
	Backhoe w/ Bucket; backhoe w/ concrete hammer	21.95	78.51	93.61	0.11	8.59
	Crane, Hydraulic, Rough Terrain 35 ton	6.23	24.82	43.89	0.04	3.00
	Motor, Auxilary Power	0.23	1.00	1.55	0.00	0.09
2011 Total Emission		**516.51**	**1,936.84**	**3,744.83**	**4.01**	**217.55**

2012		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	3.35	14.05	23.54	0.03	1.59
	Forklift, 5 ton	4.83	17.85	19.46	0.02	1.79
	Forklift, 10 ton	4.80	18.55	21.55	0.03	1.98
	Motor, Auxilary Power	0.08	0.37	0.56	0.00	0.03
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	58.33	244.83	410.13	0.44	27.73
	Forklift, 5 ton	56.10	207.33	226.03	0.28	20.74
	Forklift, 10 ton	55.71	215.47	250.30	0.31	22.97
Road Maintenance	Motor Grader	68.71	293.82	462.13	0.52	34.82
	Crawler, Track Type, w/ blade (D6 Type)	85.51	347.10	663.98	0.69	36.31
Construct New Roads & Landing Work	Crawler, Track Type, w/ blade (D8 type)	124.47	387.45	1,137.03	1.24	44.61
	Crawler, Track Type, w/ blade (D6 Type)	54.26	220.25	421.33	0.44	23.04
	Backhoe w/ Bucket; backhoe w/ concrete hammer	20.29	78.84	91.23	0.11	8.03
	Excavator, Grade - All	77.77	392.95	563.28	0.73	35.84
	Motor Grader	27.25	116.53	183.28	0.20	13.81
Install Foundations	Crawler, Track Type, w/ blade (D6 Type)	22.93	93.05	178.01	0.19	9.74
	Crawler, track type, drill dig, Pheumatic D8	70.12	218.26	640.52	0.70	25.13
	Generator, Concrete Batch Plant	24.83	70.79	76.79	0.10	6.59
	Backhoe w/ Bucket; backhoe w/ concrete hammer	30.48	118.43	137.05	0.17	12.06
	Motor, Auxilary Power	0.90	4.02	6.11	0.01	0.35
	Excavator, Grade - All	21.91	110.68	158.66	0.21	10.10
Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton	146.45	495.66	1,380.04	1.60	51.20
	Crane, Hydraulic, Rough Terrain 35 ton	301.72	1,266.44	2,121.49	2.27	143.43
	Compressor, Air	434.47	1,291.10	1,522.26	1.71	147.90
	Motor, Auxilary Power	2.50	11.15	16.97	0.03	0.98
Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	12.98	50.43	58.36	0.07	5.14
	Crane, Hydraulic, Rough Terrain 35 ton	46.29	194.31	325.50	0.35	22.01
	Crawler, Track Type, w/ blade (D8 type)	19.91	61.96	181.84	0.20	7.13
	Crawler, Track Type, Sagging (D8 type)	39.81	123.93	363.69	0.40	14.27
	Motor, Auxilary Power	2.05	9.12	13.89	0.02	0.80
	Tension machine, conductor	31.69	160.90	230.16	0.30	17.28
	Tension machine, static	10.56	53.63	76.72	0.10	5.76
Wreck-Out (conductors, structures, & Foundations)	Tension Machine, Conductor or Static	30.78	156.30	223.57	0.29	16.79
	Crawler, Track Type, w/ blade (D8 type)	77.34	240.76	706.55	0.77	27.72
	Backhoe w/ Bucket; backhoe w/ concrete hammer	134.49	522.57	604.72	0.76	53.21
	Crane, Hydraulic, Rough Terrain 35 ton	39.97	167.77	281.05	0.30	19.00
	Motor, Auxilary Power	1.49	6.65	10.12	0.02	0.58
Restoration & Guard Poles	Backhoe	3.97	15.44	17.87	0.02	1.57
	Motor Grader	10.25	43.81	68.91	0.08	5.19
2012 Total Emission		**2,159.36**	**8,042.58**	**13,874.68**	**15.68**	**877.23**

2013		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	0.28	1.20	1.34	0.00	0.11
	Crane, Hydraulic, Rough Terrain 35 ton	1.06	4.71	7.47	0.01	0.50
	Crawler, Track Type, w/ blade (D8 type)	0.46	1.43	4.15	0.00	0.16
	Crawler, Track Type, Sagging (D8 type)	0.92	2.86	8.29	0.01	0.32
	Motor, Auxilary Power	0.05	0.22	0.32	0.00	0.02
	Tension machine, conductor	0.71	3.90	5.23	0.01	0.38
	Tension machine, static	0.24	1.30	1.74	0.00	0.13
Restoration & Guard Poles	Backhoe	3.07	13.00	14.42	0.02	1.20
	Motor Grader	8.23	37.42	55.59	0.07	4.08
2013 Total Emission		**15.03**	**66.04**	**98.54**	**0.12**	**6.89**

Proposed Project ANF - Helicopter Emissions

Hughes 500 Emissions (tons)

		HC	CO	NOx	SOx	PM
Segment 6	2011	0.09	0.20	0.41	0.00	0.02
	2012	0.01	0.03	0.05	0.00	0.00
Segment 11	2011	0.00	0.00	0.00	0.00	0.00
	2012	0.03	0.07	0.13	0.00	0.01
	2013	0.00	0.00	0.00	0.00	0.00

Segment 6
Total Emissions (lbs)

Helicopter Type	Year	HC	CO	NOx	SOx	PM
Eurocopter	2010	562.79	1,260.85	2,574.49	21.34	140.09
(personnel)	2011	347.02	777.46	1,587.48	13.16	86.38
Skyking	2010	2,428.04	8,791.53	7,815.46	65.73	433.26
(foundation)	2011	818.44	2,963.44	2,634.43	22.16	146.04
Skycrane	2010	0.00	5,396.60	6,957.76	57.83	385.47
(tower)	2011	761.31	5,396.60	6,957.76	57.83	385.47

Segment 6
Total Emissions (ton)

Helicopter Type	Year	HC	CO	NOx	SOx	PM
Eurocopter	2010	0.28	0.63	1.29	0.01	0.07
(personnel)	2011	0.17	0.39	0.79	0.01	0.04
Skyking	2010	1.21	4.40	3.91	0.03	0.22
(foundation)	2011	0.41	1.48	1.32	0.01	0.07
Skycrane	2010	0.00	2.70	3.48	0.03	0.19
(tower)	2011	0.38	2.70	3.48	0.03	0.19

Segment 11
Total Emissions (lbs)

Helicopter Type	Year	HC	CO	NOx	SOx	PM
Eurocopter	2011	0.00	0.00	0.00	0.00	0.00
	2012	856.29	1,918.41	3,917.15	32.48	213.15
Skyking	2011	0.00	0.00	0.00	0.00	0.00
	2012	3,055.51	11,063.49	9,835.19	82.72	545.23
Skycrane	2011	0.00	0.00	0.00	0.00	0.00
	2012	716.52	5,079.15	6,548.48	54.43	362.80

Segment 11
Total Emissions (ton)

Helicopter Type	Year	HC	CO	NOx	SOx	PM
Eurocopter	2011	0.00	0.00	0.00	0.00	0.00
	2012	0.43	0.96	1.96	0.02	0.11
Skyking	2011	0.00	0.00	0.00	0.00	0.00
	2012	1.53	5.53	4.92	0.04	0.27
Skycrane	2011	0.00	0.00	0.00	0.00	0.00
	2012	0.36	2.54	3.27	0.03	0.18

Total ANF Helicopter Emissions (ton)

Year	HC	CO	NOx	SOx	PM
2010	1.50	7.72	8.67	0.07	0.48
2011	1.05	4.77	6.00	0.05	0.33
2012	2.35	9.12	10.34	0.09	0.57
2013	0.00	0.00	0.00	0.00	0.00

Proposed Project ANF - SCAQMD - Onroad Emissions

Segment 6

		VMT	Emissions lbs -2009					
2009	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	0	0.00	0.00	0.00	0.00	0.00	0.00
	Delivery	0	0.00	0.00	0.00	0.00	0.00	0.00
	Heavy-Heavy Duty	0	0.00	0.00	0.00	0.00	0.00	0.00
		Totals	0.00	0.00	0.00	0.00	0.00	0.00

		VMT	Emissions lbs -2010					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	376,849	344.44	3,113.81	346.00	4.06	32.78	20.64
	Delivery	172,633	447.05	3,182.94	3,560.48	4.66	129.68	110.89
	Heavy-Heavy Duty	144,301	438.90	1,725.06	5,515.34	5.96	264.16	231.00
		Totals	1,230.38	8,021.81	9,421.82	14.68	426.62	362.53

		VMT	Emissions lbs -2011					
2011	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	717,312	611.39	5,926.97	605.84	7.73	63.69	40.55
	Delivery	250,379	605.59	4,239.53	4,740.59	6.83	175.51	149.43
	Heavy-Heavy Duty	107,398	300.22	1,194.76	3,711.48	4.27	178.37	155.18
		Totals	1,517.20	11,361.26	9,057.91	18.82	417.58	345.15

		VMT	Emissions lbs -2012					
2012	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	48,080	38.29	368.04	37.30	0.52	4.32	2.76
	Delivery	16,887	37.79	261.03	292.55	0.45	10.97	9.28
	Heavy-Heavy Duty	26,337	66.57	269.04	814.43	1.06	39.39	34.07
		Totals	142.64	898.10	1,144.28	2.03	54.68	46.11

Segment 6 Total in ANF	VMT	Emissions lbs					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	1,142,240	994.11	9,408.82	989.15	12.31	100.79	63.95
Delivery	439,899	1,090.42	7,683.49	8,593.63	11.94	316.16	269.60
Heavy-Heavy Duty	278,036	805.70	3,188.86	10,041.25	11.29	481.93	420.25
	Totals	2,890.23	20,281.17	19,624.02	35.54	898.88	753.80

Segment 11

		VMT	Emissions lbs -2009					
2009	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	45,094	44.75	436.76	45.33	0.48	3.88	2.43
	Delivery	23,700	66.10	477.82	530.09	0.63	19.09	16.41
	Heavy-Heavy Duty	7,900	26.02	101.30	330.59	0.32	15.77	13.84
	Totals		136.87	1,015.88	906.00	1.43	38.74	32.68

		VMT	Emissions lbs -2010					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	0	0.00	0.00	0.00	0.00	0.00	0.00
	Delivery	0	0.00	0.00	0.00	0.00	0.00	0.00
	Heavy-Heavy Duty	0	0.00	0.00	0.00	0.00	0.00	0.00
	Totals		0.00	0.00	0.00	0.00	0.00	0.00

		VMT	Emissions lbs -2011					
2011	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	70,178	59.82	579.87	59.27	0.76	6.23	3.97
	Delivery	23,896	57.80	404.61	452.44	0.65	16.75	14.26
	Heavy-Heavy Duty	39,259	109.75	436.74	1,356.72	1.56	65.20	56.73
	Totals		227.36	1,421.22	1,868.43	2.97	88.19	74.95

		VMT	Emissions lbs -2012					
2012	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	381,818	304.03	2,922.72	296.23	4.10	34.28	21.95
	Delivery	132,497	296.50	2,048.05	2,295.40	3.53	86.09	72.81
	Heavy-Heavy Duty	72,075	182.18	736.26	2,228.83	2.91	107.80	93.23
	Totals		782.71	5,707.04	4,820.46	10.54	228.17	188.00

		VMT	Emissions lbs -2013					
2013	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	2,744	2.05	19.46	1.95	0.03	0.25	0.16
	Delivery	2,102	4.34	29.58	33.15	0.06	1.26	1.05
	Heavy-Heavy Duty	2,102	4.76	19.58	57.64	0.09	2.81	2.41
	Totals		11.14	68.63	92.74	0.17	4.32	3.62

Segment 11 Total in ANF	VMT	Emissions lbs					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	499,834	410.65	3,958.81	402.78	5.36	44.64	28.51
Delivery	182,194	424.73	2,960.07	3,311.07	4.88	123.19	104.54
Heavy-Heavy Duty	121,336	322.70	1,293.88	3,973.79	4.88	191.58	166.21
Totals		1,158.07	8,212.76	7,687.64	15.12	359.41	299.25

Onroad Emissions Total

ANF Totals (lbs)

	VMT	Emissions lbs					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	1,642,074	1,404.76	13,367.63	1,391.92	17.67	145.43	92.46
Delivery	622,093	1,515.15	10,643.56	11,904.70	16.82	439.36	374.13
Heavy-Heavy Duty	399,372	1,128.40	4,482.74	14,015.04	16.17	673.51	586.46
	Totals	4,048.30	28,493.94	27,311.66	50.66	1,258.29	1,053.05

ANF Totals (ton)

	VMT	Emissions ton					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	1,642,074	0.70	6.68	0.70	0.01	0.07	0.05
Delivery	622,093	0.76	5.32	5.95	0.01	0.22	0.19
Heavy-Heavy Duty	399,372	0.56	2.24	7.01	0.01	0.34	0.29
	Totals	2.02	14.25	13.66	0.03	0.63	0.53

Proposed Project ANF - SCAQMD - Offroad Emissions

Segment 6

2009		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	0.00	0.00	0.00	0.00	0.00
	Forklift, 5 ton	0.00	0.00	0.00	0.00	0.00
	Forklift, 10 ton	0.00	0.00	0.00	0.00	0.00
	Motor, Auxilary Power	0.00	0.00	0.00	0.00	0.00
2009 Total Emission		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2010		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	61.74	233.98	435.43	0.41	29.47
	Forklift, 5 ton	101.21	310.66	351.49	0.40	35.70
	Forklift, 10 ton	99.76	320.08	395.73	0.44	39.74
	Motor, Auxilary Power	1.51	6.35	10.09	0.01	0.60
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	0.00	0.00	0.00	0.00	0.00
	Forklift, 5 ton	0.00	0.00	0.00	0.00	0.00
	Forklift, 10 ton	0.00	0.00	0.00	0.00	0.00
Road Maintenance	Motor Grader	0.00	0.00	0.00	0.00	0.00
	Crawler, Track Type, w/ blade (D6 Type)	0.00	0.00	0.00	0.00	0.00
Roads & Landing Work	Crawler, Track Type, w/ blade (D8 type)	332.27	1,053.38	3,137.27	2.99	126.61
	Crawler, Track Type, w/ blade (D6 Type)	145.00	544.87	1,142.29	1.06	62.74
	Backhoe w/ Bucket; backhoe w/ concrete hammer	60.22	199.37	244.03	0.28	22.99
	Excavator, Grade - All	215.42	956.25	1,578.24	1.76	101.46
	Motor Grader	75.15	285.78	501.25	0.49	38.22
Install Foundations	Crawler, Track Type, w/ blade (D6 Type)	30.28	113.79	238.54	0.22	13.10
	Excavator, Grade - All	29.99	133.13	219.72	0.25	14.13
	Crawler, track type, drill dig, Pheumatic D8	92.52	293.30	873.54	0.83	35.25
	Generator, Concrete Batch Plant	34.58	89.92	95.05	0.12	8.79
	Backhoe w/ Bucket; backhoe w/ concrete hammer	44.72	148.04	181.20	0.21	17.07
	Motor, Auxilary Power	1.19	4.99	7.94	0.01	0.47
Wreck-Out (conductors, structures, & Foundations)	Tension Machine, Conductor or Static	69.23	300.44	487.03	0.55	37.16
	Crawler, Track Type, w/ blade (D8 type)	161.74	512.77	1,527.19	1.46	61.63
	Backhoe w/ Bucket; backhoe w/ concrete hammer	312.71	1,035.22	1,267.13	1.44	119.38
	Crane, Hydraulic, Rough Terrain 35 ton	84.92	321.84	598.92	0.57	40.53
	Motor, Auxilary Power	3.11	13.09	20.82	0.03	1.24
2010 Total Emission		**1,957.27**	**6,877.27**	**13,312.91**	**13.54**	**806.29**

2011		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	66.43	264.69	468.19	0.47	31.96
	Forklift, 5 ton	68.37	228.99	254.91	0.30	24.80
	Forklift, 10 ton	67.64	236.99	284.86	0.33	27.57
Road Maintenance	Motor Grader	51.34	206.77	344.18	0.36	26.35
	Crawler, Track Type, w/ blade (D6 Type)	62.85	245.25	491.80	0.48	27.21
Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton	204.96	706.39	1,967.33	2.12	74.52
	Crane, Hydraulic, Rough Terrain 35 ton	423.52	1,687.44	2,984.83	3.01	203.77
	Compressor, Air	621.44	1,753.74	2,105.28	2.27	208.03
	Motor, Auxilary Power	3.48	15.07	23.48	0.03	1.38
Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	19.40	69.40	82.74	0.10	7.59
	Crane, Hydraulic, Rough Terrain 35 ton	66.06	263.22	465.60	0.47	31.79
	Crawler, Track Type, w/ blade (D8 type)	28.16	88.36	261.64	0.27	10.42
	Crawler, Track Type, Sagging (D8 type)	56.31	176.72	523.28	0.53	20.84
	Motor, Auxilary Power	2.90	12.54	19.53	0.03	1.14
	Tension machine, conductor	46.56	218.19	333.14	0.40	25.55
	Tension machine, static	15.52	72.73	111.05	0.13	8.52
Restoration & Guard Poles	Backhoe	8.82	31.55	37.61	0.04	3.45
	Motor Grader	21.90	88.19	146.80	0.15	11.24
2011 Total Emission		**1,835.68**	**6,366.23**	**10,906.23**	**11.50**	**746.12**

2012		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	35.43	148.71	249.11	0.27	16.84
	Forklift, 5 ton	34.08	125.93	137.29	0.17	12.60
	Forklift, 10 ton	33.84	130.88	152.03	0.19	13.95
Road Maintenance	Motor Grader	37.00	158.22	248.85	0.28	18.75
	Crawler, Track Type, w/ blade (D6 Type)	46.05	186.90	357.54	0.37	19.55
Install Foundations	Crawler, Track Type, w/ blade (D6 Type)	0.00	0.00	0.00	0.00	0.00
	Crawler, track type, drill dig, Pheumatic D8	0.00	0.00	0.00	0.00	0.00
	Generator, Concrete Batch Plant	0.00	0.00	0.00	0.00	0.00
	Backhoe w/ Bucket; backhoe w/ concrete hammer	0.00	0.00	0.00	0.00	0.00
	Motor, Auxilary Power	0.00	0.00	0.00	0.00	0.00
	Excavator, Grade - All	0.00	0.00	0.00	0.00	0.00
Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton	0.00	0.00	0.00	0.00	0.00
	Crane, Hydraulic, Rough Terrain 35 ton	0.00	0.00	0.00	0.00	0.00
	Compressor, Air	0.00	0.00	0.00	0.00	0.00
	Motor, Auxilary Power	0.00	0.00	0.00	0.00	0.00
Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	0.00	0.00	0.00	0.00	0.00
	Crane, Hydraulic, Rough Terrain 35 ton	0.00	0.00	0.00	0.00	0.00
	Crawler, Track Type, w/ blade (D8 type)	0.00	0.00	0.00	0.00	0.00
	Crawler, Track Type, Sagging (D8 type)	0.00	0.00	0.00	0.00	0.00
	Motor, Auxilary Power	0.00	0.00	0.00	0.00	0.00
	Tension machine, conductor	0.00	0.00	0.00	0.00	0.00
	Tension machine, static	0.00	0.00	0.00	0.00	0.00
Wreck-Out (conductors, structures, & Foundations)	Tension Machine, Conductor or Static	0.00	0.00	0.00	0.00	0.00
	Crawler, Track Type, w/ blade (D8 type)	0.00	0.00	0.00	0.00	0.00
	Backhoe w/ Bucket; backhoe w/ concrete hammer	0.00	0.00	0.00	0.00	0.00
	Crane, Hydraulic, Rough Terrain 35 ton	0.00	0.00	0.00	0.00	0.00
	Motor, Auxilary Power	0.00	0.00	0.00	0.00	0.00
Restoration & Guard Poles	Backhoe	0.00	0.00	0.00	0.00	0.00
	Motor Grader	0.00	0.00	0.00	0.00	0.00
2012 Total Emission		**186.39**	**750.63**	**1,144.81**	**1.27**	**81.69**

Segment 11

2009		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	31.11	112.30	219.52	0.20	14.73
	Forklift, 5 ton	54.22	153.55	176.19	0.19	18.57
	Forklift, 10 ton	53.21	157.31	199.68	0.21	20.67
	Motor, Auxilary Power	0.75	3.08	4.99	0.01	0.30
2009 Total Emission		**139.30**	**426.23**	**600.38**	**0.60**	**54.28**

2010		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	0.00	0.00	0.00	0.00	0.00
	Forklift, 5 ton	0.00	0.00	0.00	0.00	0.00
	Forklift, 10 ton	0.00	0.00	0.00	0.00	0.00
	Motor, Auxilary Power	0.00	0.00	0.00	0.00	0.00
2010 Total Emission		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2011		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	30.59	121.86	215.55	0.22	14.72
	Forklift, 5 ton	31.48	105.43	117.36	0.14	11.42
	Forklift, 10 ton	31.14	109.11	131.15	0.15	12.69
Road Maintenance	Motor Grader	2.13	8.57	14.27	0.01	1.09
	Crawler, Track Type, w/ blade (D6 Type)	2.61	10.17	20.39	0.02	1.13
Roads & Landing Work (Road Work)	Crawler, Track Type, w/ blade (D8 type)	151.22	474.54	1,405.16	1.43	55.97
	Crawler, Track Type, w/ blade (D6 Type)	65.99	257.50	516.35	0.51	28.56
	Backhoe w/ Bucket; backhoe w/ concrete hammer	26.05	93.18	111.09	0.13	10.19
	Excavator, Grade - All	96.33	455.84	702.26	0.84	45.68
	Motor Grader	33.69	135.68	225.85	0.24	17.29
Wreck-Out (Conductors, Structures & Foundations)	Tension Machine	4.94	23.14	35.33	0.04	2.71
	Crawler, Track Type, w/ blade (D8 type)	11.95	37.49	111.00	0.11	4.42
	Backhoe w/ Bucket; backhoe w/ concrete hammer	21.95	78.51	93.61	0.11	8.59
	Crane, Hydraulic, Rough Terrain 35 ton	6.23	24.82	43.89	0.04	3.00
	Motor, Auxilary Power	0.23	1.00	1.55	0.00	0.09
2011 Total Emission		**516.51**	**1,936.84**	**3,744.83**	**4.01**	**217.55**

2012		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	0.00	0.00	0.00	0.00	0.00
	Forklift, 5 ton	0.00	0.00	0.00	0.00	0.00
	Forklift, 10 ton	0.00	0.00	0.00	0.00	0.00
	Motor, Auxilary Power	0.00	0.00	0.00	0.00	0.00
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	24.34	102.15	171.12	0.18	11.57
	Forklift, 5 ton	23.41	86.51	94.31	0.12	8.65
	Forklift, 10 ton	23.25	89.90	104.44	0.13	9.58
Road Maintenance	Motor Grader	41.15	175.96	276.75	0.31	20.85
	Crawler, Track Type, w/ blade (D6 Type)	51.21	207.86	397.64	0.41	21.75
Construct New Roads & Landing Work	Crawler, Track Type, w/ blade (D8 type)	15.13	47.11	138.25	0.15	5.42
	Crawler, Track Type, w/ blade (D6 Type)	6.60	26.78	51.23	0.05	2.80
	Backhoe w/ Bucket; backhoe w/ concrete hammer	2.47	9.59	11.09	0.01	0.98
	Excavator, Grade - All	9.46	47.78	68.49	0.09	4.36
	Motor Grader	3.31	14.17	22.28	0.02	1.68
Install Foundations	Crawler, Track Type, w/ blade (D6 Type)	13.99	56.78	108.62	0.11	5.94
	Crawler, track type, drill dig, Pheumatic D8	42.78	133.18	390.83	0.43	15.33
	Generator, Concrete Batch Plant	15.15	43.19	46.85	0.06	4.02
	Backhoe w/ Bucket; backhoe w/ concrete hammer	18.60	72.26	83.62	0.11	7.36
	Motor, Auxilary Power	0.55	2.45	3.73	0.01	0.22
	Excavator, Grade - All	13.37	67.53	96.81	0.13	6.16
Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton	89.36	302.44	842.06	0.97	31.24
	Crane, Hydraulic, Rough Terrain 35 ton	184.10	772.74	1,294.47	1.38	87.52
	Compressor, Air	265.10	787.79	928.84	1.05	90.25
	Motor, Auxilary Power	1.53	6.80	10.35	0.02	0.60
Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	8.11	31.52	36.48	0.05	3.21
	Crane, Hydraulic, Rough Terrain 35 ton	28.94	121.45	203.45	0.22	13.76
	Crawler, Track Type, w/ blade (D8 type)	12.44	38.73	113.66	0.12	4.46
	Crawler, Track Type, Sagging (D8 type)	24.88	77.46	227.32	0.25	8.92
	Motor, Auxilary Power	1.28	5.70	8.68	0.01	0.50
	Tension machine, conductor	19.81	100.57	143.86	0.19	10.80
	Tension machine, static	6.60	33.52	47.95	0.06	3.60
Wreck-Out (conductors, structures, & Foundations)	Tension Machine, Conductor or Static	17.02	86.41	123.60	0.16	9.28
	Crawler, Track Type, w/ blade (D8 type)	42.76	133.10	390.61	0.42	15.32
	Backhoe w/ Bucket; backhoe w/ concrete hammer	74.35	288.89	334.31	0.42	29.42
	Crane, Hydraulic, Rough Terrain 35 ton	22.10	92.75	155.37	0.17	10.50
	Motor, Auxilary Power	0.82	3.67	5.59	0.01	0.32
Restoration & Guard Poles	Backhoe	0.00	0.00	0.00	0.00	0.00
	Motor Grader	0.00	0.00	0.00	0.00	0.00
2012 Total Emission		**1,103.96**	**4,066.77**	**6,932.66**	**7.82**	**446.38**

2013		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	0.00	0.00	0.00	0.00	0.00
	Crane, Hydraulic, Rough Terrain 35 ton	0.00	0.00	0.00	0.00	0.00
	Crawler, Track Type, w/ blade (D8 type)	0.00	0.00	0.00	0.00	0.00
	Crawler, Track Type, Sagging (D8 type)	0.00	0.00	0.00	0.00	0.00
	Motor, Auxilary Power	0.00	0.00	0.00	0.00	0.00
	Tension machine, conductor	0.00	0.00	0.00	0.00	0.00
	Tension machine, static	0.00	0.00	0.00	0.00	0.00
Restoration & Guard Poles	Backhoe	2.59	10.97	12.16	0.02	1.01
	Motor Grader	6.95	31.57	46.90	0.06	3.44
2013 Total Emission		**9.54**	**42.54**	**59.06**	**0.07**	**4.45**

Proposed Project ANF - SCAQMD - Helicopter Emissions

Hughes 500

	Year	HC	CO	NOx	SOx	PM
Segment 6	2011	0.069	0.155	0.316	0.003	0.017
	2012	0.000	0.000	0.000	0.000	0.000
Segment 11	2011	0.000	0.000	0.000	0.000	0.000
	2012	0.018	0.041	0.083	0.001	0.005
	2013	0.000	0.000	0.000	0.000	0.000

Segment 6

Total Emissions (ton)

	Year	HC	CO	NOx	SOx	PM
Total	2010	1.495	7.724	8.674	0.072	0.479
	2011	0.963	4.569	5.590	0.047	0.309

Segment 11

Total Emissions (ton)

	Year	HC	CO	NOx	SOx	PM
Total	2012	0.853	3.327	3.740	0.031	0.207

Total ANF Helicopter Emissions (ton)

Year	HC	CO	NOx	SOx	PM
2010	1.495	7.724	8.674	0.072	0.479
2011	1.033	4.724	5.906	0.049	0.326
2012	0.871	3.368	3.823	0.032	0.211
2013	0.000	0.000	0.000	0.000	0.000

Proposed Project ANF - AVAQMD/MDAB - Onroad Emissions

Segment 6

		VMT	Emissions lbs -2009					
2009	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	25,701	25.51	248.93	25.83	0.27	2.21	1.38
	Delivery	12,850	35.84	259.08	287.42	0.34	10.35	8.90
	Heavy-Heavy Duty	4,283	14.11	54.92	179.25	0.17	8.55	7.51
		Totals	75.45	562.93	492.50	0.79	21.11	17.79

		VMT	Emissions lbs -2010					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	122,015	111.52	1,008.18	112.03	1.31	10.61	6.68
	Delivery	50,868	131.73	937.88	1,049.12	1.37	38.21	32.67
	Heavy-Heavy Duty	53,656	163.20	641.43	2,050.79	2.22	98.22	85.89
		Totals	406.44	2,587.50	3,211.94	4.91	147.05	125.25

		VMT	Emissions lbs -2011					
2011	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	218,676	186.38	1,806.87	184.69	2.36	19.42	12.36
	Delivery	78,002	188.66	1,320.76	1,476.85	2.13	54.68	46.55
	Heavy-Heavy Duty	35,007	97.86	389.44	1,209.77	1.39	58.14	50.58
		Totals	472.90	3,517.06	2,871.32	5.87	132.24	109.49

		VMT	Emissions lbs -2012					
2012	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	105,527	84.03	807.78	81.87	1.13	9.48	6.07
	Delivery	47,730	106.81	737.78	826.88	1.27	31.01	26.23
	Heavy-Heavy Duty	19,218	48.58	196.31	594.29	0.78	28.74	24.86
		Totals	239.41	1,741.87	1,503.04	3.18	69.23	57.16

Segment 6 Total in ANF		VMT	Emissions lbs					
	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	471,919	407.44	3,871.76	404.43	5.08	41.72	26.50
	Delivery	189,449	463.03	3,255.49	3,640.28	5.12	134.25	114.35
	Heavy-Heavy Duty	112,164	323.74	1,282.11	4,034.09	4.56	193.66	168.84
		Totals	1,194.21	8,409.36	8,078.80	14.75	369.63	309.69

Segment 11

		VMT	Emissions lbs -2009					
2009	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	11,881	11.79	115.07	11.94	0.13	1.02	0.64
	Delivery	6,244	17.42	125.89	139.66	0.17	5.03	4.32
	Heavy-Heavy Duty	2,081	6.85	26.69	87.10	0.08	4.15	3.65
		Totals	36.06	267.65	238.70	0.38	10.21	8.61

		VMT	Emissions lbs -2010					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	11,179	10.22	92.37	10.26	0.12	0.97	0.61
	Delivery	5,875	15.21	108.32	121.17	0.16	4.41	3.77
	Heavy-Heavy Duty	1,958	5.96	23.41	74.85	0.08	3.59	3.14
		Totals	31.39	224.10	206.29	0.36	8.97	7.52

		VMT	Emissions lbs -2011					
2011	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	0	0.00	0.00	0.00	0.00	0.00	0.00
	Delivery	0	0.00	0.00	0.00	0.00	0.00	0.00
	Heavy-Heavy Duty	0	0.00	0.00	0.00	0.00	0.00	0.00
		Totals	0.00	0.00	0.00	0.00	0.00	0.00

		VMT	Emissions lbs -2012					
2012	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	298,648	237.81	2,286.08	231.70	3.20	26.82	17.17
	Delivery	105,899	236.98	1,636.92	1,834.61	2.82	68.81	58.20
	Heavy-Heavy Duty	75,882	191.80	775.15	2,346.56	3.07	113.49	98.16
		Totals	666.58	4,698.14	4,412.87	9.10	209.12	173.52

		VMT	Emissions lbs -2013					
2013	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	3,379	2.52	23.97	2.40	0.04	0.31	0.20
	Delivery	1,544	3.18	21.73	24.35	0.04	0.93	0.77
	Heavy-Heavy Duty	851	1.93	7.93	23.35	0.03	1.14	0.98
		Totals	7.63	53.63	50.10	0.11	2.37	1.95

Segment 11 Total in ANF		VMT	Emissions lbs					
	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	325,087	262.34	2,517.48	256.31	3.49	29.12	18.62
	Delivery	119,562	272.79	1,892.86	2,119.79	3.19	79.18	67.07
	Heavy-Heavy Duty	80,773	206.54	833.18	2,531.86	3.27	122.37	105.91
		Totals	741.66	5,243.52	4,907.96	9.95	230.66	191.60

Onroad Emissions Total

ANF Totals (lbs)

	VMT	Emissions lbs					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	797,006	669.78	6,389.24	660.74	8.56	70.83	45.12
Delivery	309,011	735.82	5,148.35	5,760.07	8.31	213.43	181.42
Heavy-Heavy Duty	192,937	530.28	2,115.29	6,565.95	7.82	316.03	274.75
	Totals	1,935.88	13,652.88	12,986.76	24.70	600.29	501.29

ANF Totals (ton)

	VMT	Emissions ton					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	797,006	0.33	3.19	0.33	0.00	0.04	0.02
Delivery	309,011	0.37	2.57	2.88	0.00	0.11	0.09
Heavy-Heavy Duty	192,937	0.27	1.06	3.28	0.00	0.16	0.14
	Totals	0.97	6.83	6.49	0.01	0.30	0.25

Proposed Project ANF - AVAQMD/MDAB - Offroad Emissions

Segment 6

2009		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	17.73	64.00	125.11	0.11	8.40
	Forklift, 5 ton	30.90	87.51	100.42	0.11	10.58
	Forklift, 10 ton	30.33	89.66	113.81	0.12	11.78
	Motor, Auxilary Power	0.43	1.75	2.84	0.00	0.17
2009 Total Emission		**79.39**	**242.93**	**342.18**	**0.34**	**30.93**

2010		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	9.09	34.46	64.12	0.06	4.34
	Forklift, 5 ton	14.91	45.75	51.76	0.06	5.26
	Forklift, 10 ton	14.69	47.14	58.28	0.06	5.85
	Motor, Auxilary Power	0.22	0.93	1.49	0.00	0.09
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	27.23	103.19	192.04	0.18	13.00
	Forklift, 5 ton	29.76	91.34	103.35	0.12	10.50
	Forklift, 10 ton	29.33	94.11	116.35	0.13	11.68
Road Maintenance	Motor Grader	5.18	19.71	34.57	0.03	2.64
	Crawler, Track Type, w/ blade (D6 Type)	6.25	23.49	49.24	0.05	2.70
Roads & Landing Work	Crawler, Track Type, w/ blade (D8 type)	98.78	313.17	932.70	0.89	37.64
	Crawler, Track Type, w/ blade (D6 Type)	43.11	161.99	339.60	0.32	18.65
	Backhoe w/ Bucket; backhoe w/ concrete hammer	17.90	59.27	72.55	0.08	6.84
	Excavator, Grade - All	64.05	284.29	469.21	0.52	30.16
	Motor Grader	22.34	84.96	149.02	0.15	11.36
Install Foundations	Crawler, Track Type, w/ blade (D6 Type)	9.00	33.83	70.92	0.07	3.90
	Excavator, Grade - All	8.92	39.58	65.32	0.07	4.20
	Crawler, track type, drill dig, Pheumatic D8	27.50	87.20	259.70	0.25	10.48
	Generator, Concrete Batch Plant	10.28	26.73	28.26	0.04	2.61
	Backhoe w/ Bucket; backhoe w/ concrete hammer	13.29	44.01	53.87	0.06	5.08
	Motor, Auxilary Power	0.35	1.48	2.36	0.00	0.14
Wreck-Out (conductors, structures, & Foundations)	Tension Machine, Conductor or Static	20.58	89.32	144.79	0.16	11.05
	Crawler, Track Type, w/ blade (D8 type)	48.09	152.45	454.03	0.43	18.32
	Backhoe w/ Bucket; backhoe w/ concrete hammer	92.97	307.77	376.71	0.43	35.49
	Crane, Hydraulic, Rough Terrain 35 ton	25.25	95.68	178.06	0.17	12.05
	Motor, Auxilary Power	0.92	3.89	6.19	0.01	0.37
2010 Total Emission		**640.00**	**2,245.74**	**4,274.48**	**4.34**	**264.40**

2011		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	17.82	70.98	125.56	0.13	8.57
	Forklift, 5 ton	18.34	61.41	68.36	0.08	6.65
	Forklift, 10 ton	18.14	63.56	76.39	0.09	7.39
Road Maintenance	Motor Grader	33.21	133.76	222.64	0.23	17.05
	Crawler, Track Type, w/ blade (D6 Type)	40.66	158.65	318.14	0.31	17.60
Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton	60.93	210.01	584.88	0.63	22.15
	Crane, Hydraulic, Rough Terrain 35 ton	125.91	501.67	887.38	0.89	60.58
	Compressor, Air	184.75	521.38	625.89	0.68	61.85
	Motor, Auxilary Power	1.03	4.48	6.98	0.01	0.41
Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	5.77	20.63	24.60	0.03	2.26
	Crane, Hydraulic, Rough Terrain 35 ton	19.64	78.25	138.42	0.14	9.45
	Crawler, Track Type, w/ blade (D8 type)	8.37	26.27	77.78	0.08	3.10
	Crawler, Track Type, Sagging (D8 type)	16.74	52.54	155.57	0.16	6.20
	Motor, Auxilary Power	0.86	3.73	5.81	0.01	0.34
	Tension machine, conductor	13.84	64.87	99.04	0.12	7.60
	Tension machine, static	4.61	21.62	33.01	0.04	2.53
Restoration & Guard Poles	Backhoe	2.62	9.38	11.18	0.01	1.03
	Motor Grader	6.51	26.22	43.64	0.05	3.34
2011 Total Emission		**579.77**	**2,029.42**	**3,505.30**	**3.68**	**238.09**

2012		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	0.00	0.00	0.00	0.00	0.00
	Forklift, 5 ton	0.00	0.00	0.00	0.00	0.00
	Forklift, 10 ton	0.00	0.00	0.00	0.00	0.00
Road Maintenance	Motor Grader	0.00	0.00	0.00	0.00	0.00
	Crawler, Track Type, w/ blade (D6 Type)	0.00	0.00	0.00	0.00	0.00
Install Foundations	Crawler, Track Type, w/ blade (D6 Type)	5.46	22.18	42.43	0.04	2.32
	Crawler, track type, drill dig, Pheumatic D8	16.71	52.03	152.68	0.17	5.99
	Generator, Concrete Batch Plant	5.92	16.87	18.30	0.02	1.57
	Backhoe w/ Bucket; backhoe w/ concrete hammer	7.27	28.23	32.67	0.04	2.87
	Motor, Auxilary Power	0.21	0.96	1.46	0.00	0.08
	Excavator, Grade - All	5.22	26.38	37.82	0.05	2.41
Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton	38.26	129.48	360.51	0.42	13.38
	Crane, Hydraulic, Rough Terrain 35 ton	78.82	330.84	554.21	0.59	37.47
	Compressor, Air	113.50	337.28	397.67	0.45	38.64
	Motor, Auxilary Power	0.65	2.91	4.43	0.01	0.26
Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	2.84	11.03	12.76	0.02	1.12
	Crane, Hydraulic, Rough Terrain 35 ton	10.12	42.49	71.17	0.08	4.81
	Crawler, Track Type, w/ blade (D8 type)	4.35	13.55	39.76	0.04	1.56
	Crawler, Track Type, Sagging (D8 type)	8.71	27.10	79.52	0.09	3.12
	Motor, Auxilary Power	0.45	1.99	3.04	0.00	0.18
	Tension machine, conductor	6.93	35.18	50.33	0.07	3.78
	Tension machine, static	2.31	11.73	16.78	0.02	1.26
Wreck-Out (conductors, structures, & Foundations)	Tension Machine, Conductor or Static	4.71	23.92	34.22	0.04	2.57
	Crawler, Track Type, w/ blade (D8 type)	11.84	36.85	108.15	0.12	4.24
	Backhoe w/ Bucket; backhoe w/ concrete hammer	20.59	79.99	92.56	0.12	8.15
	Crane, Hydraulic, Rough Terrain 35 ton	6.12	25.68	43.02	0.05	2.91
	Motor, Auxilary Power	0.23	1.02	1.55	0.00	0.09
Restoration & Guard Poles	Backhoe	0.95	3.68	4.25	0.01	0.37
	Motor Grader	2.44	10.43	16.41	0.02	1.24
2012 Total Emission		**354.61**	**1,271.81**	**2,175.72**	**2.46**	**140.38**

Segment 11

2009		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	8.20	29.59	57.84	0.05	3.88
	Forklift, 5 ton	14.28	40.45	46.42	0.05	4.89
	Forklift, 10 ton	14.02	41.45	52.61	0.05	5.45
	Motor, Auxilary Power	0.20	0.81	1.31	0.00	0.08
2009 Total Emission		**36.70**	**112.30**	**158.18**	**0.16**	**14.30**

2010		Annual Emissions lbs				
		ROG	CO	NOX	SOX	PM
Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	7.29	27.65	51.45	0.05	3.48
	Forklift, 5 ton	11.96	36.71	41.53	0.05	4.22
	Forklift, 10 ton	11.79	37.82	46.76	0.05	4.70
	Motor, Auxilary Power	0.18	0.75	1.19	0.00	0.07
2010 Total Emission		**31.22**	**102.92**	**140.93**	**0.15**	**12.47**

2011		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	0.00	0.00	0.00	0.00	0.00
	Forklift, 5 ton	0.00	0.00	0.00	0.00	0.00
	Forklift, 10 ton	0.00	0.00	0.00	0.00	0.00
Road Maintenance	Motor Grader	0.00	0.00	0.00	0.00	0.00
	Crawler, Track Type, w/ blade (D6 Type)	0.00	0.00	0.00	0.00	0.00
Roads & Landing Work (Road Work)	Crawler, Track Type, w/ blade (D8 type)	0.00	0.00	0.00	0.00	0.00
	Crawler, Track Type, w/ blade (D6 Type)	0.00	0.00	0.00	0.00	0.00
	Backhoe w/ Bucket; backhoe w/ concrete hammer	0.00	0.00	0.00	0.00	0.00
	Excavator, Grade - All	0.00	0.00	0.00	0.00	0.00
	Motor Grader	0.00	0.00	0.00	0.00	0.00
Wreck-Out (Conductors, Structures & Foundations)	Tension Machine	0.00	0.00	0.00	0.00	0.00
	Crawler, Track Type, w/ blade (D8 type)	0.00	0.00	0.00	0.00	0.00
	Backhoe w/ Bucket; backhoe w/ concrete hammer	0.00	0.00	0.00	0.00	0.00
	Crane, Hydraulic, Rough Terrain 35 ton	0.00	0.00	0.00	0.00	0.00
	Motor, Auxilary Power	0.00	0.00	0.00	0.00	0.00
2011 Total Emission		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2012		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	3.35	14.05	23.54	0.03	1.59
	Forklift, 5 ton	4.83	17.85	19.46	0.02	1.79
	Forklift, 10 ton	4.80	18.55	21.55	0.03	1.98
	Motor, Auxilary Power	0.08	0.37	0.56	0.00	0.03
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	33.99	142.68	239.01	0.26	16.16
	Forklift, 5 ton	32.69	120.82	131.72	0.16	12.09
	Forklift, 10 ton	32.47	125.57	145.87	0.18	13.39
Road Maintenance	Motor Grader	27.56	117.86	185.38	0.21	13.97
	Crawler, Track Type, w/ blade (D6 Type)	34.30	139.23	266.35	0.28	14.57
Construct New Roads & Landing Work	Crawler, Track Type, w/ blade (D8 type)	109.33	340.34	998.78	1.09	39.18
	Crawler, Track Type, w/ blade (D6 Type)	47.66	193.47	370.10	0.39	20.24
	Backhoe w/ Bucket; backhoe w/ concrete hammer	17.82	69.25	80.14	0.10	7.05
	Excavator, Grade - All	68.32	345.17	494.79	0.64	31.48
	Motor Grader	23.94	102.36	160.99	0.18	12.13
Install Foundations	Crawler, Track Type, w/ blade (D6 Type)	8.94	36.28	69.39	0.07	3.80
	Crawler, track type, drill dig, Pheumatic D8	27.33	85.09	249.70	0.27	9.80
	Generator, Concrete Batch Plant	9.68	27.60	29.93	0.04	2.57
	Backhoe w/ Bucket; backhoe w/ concrete hammer	11.88	46.17	53.43	0.07	4.70
	Motor, Auxilary Power	0.35	1.57	2.38	0.00	0.14
	Excavator, Grade - All	8.54	43.15	61.85	0.08	3.94
Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton	57.09	193.23	537.98	0.62	19.96
	Crane, Hydraulic, Rough Terrain 35 ton	117.62	493.70	827.02	0.88	55.92
	Compressor, Air	169.37	503.31	593.43	0.67	57.66
	Motor, Auxilary Power	0.98	4.35	6.62	0.01	0.38
Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	4.87	18.91	21.88	0.03	1.93
	Crane, Hydraulic, Rough Terrain 35 ton	17.36	72.86	122.05	0.13	8.25
	Crawler, Track Type, w/ blade (D8 type)	7.46	23.23	68.18	0.07	2.67
	Crawler, Track Type, Sagging (D8 type)	14.93	46.47	136.37	0.15	5.35
	Motor, Auxilary Power	0.77	3.42	5.21	0.01	0.30
	Tension machine, conductor	11.88	60.33	86.30	0.11	6.48
	Tension machine, static	3.96	20.11	28.77	0.04	2.16
Wreck-Out (conductors, structures, & Foundations)	Tension Machine, Conductor or Static	13.76	69.89	99.97	0.13	7.51
	Crawler, Track Type, w/ blade (D8 type)	34.59	107.66	315.94	0.34	12.39
	Backhoe w/ Bucket; backhoe w/ concrete hammer	60.14	233.67	270.41	0.34	23.79
	Crane, Hydraulic, Rough Terrain 35 ton	17.87	75.02	125.67	0.13	8.50
	Motor, Auxilary Power	0.67	2.97	4.52	0.01	0.26
Restoration & Guard Poles	Backhoe	3.97	15.44	17.87	0.02	1.57
	Motor Grader	10.25	43.81	68.91	0.08	5.19
2012 Total Emission		**1,055.41**	**3,975.81**	**6,942.02**	**7.86**	**430.85**

2013		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	0.28	1.20	1.34	0.00	0.11
	Crane, Hydraulic, Rough Terrain 35 ton	1.06	4.71	7.47	0.01	0.50
	Crawler, Track Type, w/ blade (D8 type)	0.46	1.43	4.15	0.00	0.16
	Crawler, Track Type, Sagging (D8 type)	0.92	2.86	8.29	0.01	0.32
	Motor, Auxilary Power	0.05	0.22	0.32	0.00	0.02
	Tension machine, conductor	0.71	3.90	5.23	0.01	0.38
	Tension machine, static	0.24	1.30	1.74	0.00	0.13
Restoration & Guard Poles	Backhoe	0.48	2.03	2.25	0.00	0.19
	Motor Grader	1.29	5.85	8.69	0.01	0.64
2013 Total Emission		**5.49**	**23.51**	**39.48**	**0.05**	**2.44**

Proposed Project ANF - AVAQMD/MDAB - Helicopter Emissions

Hughes 500

	Year	HC	CO	NOx	SOx	PM
Segment 6	2011	0.021	0.046	0.094	0.001	0.005
	2012	0.011	0.025	0.051	0.000	0.003
Segment 11	2011	0.000	0.000	0.000	0.000	0.000
	2012	0.011	0.024	0.050	0.000	0.003
	2013	0.001	0.002	0.003	0.000	0.000

Segment 6

Total Emissions (ton)

	Year	HC	CO	NOx	SOx	PM
Total	2010	0.000	0.000	0.000	0.000	0.000
	2011	0.000	0.000	0.000	0.000	0.000

Segment 11

Total Emissions (ton)

	Year	HC	CO	NOx	SOx	PM
Total	2012	1.462	5.703	6.411	0.054	0.354

Total ANF Helicopter Emissions (ton)

Year	HC	CO	NOx	SOx	PM
2010	0.000	0.000	0.000	0.000	0.000
2011	0.021	0.046	0.094	0.001	0.005
2012	1.484	5.753	6.512	0.054	0.360
2013	0.001	0.002	0.003	0.000	0.000

Fugitive Dust Emissions - Segment 6

Emission Categories
1) Earthmoving
2) Road Dust Paved/Unpaved

1) Earthmoving

Emission Types
A) Dozing
B) Grading
C) Material Loading/Handling

A) Dozing (AP-42 Section 11.9 for overburden)

$E = k \times (s)^{1.5} / (M)^{1.4}$ For PM10 and $k \times 5.7 \times (s)^{1.2} / (M)^{1.3}$ for PM2.5
E = lb/hr
k = Scaling Constant (0.75 for PM10 and 0.105 for PM2.5)
s = Silt Content (assumed to be 12% - SCAQMD Handbook for Mountain Roads)
M = Moisture Content = 10% (assumes watering when necessary for mitigation)

PM10 Emission Factor
1.241175323 lb/hr

PM2.5 Emission Factor
0.591672862 lb/hr

Total Dozer Use

	Hrs/year
2009	0.00
2010	4054.30
2011	727.24
2012	452.86
2013	0.00

Dozer Emissions

Tons/year	PM10	PM2.5
2009	0.00	0.00
2010	2.52	1.20
2011	0.45	0.22
2012	0.28	0.13
2013	0.00	0.00

B) Grading

$E = k \times 0.051 \times (S)^{2.0}$ for PM10 and $k \times 0.040 \times (S)^{2.5}$ for PM2.5
E = lb/VMT
k = Scaling Constant (0.60 for PM10 and 0.031 for PM2.5)
S = Mean Vehicle Speed assumed to be 3 mph
Assumes VMT = 3 x hours in use

PM10 Emission Factor
0.2754 lb/VMT

PM2.5 Emission Factor
0.019329687 lb/VMT

Annual Grader VMT

	Hrs/year	VMT/year
2009	0	0
2010	633.04	1899.11
2011	742.81	2228.43
2012	277.14	831.43
2013	0	0

Grading Emissions

Tons/year	PM10	PM2.5
2009	0.00	0.00
2010	0.26	0.02
2011	0.31	0.02
2012	0.11	0.01
2013	0.00	0.00

C) Material Loading/Handling (AP-42, p. 13.2.4-3)

$E = (k)(0.0032)[(U/5)^{1.3}]/[(M/2)^{1.4}]$
E = lb/ton
k = Particle Size Constant (0.35 for PM10 and 0.11 for PM2.5)
U = average wind speed = 25 MPH worst day, 8 MPH avg daytime (engineering assumption)
M = moisture content = 10% (mitigated)
Three separate drops are assumed

2009	0	Annual tons
2010	362,689	Annual tons
2011	362,689	Annual tons
2012	0	Annual tons
2013	0	Annual tons
2014		Annual tons

Emission Factors and Emissions
Emission Factors

PM10 Annual	PM2.5 Annual
0.00029	0.00009

Emissions tons/year

	PM10	PM2.5
2009	0.00	0.00
2010	0.21	0.07
2011	0.21	0.07
2012	0.00	0.00
2013	0.00	0.00

2) Road Dust

Emission Types
A) Paved Road Dust
B) Unpaved Road Dust

A) Paved Road Dust

E = [k x (sL/2)0.65 x (W/3)1.5 -C] x (1-P/4N)
E = lb/VMT
k = Constant (0.016 for PM10 and 0.0040 for PM2.5)
sL = Silt Loading (assumed to be 0.2 g/m2 - assumes 500 to 5,000 ADT profile of Table 13.2.1-3 average for all traffic)
W = Average weight of vehicles in tons (calculated below)
C = Correction for exhaust, break wear, tire wear (0.00047 lb/VMT for PM10, 0.00036 lb/VMT for PM2.5)
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Passenger Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Paved VMT	Average Weight (Tons)
2009	25,658	12,829	4,276	42,764	6.6
2010	498,034	205,947	179,885	883,866	9.1
2011	914,192	291,829	130,950	1,336,971	6.1
2012	153,351	62,649	44,173	260,173	8.2
2013	0	0	0	0	0.0

	PM10 Annual	PM2.5 Annual
2009	0.0112	0.0026
2010	0.0184	0.0044
2011	0.0098	0.0022
2012	0.0157	0.0037
2013	0.0000	0.0000

Emissions tons/year

	PM10	PM2.5
2009	0.24	0.05
2010	8.15	1.93
2011	6.55	1.47
2012	2.04	0.48
2013	0.00	0.00

B) Unpaved Road Dust

$E = (k)[(s/12)^{0.9}][(W/3)^{0.45}][(365-P)/365]$ (for industrial sites)

k = constant = 1.5 lb/VMT for PM10 and 0.23 lb/VMT for PM2.5
s = Silt Content (assumed to be 12% - SCAQMD Handbook for Mountain Roads)
W = avg. vehicle weight = calculated below
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Personal/Professionals/inspection Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Paved VMT	Average Weight (Tons)
2009	43	21	7	71	6.6
2010	830	17,553	18,073	36,456	18.8
2011	1,524	32,777	11,455	45,755	13.3
2012	256	1,968	1,382	3,605	16.0
2013	0	0	0	0	0.0

	PM10 Annual	PM2.5 Annual
2009	2.14	0.33
2010	3.42	0.52
2011	2.93	0.45
2012	3.19	0.49
2013	0.00	0.00

Emissions tons/year

	PM10	PM2.5
2009	0.08	0.01
2010	62.40	9.57
2011	67.09	10.29
2012	5.74	0.88
2013	0.00	0.00

Controlled Emissions (assumes 84% efficiency with use of soil binder)

Emission Control
84%

Emissions tons/year

	PM10	PM2.5
2009	0.01	0.00
2010	9.98	1.53
2011	10.73	1.65
2012	0.92	0.14
2013	0.00	0.00

3) Disturbed Area Windblown Emissions

Assumptions
Emission Factor is 0.38 tons/disturbed acres/year of Total Suspended Particulate (AP-42 Section 11.9)
PM10 and PM2.5 fractions of TSP are 0.489 and 0.102 respectively per CEIDARS factors from SCAQMD CEQA Website
There are permanent and temporary disturbed acres that make up the total acre-years of disturbed area for each Segment
Disturbed areas are controlled by dust suppressants 84% control

	Disturbed Acres (acre-years)	Emissions (tons/year)	
		PM10	PM2.5
2009	21	0.6358464	0.1302336
2010	74	2.2406016	0.4589184
2011	103	3.1186752	0.6387648
2012	26	0.7872384	0.1612416
2013	0	0	0

Fugitive Dust Emission Totals	2009		2010		2011	
	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr
Dozer	0.00	0.00	2.52	1.20	0.45	0.22
Grading	0.00	0.00	0.26	0.02	0.31	0.02
Soil Handling	0.00	0.00	0.21	0.07	0.21	0.07
Paved Road Dust	0.24	0.05	8.15	1.93	6.55	1.47
Unpaved Road Dust	0.01	0.00	9.98	1.53	10.73	1.65
Disturbed Area Dust	0.64	0.13	2.24	0.46	3.12	0.64
Totals	0.89	0.19	23.36	5.20	21.37	4.06

Fugitive Dust Emission Totals	2012		2013	
	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr
Dozer	0.28	0.13	0.00	0.00
Grading	0.11	0.01	0.00	0.00
Soil Handling	0.00	0.00	0.00	0.00
Paved Road Dust	2.04	0.48	0.00	0.00
Unpaved Road Dust	0.92	0.14	0.00	0.00
Disturbed Area Dust	0.79	0.16	0.00	0.00
Totals	4.15	0.92	0.00	0.00

Percent each Jurisdiction	KCAPCD	AVAQMD	SCAQMD
2009	0.00%	75.00%	0.00%
2010	0.00%	31.50%	58.00%
2011	0.00%	21.00%	72.00%
2012	0.00%	52.50%	30.00%
2013	0.00%	0.00%	0.00%

Emissions per Jurisdiction in the ANF

PM10				
	2009	0.00	0.67	0.00
	2010	0.00	7.36	13.55
	2011	0.00	4.49	15.38
	2012	0.00	2.18	1.24
	2013	0.00	0.00	0.00

PM2.5				
	2009	0.00	0.14	0.00
	2010	0.00	1.64	3.02
	2011	0.00	0.85	2.92
	2012	0.00	0.48	0.28
	2013	0.00	0.00	0.00

Fugitive Dust Emissions - Segment 11

Emission Categories
1) Earthmoving
2) Road Dust Paved/Unpaved

1) Earthmoving

Emission Types
A) Dozing
B) Grading
C) Material Loading/Handling

A) Dozing (AP-42 Section 11.9 for overburden)

$E = k \times (s)^{1.5} / (M)^{1.4}$ For PM10 and $k \times 5.7 \times (s)^{1.2} / (M)^{1.3}$ for PM2.5
E = lb/hr
k = Scaling Constant (0.75 for PM10 and 0.105 for PM2.5)
s = Silt Content (assumed to be 12% - SCAQMD Handbook for Mountain Roads)
M = Moisture Content = 10% (assumes watering when necessary for mitigation)

PM10 Emission Factor
1.241175323 lb/hr

PM2.5 Emission Factor
0.591672862 lb/hr

Total Dozer Use

	Hrs/year
2009	0.00
2010	0.00
2011	1133.38
2012	2010.23
2013	2.39

Dozer Emissions

Tons/year	PM10	PM2.5
2009	0.00	0.00
2010	0.00	0.00
2011	0.70	0.34
2012	1.25	0.59
2013	0.00	0.00

B) Grading

$E = k \times 0.051 \times (S)^{2.0}$ for PM10 and $k \times 0.040 \times (S)^{2.5}$ for PM2.5
E = lb/VMT
k = Scaling Constant (0.60 for PM10 and 0.031 for PM2.5)
S = Mean Vehicle Speed assumed to be 3 mph
Assumes VMT = 3 x hours in use

PM10 Emission Factor
0.2754 lb/VMT

PM2.5 Emission Factor
0.019329687 lb/VMT

Annual Grader VMT

	Hrs/year	VMT/year
2009	0.00	0.00
2010	0.00	0.00
2011	235.54	706.62
2012	746.33	2239.00
2013	61.85	185.55

Grading Emissions

Tons/year	PM10	PM2.5
2009	0.00	0.00
2010	0.00	0.00
2011	0.10	0.01
2012	0.31	0.02
2013	0.03	0.00

C) Material Loading/Handling (AP-42, p. 13.2.4-3)

$E = (k)(0.0032)[(U/5)^{1.3}]/[(M/2)^{1.4}]$
E = lb/ton
k = Particle Size Constant (0.35 for PM10 and 0.11 for PM2.5)
U = average wind speed = 25 MPH worst day, 8 MPH avg daytime (engineering assumption)
M = moisture content = 10% (mitigated)
Three separate drops are assumed

2009	0	Annual tons
2010	0	Annual tons
2011	31,750	Annual tons
2012	284,134	Annual tons
2013	0	Annual tons
2014		Annual tons

Emission Factors and Emissions
Emission Factors

PM10 Annual	PM2.5 Annual
0.00029	0.00009

Emissions tons/year

	PM10	PM2.5
2009	0.00	0.00
2010	0.00	0.00
2011	0.02	0.01
2012	0.16	0.05
2013	0.00	0.00

2) Road Dust

Emission Types
A) Paved Road Dust
B) Unpaved Road Dust

A) Paved Road Dust

E = [k x (sL/2)0.65 x (W/3)1.5 -C] x (1-P/4N)
E = lb/VMT
k = Constant (0.016 for PM10 and 0.0040 for PM2.5)
sL = Silt Loading (assumed to be 0.2 g/m2 - assumes 500 to 5,000 ADT profile of Table 13.2.1-3 average for all traffic)
W = Average weight of vehicles in tons (calculated below)
C = Correction for exhaust, break wear, tire wear (0.00047 lb/VMT for PM10, 0.00036 lb/VMT for PM2.5)
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Passenger Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Paved VMT	Average Weight (Tons)
2009	56,880	28,440	9,480	94,800	6.6
2010	11,160	5,580	1,860	18,600	6.6
2011	70,062	22,694	37,529	130,285	11.1
2012	679,334	222,924	139,751	1,042,009	7.0
2013	6,113	3,394	2,749	12,256	9.9

	PM10 Annual	PM2.5 Annual
2009	0.0112	0.0026
2010	0.0112	0.0026
2011	0.0251	0.0060
2012	0.0124	0.0029
2013	0.0211	0.0050

Emissions tons/year

	PM10	PM2.5
2009	0.53	0.12
2010	0.10	0.02
2011	1.63	0.39
2012	6.46	1.49
2013	0.13	0.03

B) Unpaved Road Dust

$E = (k)[(s/12)^{0.9}][(W/3)^{0.45}][(365-P)/365]$ (for industrial sites)

k = constant = 1.5 lb/VMT for PM10 and 0.23 lb/VMT for PM2.5
s = Silt Content (assumed to be 12% - SCAQMD Handbook for Mountain Roads)
W = avg. vehicle weight = calculated below
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Personal/Professionals/inspection Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Paved VMT	Average Weight (Tons)
2009	95	1,505	502	2,101	13.0
2010	19	295	98	412	13.0
2011	117	1,202	1,730	3,049	20.3
2012	1,132	15,471	8,206	24,809	15.0
2013	10	251	203	465	17.5

	PM10 Annual	PM2.5 Annual
2009	2.90	0.44
2010	2.90	0.44
2011	3.54	0.54
2012	3.10	0.47
2013	3.32	0.51

Emissions tons/year

	PM10	PM2.5
2009	3.05	0.47
2010	0.60	0.09
2011	5.40	0.83
2012	38.39	5.89
2013	0.77	0.12

Controlled Emissions (assumes 84% efficiency with use of soil binder)

Emission Control
84%

Emissions tons/year

	PM10	PM2.5
2009	0.49	0.07
2010	0.10	0.01
2011	0.86	0.13
2012	6.14	0.94
2013	0.12	0.02

3) Disturbed Area Windblown Emissions

Assumptions
Emission Factor is 0.38 tons/disturbed acres/year of Total Suspended Particulate (AP-42 Section 11.9)
PM10 and PM2.5 fractions of TSP are 0.489 and 0.102 respectively per CEIDARS factors from SCAQMD CEQA Website
There are permanent and temporary disturbed acres that make up the total acre-years of disturbed area for each Segment
Disturbed areas are controlled by dust suppressants 84% control

Disturbed Acres (acre-years)	
2009	20
2010	41
2011	44
2012	136
2013	20

Emissions (tons/year)	
PM10	PM2.5
0.605568	0.124032
1.2414144	0.2542656
1.3322496	0.2728704
4.1178624	0.8434176
0.605568	0.124032

Fugitive Dust Emission Totals	2009		2010		2011	
	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr
Dozer	0.00	0.00	0.00	0.00	0.70	0.34
Grading	0.00	0.00	0.00	0.00	0.10	0.01
Soil Handling	0.00	0.00	0.00	0.00	0.02	0.01
Paved Road Dust	0.53	0.12	0.10	0.02	1.63	0.39
Unpaved Road Dust	0.49	0.07	0.10	0.01	0.86	0.13
Disturbed Area Dust	0.61	0.12	1.24	0.25	1.33	0.27
Totals	1.62	0.32	1.44	0.29	4.65	1.15

Fugitive Dust Emission Totals	2012		2013	
	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr
Dozer	1.25	0.59	0.00	0.00
Grading	0.31	0.02	0.03	0.00
Soil Handling	0.16	0.05	0.00	0.00
Paved Road Dust	6.46	1.49	0.13	0.03
Unpaved Road Dust	6.14	0.94	0.12	0.02
Disturbed Area Dust	4.12	0.84	0.61	0.12
Totals	18.44	3.94	0.89	0.18

Percent each Jurisdiction	KCAPCD	AVAQMD	SCAQMD
2009	0.00%	0.00%	98.00%
2010	0.00%	57.60%	27.44%
2011	0.00%	0.00%	98.00%
2012	0.00%	32.00%	58.80%
2013	0.00%	0.00%	0.00%

Emissions per Jurisdiction in the ANF

PM10				
	2009	0.00	0.00	1.59
	2010	0.00	0.83	0.40
	2011	0.00	0.00	4.55
	2012	0.00	5.90	10.84
	2013	0.00	0.00	0.00

PM2.5				
	2009	0.00	0.00	0.31
	2010	0.00	0.17	0.08
	2011	0.00	0.00	1.12
	2012	0.00	1.26	2.32
	2013	0.00	0.00	0.00

Total Emissions per Jurisdiction in the ANF (Segment 6 + Segment 11)

		KCAPCD	AVAQMD	SCAQMD
PM10	2009	0.00	0.67	1.59
	2010	0.00	8.19	13.95
	2011	0.00	4.49	19.94
	2012	0.00	8.08	12.09
	2013	0.00	0.00	0.00
PM2.5	2009	0.00	0.14	0.31
	2010	0.00	1.81	3.10
	2011	0.00	0.85	4.05
	2012	0.00	1.75	2.60
	2013	0.00	0.00	0.00

TRTP Alternative 2 Project Construction Emission Totals
USACE Land Total - All SCAQMD Jurisdiction

Worst-Case Day	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles						
Offroad Vehicles/Equipment						
Helicopter						
Fugitive Dust						
Totals						

2009 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles						
Offroad Vehicles/Equipment						
Helicopter						
Fugitive Dust	---	---	---	---		
Totals	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2010 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.204	1.378	1.446	0.002	0.066	0.056
Offroad Vehicles/Equipment	0.361	1.246	2.323	0.003	0.148	0.136
Helicopter	0.000	0.000	0.000	0.000	0.000	0.000
Fugitive Dust	---	---	---	---	2.244	0.526
Totals	**0.57**	**2.62**	**3.77**	**0.00**	**2.46**	**0.72**

2011 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.264	1.997	1.530	0.003	0.071	0.059
Offroad Vehicles/Equipment	0.510	1.747	3.054	0.003	0.202	0.186
Helicopter	0.000	0.000	0.000	0.000	0.000	0.000
Fugitive Dust	---	---	---	---	2.290	0.457
Totals	**0.77**	**3.74**	**4.58**	**0.01**	**2.56**	**0.70**

2012 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.142	1.065	0.809	0.002	0.038	0.031
Offroad Vehicles/Equipment	0.216	0.806	1.379	0.002	0.089	0.082
Helicopter	0.000	0.000	0.000	0.000	0.000	0.000
Fugitive Dust	---	---	---	---	1.090	0.213
Totals	**0.36**	**1.87**	**2.19**	**0.00**	**1.22**	**0.33**

2013 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles						
Offroad Vehicles/Equipment						
Helicopter						
Fugitive Dust	---	---	---	---		
Totals	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Helicopter Emission Calculations

Helicopter Construction

Assumptions:

1) Hughes 500 size helicopters are used during conductor installation for the proposed project, and two Hughes helicopters are in operation during line stringing for 2.5 hours/day each.

2) Use of Eurocopter, Skyking, and Skycrane helicopters for helicopter tower site construction and wreckout are based on estimates provided by SCE.

3) Idle time is 10% of working time for Hughes 500, Eurocopter, and Skyking helicopters and negligible for the Skycrane.

4) Assumes helicopters stay within 3000 feet of the ground.

Segment 6

Wreck Out	Eurocopter		Skyking		Skycrane	
	Suspension	Dead-End	Suspension	Dead-End	Suspension	Dead-End
Site Preparation						
Personnel to Site	6	6	0	0	0	0
Brush Clearing	16	16	0	0	0	0
Temporary Heli Pad Construction	6	6	0	0	0	0
Soil Borings	0	0	0.5	0.5	0	0
Incidental	12	12	0	0	0	0
Conductor Removal						
Personnel to Site	4	4	0	0	0	0
Insulators &Hardware & Travelers	8	12	0	0	0	0
Unclip Conductor & OHGW	4	0	0	0	0	0
Break Tension/Sock Thru	0	4	0	0	0	0
Remove Jumper Loops & OHGW	0	4	0	0	0	0
Incidental	4	4	0	0	0	0
Excavate Foundation						
Personnel to Site	4	4	0	0	0	0
Tools & Equipment to Site	2	2	0	0	0	0
Equipment (Air Compressor)	0	0	2	2	0	0
Footing Steel Removal	0	0	4	4	0	0
Incidental	0	0	0	0	0	0
Suspension Tower Removal						
Personnal to Site	4	4	0	0	0	0
Tools & Equipment to Site	4	4	0	0	0	0
Tower Components	0	0	4	6	0	6
Incidental	4	4	0	0	0	0
Total Number of Trips per Tower Site	78	86	11	13	0	6

Construction	Eurocopter		Skyking		Skycrane	
	Suspension	Dead-End	Suspension	Dead-End	Suspension	Dead-End
Foundations, Conventional Piers						
Personnel to Site	16	32	0	0	0	0
Tools to Site	6	12	0	0	0	0
Equipment (Air Compressor)	0	0	2	2	0	0
Spoil Removal	0	0	28	132	0	0
Rebar to Site	0	0	8	8	0	0
Stubs & Material to Site	8	8	0	0	0	0
Concrete to Site	0	0	28	120	0	0
Strip and Cleanup Site	8	8	0	0	0	0
Incidental	12	24	0	0	0	0
Tower Erection						
Personnel to Site	8	8	0	0	0	0
Tools to Site	4	4	0	0	0	0
Tower Components	0	0	0	0	16	24
Incidental	4	4	0	0	0	0
Conductor & OHGW Installation						
Personnel to Site	4	12	0	0	0	0
Install Insulators, Hardware & Travelers	8	24	0	0	0	0
Clip-in or Dead-end Conductor	4	12	0	0	0	0
Space Conductor	6	0	0	0	0	0
Install Jumper Loops	0	6	0	0	0	0
Incidental	8	24	0	0	0	0
Site Restoration						
Personnel to Site	2	2	0	0	0	0
Remove Temporary Heli Pad	6	6	0	0	0	0
Cleanup Site & Restoration	8	8	0	0	0	0
Total Number of Trips per Tower Site	112	194	66	262	16	24

Assumptions in time period

	Min	Hour
to helicopter pod	5	0.08
from helicopter pod	5	0.08
load/trip	10	0.17

Total Required Time for Each Helicopter Round Trip

Helicopter Type	Working Hour/Round Trip	Idle Hour/Round Trip
Hughes 500		
Eurocopter	0.33	0.033
Skyking	0.33	0.033
Skycrane	0.33	0.000

Stringing Helicopter - Hughes 500

Hughes 500 Total Emissions (ton)

		HC	CO	NOx	SOx	PM
Segment 4	2010	0.084	0.188	0.383	0.003	0.021
	2011	0.023	0.052	0.105	0.001	0.006
Segment 5	2011	0.075	0.169	0.345	0.003	0.019
Segment 6	2011	0.104	0.232	0.474	0.004	0.026
	2012	0.026	0.059	0.120	0.001	0.007
Segment 7	2012	0.163	0.366	0.748	0.006	0.041
Segment 8	2010	0.069	0.155	0.316	0.003	0.017
	2011	0.254	0.568	1.160	0.010	0.063
	2012	0.095	0.214	0.436	0.004	0.024
Segment 9		0.000	0.000	0.000	0.000	0.000
Segment 10	2010	0.052	0.117	0.240	0.002	0.013
	2011	0.009	0.021	0.043	0.000	0.002
Segment 11	2011	0.008	0.019	0.038	0.000	0.002
	2012	0.061	0.137	0.280	0.002	0.015
	2013	0.005	0.011	0.022	0.000	0.001

Totals	HC	CO	NOx	SOx	PM
Segment 4	0.11	0.24	0.49	0.00	0.03
Segment 5	0.08	0.17	0.35	0.00	0.02
Segment 6	0.13	0.29	0.59	0.00	0.03
Segment 7	0.16	0.37	0.75	0.01	0.04
Segment 8	0.42	0.94	1.91	0.02	0.10
Segment 9	0.00	0.00	0.00	0.00	0.00
Segment 10	0.06	0.14	0.28	0.00	0.02
Segment 11	0.07	0.17	0.34	0.00	0.02
Total	1.03	2.31	4.71	0.04	0.26

Totals	HC	CO	NOx	SOx	PM
2010	0.21	0.46	0.94	0.01	0.05
2011	0.47	1.06	2.17	0.02	0.12
2012	0.35	0.78	1.58	0.01	0.09
2013	0.00	0.01	0.02	0.00	0.00
Total	1.03	2.31	4.71	0.04	0.26

Proposed Project

Helicopter Trip Emissions for SCE's Proposed Project (Segment 6)

Summary of Total Number of Helicopter Trips

	220 kV Construction	500 kV Construction
Eurocopter	1326	1904
Skyking	187	1122
Skycrane	0	272

220 kV	Suspension	1513
	Dead End	0
500 kV	Suspension	3298
	Dead End	0

230kV Wreckout - Total Emissions (lbs)

Helicopter Type	Year	HC	CO	NOx	SOx	PM
Eurocopter	2010	373.50	836.78	1,708.60	14.17	92.97
(personnel)	2011					
Skyking	2010	463.78	1,679.28	1,492.84	12.56	82.76
(foundation)	2011					
Skycrane	2010	0.00	0.00	0.00	0.00	0.00
(tower)	2011					

500kV Construction - Total Emissions (lbs)

Helicopter Type	Year	HC	CO	NOx	SOx	PM
Eurocopter	2010	189.29	424.07	865.90	7.18	47.12
(personnel)	2011	347.02	777.46	1,587.48	13.16	86.38
Skyking	2010	1,964.26	7,112.25	6,322.62	53.18	350.51
(foundation)	2011	818.44	2,963.44	2,634.43	22.16	146.04
Skycrane	2010	0.00	5,396.60	6,957.76	57.83	385.47
(tower)	2011	761.31	5,396.60	6,957.76	57.83	385.47

Total Emissions (lbs)

Helicopter Type	Year	HC	CO	NOx	SOx	PM
Eurocopter	2010	562.79	1,260.85	2,574.49	21.34	140.09
(personnel)	2011	347.02	777.46	1,587.48	13.16	86.38
Skyking	2010	2,428.04	8,791.53	7,815.46	65.73	433.26
(foundation)	2011	818.44	2,963.44	2,634.43	22.16	146.04
Skycrane	2010	0.00	5,396.60	6,957.76	57.83	385.47
(tower)	2011	761.31	5,396.60	6,957.76	57.83	385.47

Total Emissions (ton)

Helicopter Type	Year	HC	CO	NOx	SOx	PM
Eurocopter	2010	0.28	0.63	1.29	0.01	0.07
(personnel)	2011	0.17	0.39	0.79	0.01	0.04
Skyking	2010	1.21	4.40	3.91	0.03	0.22
(foundation)	2011	0.41	1.48	1.32	0.01	0.07
Skycrane	2010	0.00	2.70	3.48	0.03	0.19
(tower)	2011	0.38	2.70	3.48	0.03	0.19

Total Emissions (ton)

Helicopter Type	HC	CO	NOx	SOx	PM
Eurocopter	0.45	1.02	2.08	0.02	0.11
Skyking	1.62	5.88	5.22	0.04	0.29
Skycrane	0.38	2.70	3.48	0.03	0.19

Helicopter Trip Emissions for SCE's Proposed Project (Segment 11)

Summary of Total Number of Helicopter Trips

	220 kV Construction	500 kV Construction
Eurocopter	1248	1792
Skyking	176	1056
Skycrane	0	256

220 kV	Suspension	1424
	Dead End	0
500 kV	Suspension	3104
	Dead End	0

230kV Wreckout - Total Emissions (lbs)

Helicopter Type	Year	HC	CO	NOx	SOx	PM
Eurocopter	2011	0.00	0.00	0.00	0.00	0.00
	2012	351.53	787.56	1,608.09	13.33	87.50
Skyking	2011	0.00	0.00	0.00	0.00	0.00
	2012	436.50	1,580.50	1,405.03	11.82	77.89
Skycrane	2011	0.00	0.00	0.00	0.00	0.00
	2012	0.00	0.00	0.00	0.00	0.00

500kV Construction - Total Emissions (lbs)

Helicopter Type	Year	HC	CO	NOx	SOx	PM
Eurocopter	2012	504.76	1,130.85	2,309.06	19.14	125.64
Skyking	2012	2,619.01	9,483.00	8,430.16	70.90	467.34
Skycrane	2012	716.52	5,079.15	6,548.48	54.43	362.80

Total Emissions (lbs)

Helicopter Type	Year	HC	CO	NOx	SOx	PM
Eurocopter	2011	0.00	0.00	0.00	0.00	0.00
	2012	856.29	1,918.41	3,917.15	32.48	213.15
Skyking	2011	0.00	0.00	0.00	0.00	0.00
	2012	3,055.51	11,063.49	9,835.19	82.72	545.23
Skycrane	2011	0.00	0.00	0.00	0.00	0.00
	2012	716.52	5,079.15	6,548.48	54.43	362.80

Total Emissions (ton)

Helicopter Type	Year	HC	CO	NOx	SOx	PM
Eurocopter	2011	0.00	0.00	0.00	0.00	0.00
	2012	0.43	0.96	1.96	0.02	0.11
Skyking	2011	0.00	0.00	0.00	0.00	0.00
	2012	1.53	5.53	4.92	0.04	0.27
Skycrane	2011	0.00	0.00	0.00	0.00	0.00
	2012	0.36	2.54	3.27	0.03	0.18

Total Helipcopter Emissions - Proposed Project

Helicopter Type	Year	HC	CO	NOx	SOx	PM
Hughes 500	2010	0.205	0.460	0.939	0.008	0.051
	2011	0.473	1.061	2.166	0.018	0.118
	2012	0.346	0.776	1.584	0.013	0.086
	2013	0.005	0.011	0.022	0.000	0.001
Eurocopter	2010	0.28	0.63	1.29	0.01	0.07
	2011	0.17	0.39	0.79	0.01	0.04
	2012	0.43	0.96	1.96	0.02	0.11
Skyking	2010	1.21	4.40	3.91	0.03	0.22
	2011	0.41	1.48	1.32	0.01	0.07
	2012	1.53	5.53	4.92	0.04	0.27
Skycrane	2010	0.00	2.70	3.48	0.03	0.19
	2011	0.38	2.70	3.48	0.03	0.19
	2012	0.36	2.54	3.27	0.03	0.18

Total Emissions (ton)

Year	HC	CO	NOx	SOx	PM
2010	1.701	8.184	9.613	0.080	0.531
2011	1.437	5.629	7.756	0.065	0.427
2012	2.660	9.806	11.734	0.098	0.647
2013	0.005	0.011	0.022	0.000	0.001

Total Emissions (ton)

Helicopter Type	HC	CO	NOx	SOx	PM
Hughes 500	1.03	2.31	4.71	0.04	0.26
Eurocopter	0.88	1.98	4.04	0.03	0.22
Skyking	3.15	11.41	10.14	0.09	0.56
Skycrane	0.74	7.94	10.23	0.09	0.57
Totals	5.80	23.63	29.12	0.24	1.61

Proposed Project By Jurisdiction

Hughes 500 - 500 kV 2nd Circuit Vincent-Gould Construction (ton)

KCAPCD

	Year	HC	CO	NOx	SOx	PM
Segment 4	2010	0.040	0.090	0.184	0.002	0.010
	2011	0.023	0.052	0.105	0.001	0.006
Segment 10	2010	0.052	0.117	0.240	0.002	0.013
	2011	0.009	0.021	0.043	0.000	0.002

Totals	Year	HC	CO	NOx	SOx	PM
	2010	0.093	0.207	0.424	0.004	0.023
	2011	0.032	0.073	0.149	0.001	0.008

SCAQMD

	Year	HC	CO	NOx	SOx	PM
Segment 6	2011	0.069	0.155	0.316	0.003	0.017
	2012	0.000	0.000	0.000	0.000	0.000
Segment 7	2012	0.163	0.366	0.748	0.006	0.041
Segment 8	2010	0.069	0.155	0.316	0.003	0.017
	2011	0.254	0.568	1.160	0.010	0.063
	2012	0.095	0.214	0.436	0.004	0.024
Segment 11	2011	0.008	0.019	0.038	0.000	0.002
	2012	0.046	0.104	0.212	0.002	0.012

Totals	Year	HC	CO	NOx	SOx	PM
	2010	0.069	0.155	0.316	0.003	0.017
	2011	0.331	0.742	1.514	0.013	0.082
	2012	0.305	0.683	1.395	0.012	0.076

AVAQMD

	Year	HC	CO	NOx	SOx	PM
Segment 4	2010	0.044	0.098	0.199	0.002	0.011
Segment 5	2011	0.075	0.169	0.345	0.003	0.019
Segment 6	2011	0.035	0.077	0.158	0.001	0.009
	2012	0.026	0.059	0.120	0.001	0.007
Segment 11	2012	0.015	0.034	0.069	0.001	0.004
	2013	0.005	0.011	0.022	0.000	0.001

Totals	Year	HC	CO	NOx	SOx	PM
	2010	0.044	0.098	0.199	0.002	0.011
	2011	0.110	0.246	0.503	0.004	0.027
	2012	0.041	0.092	0.188	0.002	0.010
	2013	0.005	0.011	0.022	0.000	0.001

Helicopter Trip Emissions for SCE's Proposed Project (Segment 6)

SCAQMD

		Helicopter Type	Year	HC	CO	NOx	SOx	PM
Segment 6	Wreckout	Eurocopter	2010	373.50	836.78	1,708.60	14.17	92.97
			2011	0.00	0.00	0.00	0.00	0.00
		Skyking	2010	463.78	1,679.28	1,492.84	12.56	82.76
			2011	0.00	0.00	0.00	0.00	0.00
		Skycrane	2010	0.00	0.00	0.00	0.00	0.00
			2011	0.00	0.00	0.00	0.00	0.00
Segment 6	Construction	Eurocopter	2010	189.29	424.07	865.90	7.18	47.12
			2011	347.02	777.46	1,587.48	13.16	86.38
		Skyking	2010	1,964.26	7,112.25	6,322.62	53.18	350.51
			2011	818.44	2,963.44	2,634.43	22.16	146.04
		Skycrane	2010	0.00	5,396.60	6,957.76	57.83	385.47
			2011	761.31	5,396.60	6,957.76	57.83	385.47
Segment 6 Totals (ton)			2010	1.50	7.72	8.67	0.07	0.48
			2011	0.96	4.57	5.59	0.05	0.31

Helicopter Trip Emissions for SCE's Proposed Project (Segment 11)

SCAQMD

		Helicopter Type	Year	HC	CO	NOx	SOx	PM
Segment 11	Wreckout	Eurocopter	2012	129.51	290.15	592.46	4.91	32.24
		Skyking	2012	160.82	582.29	517.64	4.35	28.70
		Skycrane	2012	0.00	0.00	0.00	0.00	0.00
Segment 11	Construction	Eurocopter	2012	185.97	416.63	850.70	7.05	46.29
		Skyking	2012	964.90	3,493.74	3,105.85	26.12	172.18
		Skycrane	2012	263.98	1,871.27	2,412.60	20.05	133.66
Segment 11 Totals (ton)			2012	0.85	3.33	3.74	0.03	0.21

AVAQMD

		Helicopter Type	Year	HC	CO	NOx	SOx	PM
Segment 11	Wreckout	Eurocopter	2012	222.02	497.40	1,015.64	8.42	55.26
		Skyking	2012	275.69	998.21	887.39	7.46	49.19
		Skycrane	2012	0.00	0.00	0.00	0.00	0.00
Segment 11	Construction	Eurocopter	2012	318.80	714.22	1,458.35	12.09	79.35
		Skyking	2012	1,654.11	5,989.26	5,324.31	44.78	295.16
		Skycrane	2012	452.54	3,207.89	4,135.88	34.38	229.13
Segment 11 Totals (ton)			2012	1.46	5.70	6.41	0.05	0.35

Total Helicopter Trip Emissions for SCE's Proposed Project by Jurisdiction (tons)

KCAPCD

Year	HC	CO	NOx	SOx	PM
2010	0.093	0.207	0.424	0.004	0.023
2011	0.032	0.073	0.149	0.001	0.008

SCAQMD

Year	HC	HC	HC	HC	HC
2010	1.565	7.879	8.990	0.075	0.497
2011	1.294	5.310	7.104	0.059	0.391
2012	1.158	4.010	5.135	0.043	0.282

AVAQMD

Year	HC	HC	HC	HC	HC
2010	0.044	0.098	0.199	0.002	0.011
2011	0.110	0.246	0.503	0.004	0.027
2012	1.503	5.796	6.599	0.055	0.364
2013	0.005	0.011	0.022	0.000	0.001

Fugitive Dust Emissions - Segment 4

Emission Categories
1) Earthmoving
2) Road Dust Paved/Unpaved
3) Disturbed Area Windblown Emissions

1) Earthmoving

Emission Types
A) Dozing
B) Grading
C) Material Loading/Handling
D) Disturbed Area Windblown Emissions

A) Dozing (AP-42 Section 11.9 for overburden)

$E = k \times (s)^{1.5} / (M)^{1.4}$ For PM10 and $k \times 5.7 \times (s)^{1.2} / (M)^{1.3}$ for PM2.5
E = lb/hr
k = Scaling Constant (0.75 for PM10 and 0.105 for PM2.5)
s = Silt Content (assumed to be 16% - SCAQMD Handbook for Farm Roads)
M = Moisture Content = 10% (assumes watering when necessary for mitigation)

PM10 Emission Factor
1.910914419 lb/hr

PM2.5 Emission Factor
0.835618668 lb/hr

Total Dozer Use

	Hrs/year
2009	0
2010	4636
2011	76
2012	0
2013	0

Dozer Emissions

Tons/year	PM10	PM2.5
2009	0.00	0.00
2010	4.43	1.94
2011	0.07	0.03
2012	0.00	0.00
2013	0.00	0.00

Fugitive Dust Emissions - Segment 4

B) Grading

$E = k \times 0.051 \times (S)^{2.0}$ for PM10 and $k \times 0.040 \times (S)^{2.5}$ for PM2.5
E = lb/VMT
k = Scaling Constant (0.60 for PM10 and 0.031 for PM2.5)
S = Mean Vehicle Speed assumed to be 3 mph
Assumes VMT = 3 x hours in use

PM10 Emission Factor
0.2754 lb/VMT

PM2.5 Emission Factor
0.019329687 lb/VMT

Annual Grader VMT

	Hrs/year	VMT/year
2009	0	0
2010	1082	3246
2011	144	432
2012	0	0
2013	0	0

Grading Emissions

Lbs/Day	PM10	PM2.5
2009	13.22	0.93
2010	26.44	1.86
2011	9.91	0.70
2012	23.96	1.68
2013		

Tons/year	PM10	PM2.5
2009	0.00	0.00
2010	0.45	0.03
2011	0.06	0.00
2012	0.00	0.00
2013	0.00	0.00

C) Material Loading/Handling (AP-42, p. 13.2.4-3)

$E = (k)(0.0032)[(U/5)^{1.3}]/[(M/2)^{1.4}]$
E = lb/ton
k = Particle Size Constant (0.35 for PM10 and 0.11 for PM2.5)
U = average wind speed = 25 MPH worst day, 8 MPH avg daytime (engineering assumption)
M = moisture content = 10% (mitigated)
Four separate drops are assumed

2009	0	Annual tons
2010	675,000	Annual tons
2011	0	Annual tons
2012	0	Annual tons
2013	0	Annual tons

Emission Factors and Emissions
Emission Factors

PM10 Daily	PM2.5 Daily	PM10 Annual	PM2.5 Annual
0.00103	0.00032	0.00029	0.00009

Emissions lbs/day

PM10	PM2.5
1.03	0.32

Emissions tons/year

	PM10	PM2.5
2009	0.00	0.00
2010	0.39	0.12
2011	0.00	0.00
2012	0.00	0.00
2013	0.00	0.00

Fugitive Dust Emissions - Segment 4

2) Road Dust
Emission Types
A) Paved Road Dust
B) Unpaved Road Dust

A) Paved Road Dust

E = [k x (sL/2)0.65 x (W/3)1.5 -C] x (1-P/4N)
E = lb/VMT
k = Constant (0.016 for PM10 and 0.0040 for PM2.5)
sL = Silt Loading (assumed to be 0.2 g/m2 - assumes 500 to 5,000 ADT profile of Table 13.2.1-3 average for all traffic)
W = Average weight of vehicles in tons (calculated below)
C = Correction for exhaust, break wear, tire wear (0.00047 lb/VMT for PM10, 0.00036 lb/VMT for PM2.5)
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Passenger Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Average Weight = 40.0 Tons

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Paved VMT	Average Weight (Tons)
2009	82,440	37,520	14,480	134,440	6.7
2010	1,225,500	380,100	206,070	1,811,670	6.4
2011	91,560	28,860	14,850	135,270	6.4
2012	0	0	0	0	0.0
2013	0	0	0	0	0.0

Emission Factors and Emissions
Emission Factors

PM10 Daily	PM2.5 Daily
0.0793	0.0196

Emissions lbs/day

PM10	PM2.5
792.66	195.74

	PM10 Annual	PM2.5 Annual
2009	0.0115	0.0026
2010	0.0108	0.0025
2011	0.0106	0.0024
2012	0.0000	0.0000
2013	0.0000	0.0000

Emissions tons/year

	PM10	PM2.5
2009	0.77	0.18
2010	9.79	2.23
2011	0.71	0.16
2012	0.00	0.00
2013	0.00	0.00

Fugitive Dust Emissions - Segment 4

B) Unpaved Road Dust

$E = (k)[(s/12)^{0.9}][(W/3)^{0.45}][(365-P)/365]$ (for industrial sites)

k = constant = 1.5 lb/VMT for PM10 and 0.23 lb/VMT for PM2.5
s = Silt Content (assumed to be 16% - SCAQMD Handbook for Farm Roads)
W = avg. vehicle weight = calculated below
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Personal/Professionals/inspection Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Average Weight = 40.5 Tons

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Unaved VMT	Average Weight (Tons)
2009	137	65	27	229	7.0
2010	2,043	14,606	6,227	22,875	13.5
2011	153	1,444	532	2,129	13.1
2012	0	0	0	0	0.0
2013	0	0	0	0	0.0

Uncontrolled Emission Factors and Emissions

Emission Factors (lb/VMT)		Emissions lbs/day	
PM10 Daily	PM2.5 Daily	PM10	PM2.5
6.27	0.96	62688.27	9612.20

	PM10 Annual	PM2.5 Annual
2009	2.84	0.44
2010	3.82	0.59
2011	3.77	0.58
2012	0.00	0.00
2013	0.00	0.00

Emissions tons/year

	PM10	PM2.5
2009	0.32	0.05
2010	43.66	6.70
2011	4.01	0.62
2012	0.00	0.00
2013	0.00	0.00

Controlled Emissions (assumes 84% efficiency with use of soil binder)

Emissions lbs/day

PM10	PM2.5
10030.12	1537.95

Emission Control 84%

Emissions tons/year

	PM10	PM2.5
2009	0.05	0.01
2010	6.99	1.07
2011	0.64	0.10
2012	0.00	0.00
2013	0.00	0.00

3) Disturbed Area Windblown Emissions

Assumptions
Emission Factor is 0.38 tons/disturbed acres/year of Total Suspended Particulate (AP-42 Section 11.9)
PM10 and PM2.5 fractions of TSP are 0.489 and 0.102 respectively per CEIDARS factors from SCAQMD CEQA Website
There are permanent and temporary disturbed acres that make up the total acre-years of disturbed area for each Segment
Disturbed areas are controlled by dust suppressants 84% control
Restoration of disturbed acres creates no net emission increase of permanently disturbed acres

Disturbed Acres (acre-years)	
2009	17
2010	132
2011	54
2012	0
2013	0

Emissions (tons/year)	
PM10	PM2.5
0.5147328	0.1054272
3.9967488	0.8186112
1.6350336	0.3348864
0	0
0	0

Fugitive Dust Emissions - Segment 4

Fugitive Dust Emissions - Segment 4

Fugitive Dust Emission Totals	2009		2010		2011	
	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr
Dozer	0.00	0.00	4.43	1.94	0.07	0.03
Grading	0.00	0.00	0.45	0.03	0.06	0.00
Soil Handling	0.00	0.00	0.39	0.12	0.00	0.00
Paved Road Dust	0.77	0.18	9.79	2.23	0.71	0.16
Unpaved Road Dust	0.05	0.01	6.99	1.07	0.64	0.10
Disturbed Area Dust	0.51	0.11	4.00	0.82	1.64	0.33
Totals	1.34	0.29	26.04	6.21	3.12	0.63

Fugitive Dust Emission Totals	2012		2013	
	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr
Dozer	0.00	0.00	0.00	0.00
Grading	0.00	0.00	0.00	0.00
Soil Handling	0.00	0.00	0.00	0.00
Paved Road Dust	0.00	0.00	0.00	0.00
Unpaved Road Dust	0.00	0.00	0.00	0.00
Disturbed Area Dust	0.00	0.00	0.00	0.00
Totals	0.00	0.00	0.00	0.00

Percent each Jurisdiction		KCAPCD	AVAQMD	SCAQMD
	2009	50.00%	50.00%	0.00%
	2010	55.00%	45.00%	0.00%
	2011	65.00%	35.00%	0.00%
	2012	0.00%	0.00%	0.00%
	2013	0.00%	0.00%	0.00%
Emissions per Jurisdiction				
PM10	2009	0.67	0.67	0.00
	2010	14.32	11.72	0.00
	2011	2.03	1.09	0.00
	2012	0.00	0.00	0.00
	2013	0.00	0.00	0.00
PM2.5	2009	0.14	0.14	0.00
	2010	3.41	2.79	0.00
	2011	0.41	0.22	0.00
	2012	0.00	0.00	0.00
	2013	0.00	0.00	0.00

Fugitive Dust Emissions - Segment 5

Emission Categories
1) Earthmoving
2) Road Dust Paved/Unpaved

1) Earthmoving

Emission Types
A) Dozing
B) Grading
C) Material Loading/Handling

A) Dozing (AP-42 Section 11.9 for overburden)

$E = k \times (s)^{1.5} / (M)^{1.4}$ For PM10 and $k \times 5.7 \times (s)^{1.2} / (M)^{1.3}$ for PM2.5
E = lb/hr
k = Scaling Constant (0.75 for PM10 and 0.105 for PM2.5)
s = Silt Content (assumed to be 16% - SCAQMD Handbook for Farm Roads)
M = Moisture Content = 10% (assumes watering when necessary for mitigation)

PM10 Emission Factor
1.910914419 lb/hr

PM2.5 Emission Factor
0.835618668 lb/hr

Total Dozer Use

	Hrs/year
2009	0
2010	2848
2011	548
2012	0
2013	0

Dozer Emissions

Tons/year	PM10	PM2.5
2009	0.00	0.00
2010	2.72	1.19
2011	0.52	0.23
2012	0.00	0.00
2013	0.00	0.00

Fugitive Dust Emissions - Segment 5

B) Grading

$E = k \times 0.051 \times (S)^{2.0}$ for PM10 and $k \times 0.040 \times (S)^{2.5}$ for PM2.5
E = lb/VMT
k = Scaling Constant (0.60 for PM10 and 0.031 for PM2.5)
S = Mean Vehicle Speed assumed to be 3 mph
Assumes VMT = 3 x hours in use

PM10 Emission Factor
0.2754 lb/VMT

PM2.5 Emission Factor
0.019329687 lb/VMT

Annual Grader VMT

	Hrs/year	VMT/year
2009	0	0
2010	1016	3048
2011	436	1308
2012	0	0
2013	0	0

Grading Emissions

Lbs/Day	PM10	PM2.5
2009	13.22	0.93
2010	26.44	1.86
2011	9.91	0.70
2012	23.96	1.68

Tons/year	PM10	PM2.5
2009	0.00	0.00
2010	0.42	0.03
2011	0.18	0.01
2012	0.00	0.00
2013	0.00	0.00

C) Material Loading/Handling (AP-42, p. 13.2.4-3)

$E = (k)(0.0032)[(U/5)^{1.3}]/[(M/2)^{1.4}]$
E = lb/ton
k = Particle Size Constant (0.35 for PM10 and 0.11 for PM2.5)
U = average wind speed = 25 MPH worst day, 8 MPH avg daytime (engineering assumption)
M = moisture content = 10% (mitigated)
Three separate drops are assumed

2009	0	Annual tons
2010	195,085	Annual tons
2011	195,085	Annual tons
2012	0	Annual tons
2013	0	Annual tons

Emission Factors and Emissions
Emission Factors

PM10 Daily	PM2.5 Daily	PM10 Annual	PM2.5 Annual
0.00103	0.00032	0.00029	0.00009

Emissions lbs/day

PM10	PM2.5
1.03	0.32

Emissions tons/year

	PM10	PM2.5
2009	0.00	0.00
2010	0.11	0.04
2011	0.11	0.04
2012	0.00	0.00
2013	0.00	0.00

Fugitive Dust Emissions - Segment 5

2) Road Dust
Emission Types
A) Paved Road Dust
B) Unpaved Road Dust

A) Paved Road Dust

E = [k x (sL/2)0.65 x (W/3)1.5 -C] x (1-P/4N)
E = lb/VMT
k = Constant (0.016 for PM10 and 0.0040 for PM2.5)
sL = Silt Loading (assumed to be 0.2 g/m2 - assumes 500 to 5,000 ADT profile of Table 13.2.1-3 average for all traffic)
W = Average weight of vehicles in tons (calculated below)
C = Correction for exhaust, break wear, tire wear (0.00047 lb/VMT for PM10, 0.00036 lb/VMT for PM2.5)
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Passenger Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Average Weight = 40.0 Tons

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Paved VMT	Average Weight (Tons)
2009	59,040	24,880	19,660	103,580	8.8
2010	511,200	195,920	187,340	894,460	9.2
2011	351,440	114,520	70,150	536,110	6.9
2012	3,240	960	480	4,680	6.1
2013	0	0	0	0	0.0

Emission Factors and Emissions
Emission Factors

PM10 Daily	PM2.5 Daily
0.0793	0.0196

Emissions lbs/day

PM10	PM2.5
792.66	195.74

	PM10 Annual	PM2.5 Annual
2009	0.0174	0.0041
2010	0.0187	0.0044
2011	0.0121	0.0028
2012	0.0099	0.0022
2013	0.0000	0.0000

Emissions tons/year

	PM10	PM2.5
2009	0.90	0.21
2010	8.36	1.98
2011	3.26	0.75
2012	0.02	0.01
2013	0.00	0.00

Fugitive Dust Emissions - Segment 5

B) Unpaved Road Dust

$E = (k)[(s/12)^{0.9}][(W/3)^{0.45}][(365-P)/365]$ (for industrial sites)

k = constant = 1.5 lb/VMT for PM10 and 0.23 lb/VMT for PM2.5
s = Silt Content (assumed to be 16% - SCAQMD Handbook for Farm Roads)
W = avg. vehicle weight = calculated below
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Personal/Professionals/inspection Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Average Weight = 40.5 Tons

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Unaved VMT	Average Weight (Tons)
2009	148	1,004	539	1,691	14.5
2010	1,278	7,909	5,734	14,921	15.9
2011	879	4,623	1,905	7,407	12.9
2012	8	39	19	66	13.7
2013	0	0	0	0	0.0

Uncontrolled Emission Factors and Emissions

Emission Factors (lb/VMT)		Emissions lbs/day	
PM10 Daily	PM2.5 Daily	PM10	PM2.5
6.27	0.96	62688.27	9612.20

	PM10 Annual	PM2.5 Annual
2009	3.95	0.61
2010	4.12	0.63
2011	3.75	0.58
2012	3.85	0.59
2013	0.00	0.00

Emissions tons/year

	PM10	PM2.5
2009	3.34	0.51
2010	30.74	4.71
2011	13.90	2.13
2012	0.13	0.02
2013	0.00	0.00

Controlled Emissions (assumes 84% efficiency with use of soil binder)

Emissions lbs/day		Emission Control
PM10	PM2.5	84%
10030.12	1537.95	

Emissions tons/year

	PM10	PM2.5
2009	0.53	0.08
2010	4.92	0.75
2011	2.22	0.34
2012	0.02	0.00
2013	0.00	0.00

3) Disturbed Area Windblown Emissions

Assumptions
Emission Factor is 0.38 tons/disturbed acres/year of Total Suspended Particulate (AP-42 Section 11.9)
PM10 and PM2.5 fractions of TSP are 0.489 and 0.102 respectively per CEIDARS factors from SCAQMD CEQA Website
There are permanent and temporary disturbed acres that make up the total acre-years of disturbed area for each Segment
Disturbed areas are controlled by dust suppressants 84% control

	Disturbed Acres (acre-years)	Emissions (tons/year)	
		PM10	PM2.5
2009	9	0.2725056	0.0558144
2010	63	1.9075392	0.3907008
2011	51	1.5441984	0.3162816
2012	0	0	0
2013	0	0	0

Fugitive Dust Emissions - Segment 5

Fugitive Dust Emissions - Segment 5

Fugitive Dust Emission Totals	2009		2010		2011	
	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr
Dozer	0.00	0.00	2.72	1.19	0.52	0.23
Grading	0.00	0.00	0.42	0.03	0.18	0.01
Soil Handling	0.00	0.00	0.11	0.04	0.11	0.04
Paved Road Dust	0.90	0.21	8.36	1.98	3.26	0.75
Unpaved Road Dust	0.53	0.08	4.92	0.75	2.22	0.34
Disturbed Area Dust	0.27	0.06	1.91	0.39	1.54	0.32
Totals	1.71	0.35	18.44	4.38	7.84	1.68

Fugitive Dust Emission Totals	2012		2013	
	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr
Dozer	0.00	0.00	0.00	0.00
Grading	0.00	0.00	0.00	0.00
Soil Handling	0.00	0.00	0.00	0.00
Paved Road Dust	0.02	0.01	0.00	0.00
Unpaved Road Dust	0.02	0.00	0.00	0.00
Disturbed Area Dust	0.00	0.00	0.00	0.00
Totals	0.04	0.01	0.00	0.00

Percent each Jurisdiction		KCAPCD	AVAQMD	SCAQMD
	2009	0.00%	100.00%	0.00%
	2010	0.00%	100.00%	0.00%
	2011	0.00%	100.00%	0.00%
	2012	0.00%	100.00%	0.00%
	2013	0.00%	100.00%	0.00%

Emissions per Jurisdiction				
PM10	2009	0.00	1.71	0.00
	2010	0.00	18.44	0.00
	2011	0.00	7.84	0.00
	2012	0.00	0.04	0.00
	2013	0.00	0.00	0.00
PM2.5	2009	0.00	0.35	0.00
	2010	0.00	4.38	0.00
	2011	0.00	1.68	0.00
	2012	0.00	0.01	0.00
	2013	0.00	0.00	0.00

Fugitive Dust Emissions - Segment 6

Emission Categories
1) Earthmoving
2) Road Dust Paved/Unpaved

1) Earthmoving

Emission Types
A) Dozing
B) Grading
C) Material Loading/Handling

A) Dozing (AP-42 Section 11.9 for overburden)

$E = k \times (s)^{1.5} / (M)^{1.4}$ For PM10 and $k \times 5.7 \times (s)^{1.2} / (M)^{1.3}$ for PM2.5
E = lb/hr
k = Scaling Constant (0.75 for PM10 and 0.105 for PM2.5)
s = Silt Content (assumed to be 12% - SCAQMD Handbook for Mountain Roads)
M = Moisture Content = 10% (assumes watering when necessary for mitigation)

PM10 Emission Factor
1.241175323 lb/hr

PM2.5 Emission Factor
0.591672862 lb/hr

Total Dozer Use

	Hrs/year
2009	0
2010	4893
2011	823
2012	710
2013	0

Dozer Emissions

Tons/year	PM10	PM2.5
2009	0.00	0.00
2010	3.04	1.45
2011	0.51	0.24
2012	0.44	0.21
2013	0.00	0.00

Fugitive Dust Emissions - Segment 6

B) Grading

$E = k \times 0.051 \times (S)^{2.0}$ for PM10 and $k \times 0.040 \times (S)^{2.5}$ for PM2.5
E = lb/VMT
k = Scaling Constant (0.60 for PM10 and 0.031 for PM2.5)
S = Mean Vehicle Speed assumed to be 3 mph
Assumes VMT = 3 x hours in use

PM10 Emission Factor
0.2754 lb/VMT

PM2.5 Emission Factor
0.019329687 lb/VMT

Annual Grader VMT

	Hrs/year	VMT/year
2009	0	0
2010	945	2835
2011	772	2316
2012	300	900
2013	0	0

Grading Emissions

Lbs/Day	PM10	PM2.5
2009	13.22	0.93
2010	26.44	1.86
2011	9.91	0.70
2012	23.96	1.68

Tons/year	PM10	PM2.5
2009	0.00	0.00
2010	0.39	0.03
2011	0.32	0.02
2012	0.12	0.01
2013	0.00	0.00

C) Material Loading/Handling (AP-42, p. 13.2.4-3)

$E = (k)(0.0032)[(U/5)^{1.3}]/[(M/2)^{1.4}]$
E = lb/ton
k = Particle Size Constant (0.35 for PM10 and 0.11 for PM2.5)
U = average wind speed = 25 MPH worst day, 8 MPH avg daytime (engineering assumption)
M = moisture content = 10% (mitigated)
Three separate drops are assumed

2009	0	Annual tons
2010	362,689	Annual tons
2011	362,689	Annual tons
2012	0	Annual tons
2013	0	Annual tons

Emission Factors and Emissions
Emission Factors

PM10 Daily	PM2.5 Daily	PM10 Annual	PM2.5 Annual
0.00103	0.00032	0.00029	0.00009

Emissions lbs/day

PM10	PM2.5
1.03	0.32

Emissions tons/year

	PM10	PM2.5
2009	0.00	0.00
2010	0.21	0.07
2011	0.21	0.07
2012	0.00	0.00
2013	0.00	0.00

Fugitive Dust Emissions - Segment 6

2) Road Dust
Emission Types
A) Paved Road Dust
B) Unpaved Road Dust

A) Paved Road Dust

E = [k x (sL/2)0.65 x (W/3)1.5 -C] x (1-P/4N)
E = lb/VMT
k = Constant (0.016 for PM10 and 0.0040 for PM2.5)
sL = Silt Loading (assumed to be 0.2 g/m2 - assumes 500 to 5,000 ADT profile of Table 13.2.1-3 average for all traffic)
W = Average weight of vehicles in tons (calculated below)
C = Correction for exhaust, break wear, tire wear (0.00047 lb/VMT for PM10, 0.00036 lb/VMT for PM2.5)
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Passenger Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Average Weight = 40.0 Tons

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Paved VMT	Average Weight (Tons)
2009	60,120	30,060	10,020	100,200	6.6
2010	651,480	257,700	230,590	1,139,770	9.0
2011	1,048,020	332,640	149,250	1,529,910	6.0
2012	293,820	124,980	69,270	488,070	7.5
2013	0	0	0	0	0.0

Emission Factors and Emissions
Emission Factors

PM10 Daily	PM2.5 Daily
0.0793	0.0196

Emissions lbs/day

PM10	PM2.5
792.66	195.74

	PM10 Annual	PM2.5 Annual
2009	0.0112	0.0026
2010	0.0182	0.0043
2011	0.0098	0.0022
2012	0.0137	0.0032
2013	0.0000	0.0000

Emissions tons/year

	PM10	PM2.5
2009	0.56	0.13
2010	10.38	2.46
2011	7.46	1.68
2012	3.35	0.78
2013	0.00	0.00

Fugitive Dust Emissions - Segment 6

B) Unpaved Road Dust

$E = (k)[(s/12)^{0.9}][(W/3)^{0.45}][(365-P)/365]$ (for industrial sites)

k = constant = 1.5 lb/VMT for PM10 and 0.23 lb/VMT for PM2.5
s = Silt Content (assumed to be 12% - SCAQMD Handbook for Mountain Roads)
W = avg. vehicle weight = calculated below
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Personal/Professionals/inspection Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Average Weight = 40.5 Tons

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Unaved VMT	Average Weight (Tons)
2009	100	50	17	167	6.6
2010	1,086	18,070	11,235	30,392	15.9
2011	1,747	29,785	10,425	41,957	13.2
2012	490	2,720	1,544	4,754	14.5
2013	0	0	0	0	0.0

Uncontrolled Emission Factors and Emissions

Emission Factors (lb/VMT)		Emissions lbs/day	
PM10 Daily	PM2.5 Daily	PM10	PM2.5
2.59	0.40	25930.71	3976.04

	PM10 Annual	PM2.5 Annual
2009	2.14	0.33
2010	3.18	0.49
2011	2.92	0.45
2012	3.05	0.47
2013	0.00	0.00

Emissions tons/year

	PM10	PM2.5
2009	0.18	0.03
2010	48.30	7.41
2011	61.33	9.40
2012	7.25	1.11
2013	0.00	0.00

Controlled Emissions (assumes 84% efficiency with use of soil binder)

Emissions lbs/day		Emission Control
PM10	PM2.5	84%
4148.91	636.17	

Emissions tons/year

	PM10	PM2.5
2009	0.03	0.00
2010	7.73	1.19
2011	9.81	1.50
2012	1.16	0.18
2013	0.00	0.00

3) Disturbed Area Windblown Emissions

Assumptions
Emission Factor is 0.38 tons/disturbed acres/year of Total Suspended Particulate (AP-42 Section 11.9)
PM10 and PM2.5 fractions of TSP are 0.489 and 0.102 respectively per CEIDARS factors from SCAQMD CEQA Website
There are permanent and temporary disturbed acres that make up the total acre-years of disturbed area for each Segment
Disturbed areas are controlled by dust suppressants 84% control

	Disturbed Acres (acre-years)	Emissions (tons/year)	
		PM10	PM2.5
2009	21	0.6358464	0.1302336
2010	74	2.2406016	0.4589184
2011	103	3.1186752	0.6387648
2012	26	0.7872384	0.1612416
2013	0	0	0

Fugitive Dust Emissions - Segment 6

Fugitive Dust Emissions - Segment 6

Fugitive Dust Emission Totals	2009		2010		2011	
	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr
Dozer	0.00	0.00	3.04	1.45	0.51	0.24
Grading	0.00	0.00	0.39	0.03	0.32	0.02
Soil Handling	0.00	0.00	0.21	0.07	0.21	0.07
Paved Road Dust	0.56	0.13	10.38	2.46	7.46	1.68
Unpaved Road Dust	0.03	0.00	7.73	1.19	9.81	1.50
Disturbed Area Dust	0.64	0.13	2.24	0.46	3.12	0.64
Totals	1.23	0.26	23.98	5.64	21.43	4.15

Fugitive Dust Emission Totals	2012		2013	
	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr
Dozer	0.44	0.21	0.00	0.00
Grading	0.12	0.01	0.00	0.00
Soil Handling	0.00	0.00	0.00	0.00
Paved Road Dust	3.35	0.78	0.00	0.00
Unpaved Road Dust	1.16	0.18	0.00	0.00
Disturbed Area Dust	0.79	0.16	0.00	0.00
Totals	5.86	1.34	0.00	0.00

Percent each Jurisdiction		KCAPCD	AVAQMD	SCAQMD
	2009	0.00%	100.00%	0.00%
	2010	0.00%	42.00%	58.00%
	2011	0.00%	28.00%	72.00%
	2012	0.00%	70.00%	30.00%
	2013	0.00%	0.00%	0.00%
Emissions per Jurisdiction				
PM10	2009	0.00	1.23	0.00
	2010	0.00	10.07	13.91
	2011	0.00	6.00	15.43
	2012	0.00	4.10	1.76
	2013	0.00	0.00	0.00
PM2.5	2009	0.00	0.26	0.00
	2010	0.00	2.37	3.27
	2011	0.00	1.16	2.99
	2012	0.00	0.93	0.40
	2013	0.00	0.00	0.00

Fugitive Dust Emissions - Segment 7

Emission Categories
1) Earthmoving
2) Road Dust Paved/Unpaved

1) Earthmoving

Emission Types
A) Dozing
B) Grading
C) Material Loading/Handling

A) Dozing (AP-42 Section 11.9 for overburden)

$E = k \times (s)^{1.5} / (M)^{1.4}$ For PM10 and $k \times 5.7 \times (s)^{1.2} / (M)^{1.3}$ for PM2.5
E = lb/hr
k = Scaling Constant (0.75 for PM10 and 0.105 for PM2.5)
s = Silt Content (assumed to be 12% - SCAQMD Handbook for Mountain Roads)
M = Moisture Content = 10% (assumes watering when necessary for mitigation)

PM10 Emission Factor
1.241175323 lb/hr

PM2.5 Emission Factor
0.591672862 lb/hr

Total Dozer Use

	Hrs/year
2009	0
2010	1028
2011	231
2012	312
2013	0

Dozer Emissions

Tons/year	PM10	PM2.5
2009	0.00	0.00
2010	0.64	0.30
2011	0.14	0.07
2012	0.19	0.09
2013	0.00	0.00

Fugitive Dust Emissions - Segment 7

B) Grading

$E = k \times 0.051 \times (S)^{2.0}$ for PM10 and $k \times 0.040 \times (S)^{2.5}$ for PM2.5
E = lb/VMT
k = Scaling Constant (0.60 for PM10 and 0.031 for PM2.5)
S = Mean Vehicle Speed assumed to be 3 mph
Assumes VMT = 3 x hours in use

PM10 Emission Factor
0.2754 lb/VMT

PM2.5 Emission Factor
0.019329687 lb/VMT

Annual Grader VMT

	Hrs/year	VMT/year
2009	0	0
2010	133	399
2011	0	0
2012	128	384
2013	0	0

Grading Emissions

Lbs/Day	PM10	PM2.5
2009	13.22	0.93
2010	26.44	1.86
2011	9.91	0.70
2012	23.96	1.68

Tons/year	PM10	PM2.5
2009	0.00	0.00
2010	0.05	0.00
2011	0.00	0.00
2012	0.05	0.00
2013	0.00	0.00

C) Material Loading/Handling (AP-42, p. 13.2.4-3)

$E = (k)(0.0032)[(U/5)^{1.3}]/[(M/2)^{1.4}]$
E = lb/ton
k = Particle Size Constant (0.35 for PM10 and 0.11 for PM2.5)
U = average wind speed = 25 MPH worst day, 8 MPH avg daytime (engineering assumption)
M = moisture content = 10% (mitigated)
Three separate drops are assumed

2009	0	Annual tons
2010	33,723	Annual tons
2011	33,723	Annual tons
2012	0	Annual tons
2013	0	Annual tons

Emission Factors and Emissions
Emission Factors

PM10 Daily	PM2.5 Daily	PM10 Annual	PM2.5 Annual
0.00103	0.00032	0.00029	0.00009

Emissions lbs/day

PM10	PM2.5
1.03	0.32

Emissions tons/year

	PM10	PM2.5
2009	0.00	0.00
2010	0.02	0.01
2011	0.02	0.01
2012	0.00	0.00
2013	0.00	0.00

Fugitive Dust Emissions - Segment 7

2) Road Dust
Emission Types
A) Paved Road Dust
B) Unpaved Road Dust

A) Paved Road Dust

E = [k x (sL/2)0.65 x (W/3)1.5 -C] x (1-P/4N)
E = lb/VMT
k = Constant (0.016 for PM10 and 0.0040 for PM2.5)
sL = Silt Loading (assumed to be 0.06 g/m2 - assumes 5,000 to 10,000 ADT profile of Table 13.2.1-3 average for all traffic)
W = Average weight of vehicles in tons (calculated below)
C = Correction for exhaust, break wear, tire wear (0.00047 lb/VMT for PM10, 0.00036 lb/VMT for PM2.5)
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Passenger Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Average Weight = 40.0 Tons

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Paved VMT	Average Weight (Tons)
2009	0	0	0	0	0.0
2010	310,280	113,360	95,470	519,110	8.5
2011	707,040	210,440	99,850	1,017,330	6.0
2012	514,960	168,160	65,910	749,030	5.8
2013	0	0	0	0	0.0

Emission Factors and Emissions
Emission Factors

PM10 Daily	PM2.5 Daily
0.0793	0.0196

Emissions lbs/day

PM10	PM2.5
792.66	195.74

	PM10 Annual	PM2.5 Annual
2009	0.0000	0.0000
2010	0.0073	0.0016
2011	0.0041	0.0008
2012	0.0039	0.0007
2013	0.0000	0.0000

Emissions tons/year

	PM10	PM2.5
2009	0.00	0.00
2010	1.89	0.41
2011	2.11	0.40
2012	1.48	0.28
2013	0.00	0.00

Fugitive Dust Emissions - Segment 7

B) Unpaved Road Dust

$E = (k)[(s/12)^{0.9}][(W/3)^{0.45}][(365-P)/365]$ (for industrial sites)

k = constant = 1.5 lb/VMT for PM10 and 0.23 lb/VMT for PM2.5
s = Silt Content (assumed to be 12% - SCAQMD Handbook for Mountain Roads)
W = avg. vehicle weight = calculated below
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Personal/Professionals/inspection Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Average Weight = 40.5 Tons

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Unaved VMT	Average Weight (Tons)
2009	0	0	0	0	0.0
2010	776	1,799	1,423	3,997	14.7
2011	1,768	3,518	1,150	6,435	10.3
2012	1,287	3,382	1,135	5,805	11.0
2013	0	0	0	0	0.0

Uncontrolled Emission Factors and Emissions

Emission Factors (lb/VMT)		Emissions lbs/day	
PM10 Daily	PM2.5 Daily	PM10	PM2.5
2.59	0.40	25930.71	3976.04

	PM10 Annual	PM2.5 Annual
2009	0.00	0.00
2010	3.06	0.47
2011	2.61	0.40
2012	2.69	0.41
2013	0.00	0.00

Emissions tons/year

	PM10	PM2.5
2009	0.00	0.00
2010	6.12	0.94
2011	8.40	1.29
2012	7.80	1.20
2013	0.00	0.00

Controlled Emissions (assumes 84% efficiency with use of soil binder)

Emissions lbs/day		Emission Control
PM10	PM2.5	84%
4148.91	636.17	

Emissions tons/year

	PM10	PM2.5
2009	0.00	0.00
2010	0.98	0.15
2011	1.34	0.21
2012	1.25	0.19
2013	0.00	0.00

3) Disturbed Area Windblown Emissions

Assumptions
Emission Factor is 0.38 tons/disturbed acres/year of Total Suspended Particulate (AP-42 Section 11.9)
PM10 and PM2.5 fractions of TSP are 0.489 and 0.102 respectively per CEIDARS factors from SCAQMD CEQA Website
There are permanent and temporary disturbed acres that make up the total acre-years of disturbed area for each Segment
Disturbed areas are controlled by dust suppressants 84% control

	Disturbed Acres (acre-years)	Emissions (tons/year)	
		PM10	PM2.5
2009	0	0	0
2010	49	1.4836416	0.3038784
2011	64	1.9378176	0.3969024
2012	6	0.1816704	0.0372096
2013	0	0	0

Fugitive Dust Emissions - Segment 7

Fugitive Dust Emissions - Segment 7

Fugitive Dust Emission Totals	2009		2010		2011	
	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr
Dozer	0.00	0.00	0.64	0.30	0.14	0.07
Grading	0.00	0.00	0.05	0.00	0.00	0.00
Soil Handling	0.00	0.00	0.02	0.01	0.02	0.01
Paved Road Dust	0.00	0.00	1.89	0.41	2.11	0.40
Unpaved Road Dust	0.00	0.00	0.98	0.15	1.34	0.21
Disturbed Area Dust	0.00	0.00	1.48	0.30	1.94	0.40
Totals	0.00	0.00	5.07	1.18	5.56	1.08

Fugitive Dust Emission Totals	2012		2013	
	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr
Dozer	0.19	0.09	0.00	0.00
Grading	0.05	0.00	0.00	0.00
Soil Handling	0.00	0.00	0.00	0.00
Paved Road Dust	1.48	0.28	0.00	0.00
Unpaved Road Dust	1.25	0.19	0.00	0.00
Disturbed Area Dust	0.18	0.04	0.00	0.00
Totals	3.15	0.60	0.00	0.00

Percent each Jurisdiction	KCAPCD	AVAQMD	SCAQMD
2009	0.00%	0.00%	100.00%
2010	0.00%	0.00%	100.00%
2011	0.00%	0.00%	100.00%
2012	0.00%	0.00%	100.00%
2013	0.00%	0.00%	100.00%

Emissions per Jurisdiction				
PM10	2009	0.00	0.00	0.00
	2010	0.00	0.00	5.07
	2011	0.00	0.00	5.56
	2012	0.00	0.00	3.15
	2013	0.00	0.00	0.00
PM2.5	2009	0.00	0.00	0.00
	2010	0.00	0.00	1.18
	2011	0.00	0.00	1.08
	2012	0.00	0.00	0.60
	2013	0.00	0.00	0.00

Fugitive Dust Emissions - Segment 8

Emission Categories
1) Earthmoving
2) Road Dust Paved/Unpaved

1) Earthmoving

Emission Types
A) Dozing
B) Grading
C) Material Loading/Handling

A) Dozing (AP-42 Section 11.9 for overburden)

$E = k \times (s)^{1.5} / (M)^{1.4}$ For PM10 and $k \times 5.7 \times (s)^{1.2} / (M)^{1.3}$ for PM2.5
E = lb/hr
k = Scaling Constant (0.75 for PM10 and 0.105 for PM2.5)
s = Silt Content (assumed to be 12% - SCAQMD Handbook for Mountain Roads)
M = Moisture Content = 10% (assumes watering when necessary for mitigation)

PM10 Emission Factor
1.241175323 lb/hr

PM2.5 Emission Factor
0.591672862 lb/hr

Total Dozer Use

	Hrs/year
2009	144
2010	3421
2011	1297
2012	370
2013	0

Dozer Emissions

Tons/year	PM10	PM2.5
2009	0.09	0.04
2010	2.12	1.01
2011	0.80	0.38
2012	0.23	0.11
2013	0.00	0.00

Fugitive Dust Emissions - Segment 8

B) Grading

$E = k \times 0.051 \times (S)^{2.0}$ for PM10 and $k \times 0.040 \times (S)^{2.5}$ for PM2.5
E = lb/VMT
k = Scaling Constant (0.60 for PM10 and 0.031 for PM2.5)
S = Mean Vehicle Speed assumed to be 3 mph
Assumes VMT = 3 x hours in use

PM10 Emission Factor
0.2754 lb/VMT

PM2.5 Emission Factor
0.019329687 lb/VMT

Annual Grader VMT

	Hrs/year	VMT/year
2009	40	120
2010	977	2931
2011	654	1962
2012	404	1212
2013	0	0

Grading Emissions

Lbs/Day	PM10	PM2.5
2009	13.22	0.93
2010	26.44	1.86
2011	9.91	0.70
2012	23.96	1.68

Tons/year	PM10	PM2.5
2009	0.02	0.00
2010	0.40	0.03
2011	0.27	0.02
2012	0.17	0.01
2013	0.00	0.00

C) Material Loading/Handling (AP-42, p. 13.2.4-3)

$E = (k)(0.0032)[(U/5)^{1.3}]/[(M/2)^{1.4}]$
E = lb/ton
k = Particle Size Constant (0.35 for PM10 and 0.11 for PM2.5)
U = average wind speed = 25 MPH worst day, 8 MPH avg daytime (engineering assumption)
M = moisture content = 10% (mitigated)
Three separate drops are assumed

2009	0	Annual tons
2010	325,637	Annual tons
2011	325,637	Annual tons
2012	72,364	Annual tons
2013	0	Annual tons

Emission Factors and Emissions
Emission Factors

PM10 Daily	PM2.5 Daily	PM10 Annual	PM2.5 Annual
0.00103	0.00032	0.00029	0.00009

Emissions lbs/day

PM10	PM2.5
1.03	0.32

Emissions tons/year

	PM10	PM2.5
2009	0.00	0.00
2010	0.19	0.06
2011	0.19	0.06
2012	0.04	0.01
2013	0.00	0.00

Fugitive Dust Emissions - Segment 8

2) Road Dust
Emission Types
A) Paved Road Dust
B) Unpaved Road Dust

A) Paved Road Dust

E = [k x (sL/2)0.65 x (W/3)1.5 -C] x (1-P/4N)
E = lb/VMT
k = Constant (0.016 for PM10 and 0.0040 for PM2.5)
sL = Silt Loading (assumed to be 0.06 g/m2 - assumes 5,000 to 10,000 ADT profile of Table 13.2.1-3 average for all traffic)
W = Average weight of vehicles in tons (calculated below)
C = Correction for exhaust, break wear, tire wear (0.00047 lb/VMT for PM10, 0.00036 lb/VMT for PM2.5)
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Passenger Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Average Weight = 40.0 Tons

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Paved VMT	Average Weight (Tons)
2009	23,520	11,600	4,720	39,840	7.1
2010	1,063,560	369,640	262,850	1,696,050	7.6
2011	1,205,600	389,920	159,870	1,755,390	5.9
2012	193,800	71,320	40,630	305,750	7.1
2013	0	0	0	0	0.0

Emission Factors and Emissions

Emission Factors

PM10 Daily	PM2.5 Daily
0.0793	0.0196

Emissions lbs/day

PM10	PM2.5
792.66	195.74

	PM10 Annual	PM2.5 Annual
2009	0.0054	0.0011
2010	0.0062	0.0013
2011	0.0040	0.0008
2012	0.0055	0.0011
2013	0.0000	0.0000

Emissions tons/year

	PM10	PM2.5
2009	0.11	0.02
2010	5.25	1.11
2011	3.53	0.67
2012	0.84	0.17
2013	0.00	0.00

Fugitive Dust Emissions - Segment 8

B) Unpaved Road Dust

$E = (k)[(s/12)^{0.9}][(W/3)^{0.45}][(365-P)/365]$ (for industrial sites)

k = constant = 1.5 lb/VMT for PM10 and 0.23 lb/VMT for PM2.5
s = Silt Content (assumed to be 12% - SCAQMD Handbook for Mountain Roads)
W = avg. vehicle weight = calculated below
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Personal/Professionals/inspection Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Average Weight = 40.5 Tons

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Unaved VMT	Average Weight (Tons)
2009	59	30	16	105	7.9
2010	2,576	4,192	2,911	9,679	13.0
2011	3,014	5,312	1,882	10,207	10.3
2012	485	996	466	1,947	11.8
2013	0	0	0	0	0.0

Uncontrolled Emission Factors and Emissions

Emission Factors (lb/VMT)		Emissions lbs/day	
PM10 Daily	PM2.5 Daily	PM10	PM2.5
2.59	0.40	25930.71	3976.04

	PM10 Annual	PM2.5 Annual
2009	2.33	0.36
2010	2.90	0.45
2011	2.61	0.40
2012	2.77	0.43
2013	0.00	0.00

Emissions tons/year

	PM10	PM2.5
2009	0.12	0.02
2010	14.05	2.15
2011	13.33	2.04
2012	2.70	0.41
2013	0.00	0.00

Controlled Emissions (assumes 84% efficiency with use of soil binder)

Emissions lbs/day

PM10	PM2.5
4148.91	636.17

Emission Control 84%

Emissions tons/year

	PM10	PM2.5
2009	0.02	0.00
2010	2.25	0.34
2011	2.13	0.33
2012	0.43	0.07
2013	0.00	0.00

3) Disturbed Area Windblown Emissions

Assumptions
Emission Factor is 0.38 tons/disturbed acres/year of Total Suspended Particulate (AP-42 Section 11.9)
PM10 and PM2.5 fractions of TSP are 0.489 and 0.102 respectively per CEIDARS factors from SCAQMD CEQA Website
There are permanent and temporary disturbed acres that make up the total acre-years of disturbed area for each Segment
Disturbed areas are controlled by dust suppressants 84% control

	Disturbed Acres (acre-years)	Emissions (tons/year)	
		PM10	PM2.5
2009	5	0.151392	0.031008
2010	128	3.8756352	0.7938048
2011	193	5.8437312	1.1969088
2012	74	2.2406016	0.4589184
2013	0	0	0

Fugitive Dust Emissions - Segment 8

Fugitive Dust Emissions - Segment 8

Fugitive Dust Emission Totals	2009		2010		2011	
	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr
Dozer	0.09	0.04	2.12	1.01	0.80	0.38
Grading	0.02	0.00	0.40	0.03	0.27	0.02
Soil Handling	0.00	0.00	0.19	0.06	0.19	0.06
Paved Road Dust	0.11	0.02	5.25	1.11	3.53	0.67
Unpaved Road Dust	0.02	0.00	2.25	0.34	2.13	0.33
Disturbed Area Dust	0.15	0.03	3.88	0.79	5.84	1.20
Totals	0.39	0.10	14.09	3.35	12.77	2.66

Fugitive Dust Emission Totals	2012		2013	
	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr
Dozer	0.23	0.11	0.00	0.00
Grading	0.17	0.01	0.00	0.00
Soil Handling	0.04	0.01	0.00	0.00
Paved Road Dust	0.84	0.17	0.00	0.00
Unpaved Road Dust	0.43	0.07	0.00	0.00
Disturbed Area Dust	2.24	0.46	0.00	0.00
Totals	3.95	0.83	0.00	0.00

Percent each Jurisdiction		KCAPCD	AVAQMD	SCAQMD
	2009	0.00%	0.00%	100.00%
	2010	0.00%	0.00%	100.00%
	2011	0.00%	0.00%	100.00%
	2012	0.00%	0.00%	100.00%
	2013	0.00%	0.00%	100.00%
Emissions per Jurisdiction				
PM10	2009	0.00	0.00	0.39
	2010	0.00	0.00	14.09
	2011	0.00	0.00	12.77
	2012	0.00	0.00	3.95
	2013	0.00	0.00	0.00
PM2.5	2009	0.00	0.00	0.10
	2010	0.00	0.00	3.35
	2011	0.00	0.00	2.66
	2012	0.00	0.00	0.83
	2013	0.00	0.00	0.00

Fugitive Dust Emissions - Segment 9

Emission Categories
1) Earthmoving
2) Road Dust Paved/Unpaved

1) Earthmoving

Emission Types
A) Dozing
B) Grading
C) Material Loading/Handling

A) Dozing (AP-42 Section 11.9 for overburden)

$E = k \times (s)^{1.5} / (M)^{1.4}$ For PM10 and $k \times 5.7 \times (s)^{1.2} / (M)^{1.3}$ for PM2.5
E = lb/hr
k = Scaling Constant (0.75 for PM10 and 0.105 for PM2.5)
s = Silt Content (assumed to be 16% - SCAQMD Handbook for Farm Roads)
M = Moisture Content = 10% (assumes watering when necessary for mitigation)

PM10 Emission Factor
1.910914419 lb/hr

PM2.5 Emission Factor
0.835618668 lb/hr

Total Dozer Use

	Hrs/year
2009	0
2010	3204
2011	0
2012	0
2013	0

Dozer Emissions

Tons/year	PM10	PM2.5
2009	0.00	0.00
2010	3.06	1.34
2011	0.00	0.00
2012	0.00	0.00
2013	0.00	0.00

Fugitive Dust Emissions - Segment 9

B) Grading

$E = k \times 0.051 \times (S)^{2.0}$ for PM10 and $k \times 0.040 \times (S)^{2.5}$ for PM2.5
E = lb/VMT
k = Scaling Constant (0.60 for PM10 and 0.031 for PM2.5)
S = Mean Vehicle Speed assumed to be 3 mph
Assumes VMT = 3 x hours in use

PM10 Emission Factor
0.2754 lb/VMT

PM2.5 Emission Factor
0.019329687 lb/VMT

Annual Grader VMT

	Hrs/year	VMT/year
2009	592	1776
2010	1680	5040
2011	0	0
2012	0	0
2013	0	0

Grading Emissions

Lbs/Day	PM10	PM2.5
2009	13.22	0.93
2010	26.44	1.86
2011	9.91	0.70
2012	23.96	1.68

Tons/year	PM10	PM2.5
2009	0.24	0.02
2010	0.69	0.05
2011	0.00	0.00
2012	0.00	0.00
2013	0.00	0.00

C) Material Loading/Handling (AP-42, p. 13.2.4-3)

$E = (k)(0.0032)[(U/5)^{1.3}]/[(M/2)^{1.4}]$
E = lb/ton
k = Particle Size Constant (0.35 for PM10 and 0.11 for PM2.5)
U = average wind speed = 25 MPH worst day, 8 MPH avg daytime (engineering assumption)
M = moisture content = 10% (mitigated)
Three separate drops are assumed

2009	0	Annual tons
2010	121,950	Annual tons
2011	2,750	Annual tons
2012	0	Annual tons
2013	0	Annual tons

Emission Factors and Emissions
Emission Factors

PM10 Daily	PM2.5 Daily	PM10 Annual	PM2.5 Annual
0.00103	0.00032	0.00029	0.00009

Emissions lbs/day

PM10	PM2.5
1.03	0.32

Emissions tons/year

	PM10	PM2.5
2009	0.00	0.00
2010	0.07	0.02
2011	0.00	0.00
2012	0.00	0.00
2013	0.00	0.00

Fugitive Dust Emissions - Segment 9

2) Road Dust
Emission Types
A) Paved Road Dust
B) Unpaved Road Dust

A) Paved Road Dust

E = [k x (sL/2)0.65 x (W/3)1.5 -C] x (1-P/4N)
E = lb/VMT
k = Constant (0.016 for PM10 and 0.0040 for PM2.5)
sL = Silt Loading (assumed to be 0.06 g/m2 - assumes 5,000 to 10,000 ADT profile of Table 13.2.1-3 average for all traffic)
W = Average weight of vehicles in tons (calculated below)
C = Correction for exhaust, break wear, tire wear (0.00047 lb/VMT for PM10, 0.00036 lb/VMT for PM2.5)
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Passenger Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Average Weight = 40.0 Tons

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Paved VMT	Average Weight (Tons)
2009	22,080	4,660	5,715	32,455	7.8
2010	983,020	187,870	88,630	1,259,520	4.9
2011	393,320	81,860	1,625	476,805	3.1
2012	248,760	39,150	2,250	290,160	3.0
2013	131,880	24,240	0	156,120	2.9

Emission Factors and Emissions
Emission Factors

PM10 Daily	PM2.5 Daily
0.0793	0.0196

Emissions lbs/day

PM10	PM2.5
792.66	195.74

	PM10 Annual	PM2.5 Annual
2009	0.0064	0.0014
2010	0.0029	0.0005
2011	0.0013	0.0001
2012	0.0012	0.0001
2013	0.0011	0.0000

Emissions tons/year

	PM10	PM2.5
2009	0.10	0.02
2010	1.83	0.31
2011	0.30	0.02
2012	0.17	0.01
2013	0.09	0.00

Fugitive Dust Emissions - Segment 9

B) Unpaved Road Dust

$E = (k)[(s/12)^{0.9}][(W/3)^{0.45}][(365-P)/365]$ (for industrial sites)

k = constant = 1.5 lb/VMT for PM10 and 0.23 lb/VMT for PM2.5
s = Silt Content (assumed to be 16% - SCAQMD Handbook for Farm Roads)
W = avg. vehicle weight = calculated below
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Personal/Professionals/inspection Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Average Weight = 40.5 Tons

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Unaved VMT	Average Weight (Tons)
2009	37	10	11	58	8.4
2010	1,907	455	219	2,581	5.4
2011	357	138	1	495	3.7
2012	365	86	1	452	3.2
2013	220	61	0	280	3.3

Uncontrolled Emission Factors and Emissions

Emission Factors (lb/VMT)		Emissions lbs/day	
PM10 Daily	PM2.5 Daily	PM10	PM2.5
2.59	0.40	25930.71	3976.04

	PM10 Annual	PM2.5 Annual
2009	3.10	0.47
2010	2.54	0.39
2011	2.14	0.33
2012	2.00	0.31
2013	2.03	0.31

Emissions tons/year

	PM10	PM2.5
2009	0.09	0.01
2010	3.28	0.50
2011	0.53	0.08
2012	0.45	0.07
2013	0.28	0.04

Controlled Emissions (assumes 84% efficiency with use of soil binder)

Emissions lbs/day

PM10	PM2.5
4148.91	636.17

Emission Control
84%

Emissions tons/year

	PM10	PM2.5
2009	0.01	0.00
2010	0.52	0.08
2011	0.08	0.01
2012	0.07	0.01
2013	0.05	0.01

3) Disturbed Area Windblown Emissions

Assumptions
Emission Factor is 0.38 tons/disturbed acres/year of Total Suspended Particulate (AP-42 Section 11.9)
PM10 and PM2.5 fractions of TSP are 0.489 and 0.102 respectively per CEIDARS factors from SCAQMD CEQA Website
There are permanent and temporary disturbed acres that make up the total acre-years of disturbed area for each Segment
Disturbed areas are controlled by dust suppressants 84% control

	Disturbed Acres (acre-years)
2009	2
2010	55
2011	0
2012	8
2013	11

Emissions (tons/year)	
PM10	PM2.5
0.0605568	0.0124032
1.665312	0.341088
0	0
0.2422272	0.0496128
0.3330624	0.0682176

Fugitive Dust Emissions - Segment 9

Fugitive Dust Emissions - Segment 9

Fugitive Dust Emission Totals	2009		2010		2011	
	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr
Dozer	0.00	0.00	3.06	1.34	0.00	0.00
Grading	0.24	0.02	0.69	0.05	0.00	0.00
Soil Handling	0.00	0.00	0.07	0.02	0.00	0.00
Paved Road Dust	0.10	0.02	1.83	0.31	0.30	0.02
Unpaved Road Dust	0.01	0.00	0.52	0.08	0.08	0.01
Disturbed Area Dust	0.06	0.01	1.67	0.34	0.00	0.00
Totals	0.42	0.05	7.85	2.14	0.39	0.03

Fugitive Dust Emission Totals	2012		2013	
	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr
Dozer	0.00	0.00	0.00	0.00
Grading	0.00	0.00	0.00	0.00
Soil Handling	0.00	0.00	0.00	0.00
Paved Road Dust	0.17	0.01	0.09	0.00
Unpaved Road Dust	0.07	0.01	0.05	0.01
Disturbed Area Dust	0.24	0.05	0.33	0.07
Totals	0.49	0.07	0.47	0.08

Percent each Jurisdiction		KCAPCD	AVAQMD	SCAQMD
	2009	0.00%	100.00%	0.00%
	2010	60.00%	39.00%	1.00%
	2011	75.00%	23.00%	2.00%
	2012	0.00%	98.00%	2.00%
	2013	0.00%	100.00%	0.00%
Emissions per Jurisdiction				
PM10	2009	0.00	0.42	0.00
	2010	4.71	3.06	0.08
	2011	0.29	0.09	0.01
	2012	0.00	0.48	0.01
	2013	0.00	0.47	0.00
PM2.5	2009	0.00	0.05	0.00
	2010	1.28	0.83	0.02
	2011	0.02	0.01	0.00
	2012	0.00	0.07	0.00
	2013	0.00	0.08	0.00

Fugitive Dust Emissions - Segment 10

Emission Categories
1) Earthmoving
2) Road Dust Paved/Unpaved

1) Earthmoving

Emission Types
A) Dozing
B) Grading
C) Material Loading/Handling

A) Dozing (AP-42 Section 11.9 for overburden)

$E = k \times (s)^{1.5} / (M)^{1.4}$ For PM10 and $k \times 5.7 \times (s)^{1.2} / (M)^{1.3}$ for PM2.5
E = lb/hr
k = Scaling Constant (0.75 for PM10 and 0.105 for PM2.5)
s = Silt Content (assumed to be 16% - SCAQMD Handbook for Farm Roads)
M = Moisture Content = 10% (assumes watering when necessary for mitigation)

PM10 Emission Factor
1.910914419 lb/hr

PM2.5 Emission Factor
0.835618668 lb/hr

Total Dozer Use

	Hrs/year
2009	0
2010	1399
2011	118
2012	0
2013	0

Dozer Emissions

Tons/year	PM10	PM2.5
2009	0.00	0.00
2010	1.34	0.58
2011	0.11	0.05
2012	0.00	0.00
2013	0.00	0.00

Fugitive Dust Emissions - Segment 10

B) Grading

$E = k \times 0.051 \times (S)^{2.0}$ for PM10 and $k \times 0.040 \times (S)^{2.5}$ for PM2.5
E = lb/VMT
k = Scaling Constant (0.60 for PM10 and 0.031 for PM2.5)
S = Mean Vehicle Speed assumed to be 3 mph
Assumes VMT = 3 x hours in use

PM10 Emission Factor
0.2754 lb/VMT

PM2.5 Emission Factor
0.019329687 lb/VMT

Annual Grader VMT

	Hrs/year	VMT/year
2009	0	0
2010	673	2019
2011	118	354
2012	0	0
2013	0	0

Grading Emissions

Lbs/Day	PM10	PM2.5
2009	13.22	0.93
2010	26.44	1.86
2011	9.91	0.70
2012	23.96	1.68

Tons/year	PM10	PM2.5
2009	0.00	0.00
2010	0.28	0.02
2011	0.05	0.00
2012	0.00	0.00
2013	0.00	0.00

C) Material Loading/Handling (AP-42, p. 13.2.4-3)

$E = (k)(0.0032)[(U/5)^{1.3}]/[(M/2)^{1.4}]$
E = lb/ton
k = Particle Size Constant (0.35 for PM10 and 0.11 for PM2.5)
U = average wind speed = 25 MPH worst day, 8 MPH avg daytime (engineering assumption)
M = moisture content = 10% (mitigated)
Three separate drops are assumed

2009	0	Annual tons
2010	448,800	Annual tons
2011	0	Annual tons
2012	0	Annual tons
2013	0	Annual tons

Emission Factors and Emissions
Emission Factors

PM10 Daily	PM2.5 Daily	PM10 Annual	PM2.5 Annual
0.00103	0.00032	0.00029	0.00009

Emissions lbs/day

PM10	PM2.5
1.03	0.32

Emissions tons/year

	PM10	PM2.5
2009	0.00	0.00
2010	0.26	0.08
2011	0.00	0.00
2012	0.00	0.00
2013	0.00	0.00

Fugitive Dust Emissions - Segment 10

2) Road Dust
Emission Types
A) Paved Road Dust
B) Unpaved Road Dust

A) Paved Road Dust

E = [k x (sL/2)0.65 x (W/3)1.5 -C] x (1-P/4N)
E = lb/VMT
k = Constant (0.016 for PM10 and 0.0040 for PM2.5)
sL = Silt Loading (assumed to be 0.2 g/m2 - assumes 500 to 5,000 ADT profile of Table 13.2.1-3 average for all traffic)
W = Average weight of vehicles in tons (calculated below)
C = Correction for exhaust, break wear, tire wear (0.00047 lb/VMT for PM10, 0.00036 lb/VMT for PM2.5)
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Passenger Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Average Weight = 40.0 Tons

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Paved VMT	Average Weight (Tons)
2009	0	0	0	0	0.0
2010	950,800	219,840	136,000	1,306,640	5.9
2011	46,720	12,420	9,580	68,720	7.0
2012	0	0	0	0	0.0
2013	0	0	0	0	0.0

Emission Factors and Emissions
Emission Factors

PM10 Daily	PM2.5 Daily
0.0793	0.0196

Emissions lbs/day

PM10	PM2.5
792.66	195.74

	PM10 Annual	PM2.5 Annual
2009	0.0000	0.0000
2010	0.0095	0.0021
2011	0.0123	0.0028
2012	0.0000	0.0000
2013	0.0000	0.0000

Emissions tons/year

	PM10	PM2.5
2009	0.00	0.00
2010	6.19	1.39
2011	0.42	0.10
2012	0.00	0.00
2013	0.00	0.00

Fugitive Dust Emissions - Segment 10

B) Unpaved Road Dust

$E = (k)[(s/12)^{0.9}][(W/3)^{0.45}][(365-P)/365]$ (for industrial sites)

k = constant = 1.5 lb/VMT for PM10 and 0.23 lb/VMT for PM2.5
s = Silt Content (assumed to be 16% - SCAQMD Handbook for Farm Roads)
W = avg. vehicle weight = calculated below
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Personal/Professionals/inspection Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Average Weight = 40.5 Tons

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Unaved VMT	Average Weight (Tons)
2009	0	0	0	0	0.0
2010	1,189	11,495	5,195	17,879	14.0
2011	58	649	367	1,075	15.2
2012	0	0	0	0	0.0
2013	0	0	0	0	0.0

Uncontrolled Emission Factors and Emissions

Emission Factors (lb/VMT)		Emissions lbs/day	
PM10 Daily	PM2.5 Daily	PM10	PM2.5
2.59	0.40	25930.71	3976.04

	PM10 Annual	PM2.5 Annual
2009	0.00	0.00
2010	3.89	0.60
2011	4.03	0.62
2012	0.00	0.00
2013	0.00	0.00

Emissions tons/year

	PM10	PM2.5
2009	0.00	0.00
2010	34.74	5.33
2011	2.17	0.33
2012	0.00	0.00
2013	0.00	0.00

Controlled Emissions (assumes 84% efficiency with use of soil binder)

Emissions lbs/day

PM10	PM2.5
4148.91	636.17

Emission Control 84%

Emissions tons/year

	PM10	PM2.5
2009	0.00	0.00
2010	5.56	0.85
2011	0.35	0.05
2012	0.00	0.00
2013	0.00	0.00

3) Disturbed Area Windblown Emissions

Assumptions
Emission Factor is 0.38 tons/disturbed acres/year of Total Suspended Particulate (AP-42 Section 11.9)
PM10 and PM2.5 fractions of TSP are 0.489 and 0.102 respectively per CEIDARS factors from SCAQMD CEQA Website
There are permanent and temporary disturbed acres that make up the total acre-years of disturbed area for each Segment
Disturbed areas are controlled by dust suppressants 84% control

Disturbed Acres (acre-years)	
2009	0
2010	42
2011	10
2012	0
2013	0

Emissions (tons/year)	
PM10	PM2.5
0	0
1.2716928	0.2604672
0.302784	0.062016
0	0
0	0

Fugitive Dust Emissions - Segment 10

Fugitive Dust Emissions - Segment 10

Fugitive Dust Emission Totals	2009		2010		2011	
	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr
Dozer	0.00	0.00	1.34	0.58	0.11	0.05
Grading	0.00	0.00	0.28	0.02	0.05	0.00
Soil Handling	0.00	0.00	0.26	0.08	0.00	0.00
Paved Road Dust	0.00	0.00	6.19	1.39	0.42	0.10
Unpaved Road Dust	0.00	0.00	5.56	0.85	0.35	0.05
Disturbed Area Dust	0.00	0.00	1.27	0.26	0.30	0.06
Totals	0.00	0.00	14.89	3.19	1.23	0.26

Fugitive Dust Emission Totals	2012		2013	
	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr
Dozer	0.00	0.00	0.00	0.00
Grading	0.00	0.00	0.00	0.00
Soil Handling	0.00	0.00	0.00	0.00
Paved Road Dust	0.00	0.00	0.00	0.00
Unpaved Road Dust	0.00	0.00	0.00	0.00
Disturbed Area Dust	0.00	0.00	0.00	0.00
Totals	0.00	0.00	0.00	0.00

Percent each Jurisdiction		KCAPCD	AVAQMD	SCAQMD
	2009	100.00%	0.00%	0.00%
	2010	100.00%	0.00%	0.00%
	2011	100.00%	0.00%	0.00%
	2012	100.00%	0.00%	0.00%
	2013	100.00%	0.00%	0.00%
Emissions per Jurisdiction				
PM10	2009	0.00	0.00	0.00
	2010	14.89	0.00	0.00
	2011	1.23	0.00	0.00
	2012	0.00	0.00	0.00
	2013	0.00	0.00	0.00
PM2.5	2009	0.00	0.00	0.00
	2010	3.19	0.00	0.00
	2011	0.26	0.00	0.00
	2012	0.00	0.00	0.00
	2013	0.00	0.00	0.00

Fugitive Dust Emissions - Segment 11

Emission Categories
1) Earthmoving
2) Road Dust Paved/Unpaved

1) Earthmoving

Emission Types
A) Dozing
B) Grading
C) Material Loading/Handling

A) Dozing (AP-42 Section 11.9 for overburden)

$E = k \times (s)^{1.5} / (M)^{1.4}$ For PM10 and $k \times 5.7 \times (s)^{1.2} / (M)^{1.3}$ for PM2.5
E = lb/hr
k = Scaling Constant (0.75 for PM10 and 0.105 for PM2.5)
s = Silt Content (assumed to be 12% - SCAQMD Handbook for Mountain Roads)
M = Moisture Content = 10% (assumes watering when necessary for mitigation)

PM10 Emission Factor
1.241175323 lb/hr

PM2.5 Emission Factor
0.591672862 lb/hr

Total Dozer Use

	Hrs/year
2009	0
2010	0
2011	1287
2012	2575
2013	36

Dozer Emissions

Tons/year	PM10	PM2.5
2009	0.00	0.00
2010	0.00	0.00
2011	0.80	0.38
2012	1.60	0.76
2013	0.02	0.01

Fugitive Dust Emissions - Segment 11

B) Grading

$E = k \times 0.051 \times (S)^{2.0}$ for PM10 and $k \times 0.040 \times (S)^{2.5}$ for PM2.5
E = lb/VMT
k = Scaling Constant (0.60 for PM10 and 0.031 for PM2.5)
S = Mean Vehicle Speed assumed to be 3 mph
Assumes VMT = 3 x hours in use

PM10 Emission Factor
0.2754 lb/VMT

PM2.5 Emission Factor
0.019329687 lb/VMT

Annual Grader VMT

	Hrs/year	VMT/year
2009	0	0
2010	0	0
2011	270	810
2012	928	2784
2013	100	300

Grading Emissions

Lbs/Day	PM10	PM2.5
2009	13.22	0.93
2010	26.44	1.86
2011	9.91	0.70
2012	23.96	1.68

Tons/year	PM10	PM2.5
2009	0.00	0.00
2010	0.00	0.00
2011	0.11	0.01
2012	0.38	0.03
2013	0.04	0.00

C) Material Loading/Handling (AP-42, p. 13.2.4-3)

$E = (k)(0.0032)[(U/5)^{1.3}]/[(M/2)^{1.4}]$
E = lb/ton
k = Particle Size Constant (0.35 for PM10 and 0.11 for PM2.5)
U = average wind speed = 25 MPH worst day, 8 MPH avg daytime (engineering assumption)
M = moisture content = 10% (mitigated)
Three separate drops are assumed

2009	0	Annual tons
2010	0	Annual tons
2011	31,750	Annual tons
2012	284,134	Annual tons
2013	0	Annual tons

Emission Factors and Emissions
Emission Factors

PM10 Daily	PM2.5 Daily	PM10 Annual	PM2.5 Annual
0.00103	0.00032	0.00029	0.00009

Emissions lbs/day

PM10	PM2.5
1.03	0.32

Emissions tons/year

	PM10	PM2.5
2009	0.00	0.00
2010	0.00	0.00
2011	0.02	0.01
2012	0.16	0.05
2013	0.00	0.00

Fugitive Dust Emissions - Segment 11

2) Road Dust
Emission Types
A) Paved Road Dust
B) Unpaved Road Dust

A) Paved Road Dust

E = [k x (sL/2)0.65 x (W/3)1.5 -C] x (1-P/4N)
E = lb/VMT
k = Constant (0.016 for PM10 and 0.0040 for PM2.5)
sL = Silt Loading (assumed to be 0.2 g/m2 - assumes 500 to 5,000 ADT profile of Table 13.2.1-3 average for all traffic)
W = Average weight of vehicles in tons (calculated below)
C = Correction for exhaust, break wear, tire wear (0.00047 lb/VMT for PM10, 0.00036 lb/VMT for PM2.5)
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Passenger Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Average Weight = 40.0 Tons

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Paved VMT	Average Weight (Tons)
2009	56,880	28,440	9,480	94,800	6.6
2010	11,160	5,580	1,860	18,600	6.6
2011	164,760	54,900	54,200	273,860	8.7
2012	1,017,900	340,620	199,110	1,557,630	6.9
2013	31,080	12,180	8,430	51,690	8.0

Emission Factors and Emissions

Emission Factors

PM10 Daily	PM2.5 Daily
0.0793	0.0196

Emissions lbs/day

PM10	PM2.5
792.66	195.74

	PM10 Annual	PM2.5 Annual
2009	0.0112	0.0026
2010	0.0112	0.0026
2011	0.0174	0.0041
2012	0.0120	0.0028
2013	0.0151	0.0035

Emissions tons/year

	PM10	PM2.5
2009	0.53	0.12
2010	0.10	0.02
2011	2.38	0.56
2012	9.35	2.15
2013	0.39	0.09

Fugitive Dust Emissions - Segment 11

B) Unpaved Road Dust

$E = (k)[(s/12)^{0.9}][(W/3)^{0.45}][(365-P)/365]$ (for industrial sites)

k = constant = 1.5 lb/VMT for PM10 and 0.23 lb/VMT for PM2.5
s = Silt Content (assumed to be 12% - SCAQMD Handbook for Mountain Roads)
W = avg. vehicle weight = calculated below
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Personal/Professionals/inspection Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Average Weight = 40.5 Tons

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Unaved VMT	Average Weight (Tons)
2009	95	1,505	502	2,101	13.0
2010	19	295	98	412	13.0
2011	275	1,393	1,845	3,513	19.1
2012	1,697	19,246	10,001	30,944	14.8
2013	52	795	457	1,304	15.5

Uncontrolled Emission Factors and Emissions

Emission Factors (lb/VMT)		Emissions lbs/day	
PM10 Daily	PM2.5 Daily	PM10	PM2.5
2.59	0.40	25930.71	3976.04

	PM10 Annual	PM2.5 Annual
2009	2.90	0.44
2010	2.90	0.44
2011	3.45	0.53
2012	3.07	0.47
2013	3.14	0.48

Emissions tons/year

	PM10	PM2.5
2009	3.05	0.47
2010	0.60	0.09
2011	6.06	0.93
2012	47.57	7.29
2013	2.05	0.31

Controlled Emissions (assumes 84% efficiency with use of soil binder)

Emissions lbs/day

PM10	PM2.5
4148.91	636.17

Emission Control
84%

Emissions tons/year

	PM10	PM2.5
2009	0.49	0.07
2010	0.10	0.01
2011	0.97	0.15
2012	7.61	1.17
2013	0.33	0.05

3) Disturbed Area Windblown Emissions

Assumptions
Emission Factor is 0.38 tons/disturbed acres/year of Total Suspended Particulate (AP-42 Section 11.9)
PM10 and PM2.5 fractions of TSP are 0.489 and 0.102 respectively per CEIDARS factors from SCAQMD CEQA Website
There are permanent and temporary disturbed acres that make up the total acre-years of disturbed area for each Segment
Disturbed areas are controlled by dust suppressants 84% control

Disturbed Acres (acre-years)

2009	20
2010	41
2011	44
2012	136
2013	20

Emissions (tons/year)

PM10	PM2.5
0.605568	0.124032
1.2414144	0.2542656
1.3322496	0.2728704
4.1178624	0.8434176
0.605568	0.124032

Fugitive Dust Emissions - Segment 11

Fugitive Dust Emissions - Segment 11

Fugitive Dust Emission Totals	2009		2010		2011	
	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr
Dozer	0.00	0.00	0.00	0.00	0.80	0.38
Grading	0.00	0.00	0.00	0.00	0.11	0.01
Soil Handling	0.00	0.00	0.00	0.00	0.02	0.01
Paved Road Dust	0.53	0.12	0.10	0.02	2.38	0.56
Unpaved Road Dust	0.49	0.07	0.10	0.01	0.97	0.15
Disturbed Area Dust	0.61	0.12	1.24	0.25	1.33	0.27
Totals	1.62	0.32	1.44	0.29	5.61	1.38

Fugitive Dust Emission Totals	2012		2013	
	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr
Dozer	1.60	0.76	0.02	0.01
Grading	0.38	0.03	0.04	0.00
Soil Handling	0.16	0.05	0.00	0.00
Paved Road Dust	9.35	2.15	0.39	0.09
Unpaved Road Dust	7.61	1.17	0.33	0.05
Disturbed Area Dust	4.12	0.84	0.61	0.12
Totals	23.22	5.00	1.39	0.28

Percent each Jurisdiction		KCAPCD	AVAQMD	SCAQMD
	2009	0.00%	0.00%	100.00%
	2010	0.00%	72.00%	28.00%
	2011	0.00%	0.00%	100.00%
	2012	0.00%	40.00%	60.00%
	2013	0.00%	94.00%	6.00%
Emissions per Jurisdiction				
PM10	2009	0.00	0.00	1.62
	2010	0.00	1.04	0.40
	2011	0.00	0.00	5.61
	2012	0.00	9.29	13.93
	2013	0.00	1.30	0.08
PM2.5	2009	0.00	0.00	0.32
	2010	0.00	0.21	0.08
	2011	0.00	0.00	1.38
	2012	0.00	2.00	3.00
	2013	0.00	0.26	0.02

Fugitive Dust Emissions - KCAPCD Maximum Daily

Emission Categories
1) Earthmoving
2) Road Dust Paved/Unpaved

1) Earthmoving

Emission Types
A) Dozing
B) Grading
C) Material Loading/Handling

A) Dozing (AP-42 Section 11.9 for overburden)

$E = k \times (s)^{1.5} / (M)^{1.4}$ For PM10 and $k \times 5.7 \times (s)^{1.2} / (M)^{1.3}$ for PM2.5
E = lb/hr
k = Scaling Constant (0.75 for PM10 and 0.105 for PM2.5)
s = Silt Content (assumed to be 16% - SCAQMD Handbook for Farm Roads)
M = Moisture Content = 10% (assumes watering when necessary for mitigation)

PM10 Emission Factor
1.910914419 lb/hr

PM2.5 Emission Factor
0.835618668 lb/hr

Maximum Daily Dozer Use

	Hrs/day
Oct-10	12

Dozer Emissions

Lbs/Day	PM10	PM2.5
Oct-10	22.93	10.03

B) Grading

$E = k \times 0.051 \times (S)^{2.0}$ for PM10 and $k \times 0.040 \times (S)^{2.5}$ for PM2.5
E = lb/VMT
k = Scaling Constant (0.60 for PM10 and 0.031 for PM2.5)
S = Mean Vehicle Speed assumed to be 3 mph
Assumes VMT = 3 x hours in use

PM10 Emission Factor
0.2754 lb/VMT

PM2.5 Emission Factor
0.019329687 lb/VMT

Maximum Daily Grader VMT

	Hrs/day	VMT/day
Oct-10	4	12

Grading Emissions

Lbs/Day	PM10	PM2.5
Oct-10	3.30	0.23

C) Material Loading/Handling (AP-42, p. 13.2.4-3)

$E = (k)(0.0032)[(U/5)^{1.3}]/[(M/2)^{1.4}]$
E = lb/ton
k = Particle Size Constant (0.35 for PM10 and 0.11 for PM2.5)
U = average wind speed = 26.5 MPH worst day, 6.4 MPH avg from Norco Met File
M = moisture content = 10% (mitigated)
Three separate drops are assumed

Max Daily 54 Maximum daily tons

Emission Factors and Emissions

Emission Factors		Emissions lbs/day	
PM10 Daily	PM2.5 Daily	PM10	PM2.5
0.00103	0.00032	0.06	0.02

2) Road Dust

Emission Types
A) Paved Road Dust
B) Unpaved Road Dust

A) Paved Road Dust

E = [k x (sL/2)0.65 x (W/3)1.5 -C] x (1-P/4N)
E = lb/VMT
k = Constant (0.016 for PM10 and 0.0040 for PM2.5)
sL = Silt Loading (assumed to be 0.2 g/m2 - assumes 500 to 5,000 ADT profile of Table 13.2.1-3 average for all traffic)
W = Average weight of vehicles in tons (calculated below)
C = Correction for exhaust, break wear, tire wear (0.00047 lb/VMT for PM10, 0.00036 lb/VMT for PM2.5)
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Passenger Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Worst Case Day VMT

17560	Passenger Vehicles
4560	Delivery/Work Vehicles
1810	Heavy-Heavy Duty Vehicles
23930	Total Paved VMT

Average Weight = 5.3 Tons

Emission Factors and Emissions

Emission Factors	
PM10 Daily	PM2.5 Daily
0.0078	0.0017

Emissions lbs/day	
PM10	PM2.5
187.82	41.15

B) Unpaved Road Dust

$E = (k)[(s/12)^{0.9}][(W/3)^{0.45}][(365-P)/365]$ (for industrial sites)

k = constant = 1.5 lb/VMT for PM10 and 0.23 lb/VMT for PM2.5
s = Silt Content (assumed to be 16% - SCAQMD Handbook for Farm Roads)
W = avg. vehicle weight = calculated below
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Personal/Professionals/inspection Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Worst Case Day VMT

25	Passenger Vehicles
224	Delivery/Work Vehicles
85	Heavy-Heavy Duty Vehicles
334	Total Unpaved VMT

Average Weight = 13.2 Tons

Uncontrolled Emission Factors and Emissions

Emission Factors (lb/VMT)		Emissions lbs/day	
PM10 Daily	PM2.5 Daily	PM10	PM2.5
3.78	0.58	1262.86	193.64

Controlled Emissions (assumes 84% efficiency with use of soil binder)

Controlled Emissions lbs/day	
PM10	PM2.5
202.06	30.98

Emission Control
84%

3) Disturbed Area Windblown Emissions

Assumption

Average day in 2010 for Segments 4 and 10

PM10	PM2.5
29	6

Fugitive Dust Emission Totals Maximum Day

	PM10 lb/day	PM2.5 lb/day
Dozer	22.93	10.03
Grading	3.30	0.23
Soil Handling	0.06	0.02
Paved Road Dust	187.82	41.15
Unpaved Road Dust	202.06	30.98
Wind Blown Dust	28.87	5.91
Totals	445.04	88.32

Fugitive Dust Emissions - AVAQMD Maximum Daily

Emission Categories
1) Earthmoving
2) Road Dust Paved/Unpaved

1) Earthmoving

Emission Types
A) Dozing
B) Grading
C) Material Loading/Handling

A) Dozing (AP-42 Section 11.9 for overburden)

$E = k \times (s)^{1.5} / (M)^{1.4}$ For PM10 and $k \times 5.7 \times (s)^{1.2} / (M)^{1.3}$ for PM2.5
E = lb/hr
k = Scaling Constant (0.75 for PM10 and 0.105 for PM2.5)
s = Silt Content (assumed to be 16% - SCAQMD Handbook for Farm Roads)
M = Moisture Content = 10% (assumes watering when necessary for mitigation)

PM10 Emission Factor
1.910914419 lb/hr

PM2.5 Emission Factor
0.835618668 lb/hr

Maximum Daily Dozer Use

	Hrs/day
Apr-12	4

Dozer Emissions

Lbs/Day	PM10	PM2.5
Apr-12	7.64	3.34

B) Grading

$E = k \times 0.051 \times (S)^{2.0}$ for PM10 and $k \times 0.040 \times (S)^{2.5}$ for PM2.5
E = lb/VMT
k = Scaling Constant (0.60 for PM10 and 0.031 for PM2.5)
S = Mean Vehicle Speed assumed to be 3 mph
Assumes VMT = 3 x hours in use

PM10 Emission Factor
0.2754 lb/VMT

PM2.5 Emission Factor
0.019329687 lb/VMT

Maximum Daily Grader VMT

	Hrs/day	VMT/day
Apr-12	4	12

Grading Emissions

Lbs/Day	PM10	PM2.5
Apr-12	3.30	0.23

C) Material Loading/Handling (AP-42, p. 13.2.4-3)

$E = (k)(0.0032)[(U/5)^{1.3}]/[(M/2)^{1.4}]$
E = lb/ton
k = Particle Size Constant (0.35 for PM10 and 0.11 for PM2.5)
U = average wind speed = 26.5 MPH worst day, 6.4 MPH avg from Norco Met File
M = moisture content = 10% (mitigated)
Three separate drops are assumed

Max Daily 54 Maximum daily tons

Emission Factors and Emissions

Emission Factors		Emissions lbs/day	
PM10 Daily	PM2.5 Daily	PM10	PM2.5
0.00103	0.00032	0.06	0.02

2) Road Dust

Emission Types
A) Paved Road Dust
B) Unpaved Road Dust

A) Paved Road Dust

E = [k x (sL/2)0.65 x (W/3)1.5 -C] x (1-P/4N)
E = lb/VMT
k = Constant (0.016 for PM10 and 0.0040 for PM2.5)
sL = Silt Loading (assumed to be 0.2 g/m2 - assumes 500 to 5,000 ADT profile of Table 13.2.1-3 average for all traffic)
W = Average weight of vehicles in tons (calculated below)
C = Correction for exhaust, break wear, tire wear (0.00047 lb/VMT for PM10, 0.00036 lb/VMT for PM2.5)
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Passenger Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Worst Case Day VMT

8460	Passenger Vehicles
2650	Delivery/Work Vehicles
1160	Heavy-Heavy Duty Vehicles
12270	Total Paved VMT

Average Weight = 5.9 Tons

Emission Factors and Emissions

Emission Factors	
PM10 Daily	PM2.5 Daily
0.0095	0.0021

Emissions lbs/day	
PM10	PM2.5
116.78	26.22

B) Unpaved Road Dust

$E = (k)[(s/12)^{0.9}][(W/3)^{0.45}][(365-P)/365]$ (for industrial sites)

k = constant = 1.5 lb/VMT for PM10 and 0.23 lb/VMT for PM2.5
s = Silt Content (assumed to be 16% - SCAQMD Handbook for Farm Roads)
W = avg. vehicle weight = calculated below
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Personal/Professionals/inspection Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Worst Case Day VMT

14	Passenger Vehicles
119	Delivery/Work Vehicles
56	Heavy-Heavy Duty Vehicles
188	Total Unpaved VMT

Average Weight = 14.1 Tons

Uncontrolled Emission Factors and Emissions

Emission Factors (lb/VMT)		Emissions lbs/day	
PM10 Daily	PM2.5 Daily	PM10	PM2.5
3.90	0.60	732.79	112.36

Controlled Emissions (assumes 84% efficiency with use of soil binder)

Emissions lbs/day	
PM10	PM2.5
117.25	17.98

Emission Control
84%

3) Disturbed Area Windblown Emissions

Assumption

Average day in 2012 for Segments 6 and 11

PM10	PM2.5
27	6

Fugitive Dust Emission Totals Maximum Day

	PM10 lb/day	PM2.5 lb/day
Dozer	7.64	3.34
Grading	3.30	0.23
Soil Handling	0.06	0.02
Paved Road Dust	116.78	26.22
Unpaved Road Dust	117.25	17.98
Wind Blown Dust	26.88	5.50
Totals	271.90	53.29

Fugitive Dust Emissions - SCAQMD Maximum Daily

Emission Categories
1) Earthmoving
2) Road Dust Paved/Unpaved

1) Earthmoving

Emission Types
A) Dozing
B) Grading
C) Material Loading/Handling

A) Dozing (AP-42 Section 11.9 for overburden)

$E = k \times (s)^{1.5} / (M)^{1.4}$ For PM10 and $k \times 5.7 \times (s)^{1.2} / (M)^{1.3}$ for PM2.5
E = lb/hr
k = Scaling Constant (0.75 for PM10 and 0.105 for PM2.5)
s = Silt Content (assumed to be 12% - SCAQMD Handbook for Mountain Roads)
M = Moisture Content = 10% (assumes watering when necessary for mitigation)

PM10 Emission Factor
1.241175323 lb/hr

PM2.5 Emission Factor
0.591672862 lb/hr

Maximum Daily Dozer Use

	Hrs/day
2009	40

Dozer Emissions

Lbs/Day	PM10	PM2.5
2009	76.44	33.42

B) Grading

$E = k \times 0.051 \times (S)^{2.0}$ for PM10 and $k \times 0.040 \times (S)^{2.5}$ for PM2.5
E = lb/VMT
k = Scaling Constant (0.60 for PM10 and 0.031 for PM2.5)
S = Mean Vehicle Speed assumed to be 3 mph
Assumes VMT = 3 x hours in use

PM10 Emission Factor
0.2754 lb/VMT

PM2.5 Emission Factor
0.019329687 lb/VMT

Maximum Daily Grader VMT

	Hrs/day	VMT/day
2009	9	27

Grading Emissions

Lbs/Day	PM10	PM2.5
2009	7.44	0.52

C) Material Loading/Handling (AP-42, p. 13.2.4-3)

$E = (k)(0.0032)[(U/5)^{1.3}]/[(M/2)^{1.4}]$
E = lb/ton
k = Particle Size Constant (0.35 for PM10 and 0.11 for PM2.5)
U = average wind speed = 26.5 MPH worst day, 6.4 MPH avg from Norco Met File
M = moisture content = 10% (mitigated)
Three separate drops are assumed

Max Daily 216 Maximum daily tons

Emission Factors and Emissions

Emission Factors		Emissions lbs/day	
PM10 Daily	PM2.5 Daily	PM10	PM2.5
0.00103	0.00032	0.22	0.07

2) Road Dust

Emission Types
A) Paved Road Dust
B) Unpaved Road Dust

A) Paved Road Dust

E = [k x (sL/2)0.65 x (W/3)1.5 -C] x (1-P/4N)
E = lb/VMT
k = Constant (0.016 for PM10 and 0.0040 for PM2.5)
sL = Silt Loading (assumed to be 0.2 g/m2 - assumes 500 to 5,000 ADT profile of Table 13.2.1-3 average for all traffic)
W = Average weight of vehicles in tons (calculated below)
C = Correction for exhaust, break wear, tire wear (0.00047 lb/VMT for PM10, 0.00036 lb/VMT for PM2.5)
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Passenger Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Worst Case Day VMT

13360	Passenger Vehicles
4180	Delivery/Work Vehicles
2630	Heavy-Heavy Duty Vehicles
20170	Total Paved VMT

Average Weight = 6.9 Tons

Emission Factors and Emissions

Emission Factors	
PM10 Daily	PM2.5 Daily
0.0120	0.0028

Emissions lbs/day	
PM10	PM2.5
242.22	55.66

B) Unpaved Road Dust

$E = (k)[(s/12)^{0.9}][(W/3)^{0.45}][(365-P)/365]$ (for industrial sites)

k = constant = 1.5 lb/VMT for PM10 and 0.23 lb/VMT for PM2.5
s = Silt Content (assumed to be 12% - SCAQMD Handbook for Mountain Roads)
W = avg. vehicle weight = calculated below
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Personal/Professionals/inspection Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Worst Case Day VMT

29	Passenger Vehicles
188	Delivery/Work Vehicles
119	Heavy-Heavy Duty Vehicles
335.8649512	Total Unpaved VMT

Average Weight = 15.3 Tons

Uncontrolled Emission Factors and Emissions

Emission Factors (lb/VMT)		Emissions lbs/day	
PM10 Daily	PM2.5 Daily	PM10	PM2.5
3.13	0.48	1049.92	160.99

Controlled Emissions (assumes 84% efficiency with use of soil binder)

Emissions lbs/day	
PM10	PM2.5
167.99	25.76

Emission Control
84%

3) Disturbed Area Windblown Emissions

Assumption

Average day in 2010 for Segments 6, 7, 8, and 11

PM10	PM2.5
49	10

Fugitive Dust Emission Totals Maximum Day

	PM10 lb/day	PM2.5 lb/day
Dozer	76.44	33.42
Grading	7.44	0.52
Soil Handling	0.22	0.07
Paved Road Dust	242.22	55.66
Unpaved Road Dust	167.99	25.76

Totals	494.30	115.44

LST Daily Emissions Estimate

Assumptions:
1) Three Worst-Case Construction Types - 1) Construction of Marshalling Yards, 2) Tower Construction, and 3) Substation Construction
2) Localized emissions include the on-site emissions only, so are comprised of the offroad equipment and their associated Fugitive Dust activities and onroad emissions and the unpaved road dust within 0.1 miles (0.05 miles each way).

Marshalling Yards - 2009 Emission Factor Basis

Offroad Emissions

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.1244	0.4490	0.8777	0.0008	0.0589	2	0.25	0.90	1.76	0.00	0.12
Forklift, 5 ton	75	1	0.0723	0.2046	0.2348	0.0003	0.0248	6	0.43	1.23	1.41	0.00	0.15
Forklift, 10 ton	85	1	0.0709	0.2097	0.2661	0.0003	0.0275	6	0.43	1.26	1.60	0.00	0.17
Motor, Auxilary Power	5	1	0.0060	0.0246	0.0399	0.0001	0.0024	1	0.01	0.02	0.04	0.00	0.00
									1.11	3.41	4.80	0.00	0.43

Onroad Emissions

	Emissions Factor lb/mile VOC	CO	NOx	SOx	PM	VMT Total	Daily Emissions lbs VOC	CO	NOx	SOx	PM
Vehicle Type											
Passenger	0.0010	0.0097	0.0010	0.0000	0.0001	0.6	0.00	0.01	0.00	0.00	0.00
Delivery	0.0028	0.0202	0.0224	0.0000	0.0008	0.3	0.00	0.01	0.01	0.00	0.00
Heavy-Heavy Duty	0.0033	0.0128	0.0418	0.0000	0.0020	0.1	0.00	0.00	0.00	0.00	0.00
						Totals	0.00	0.01	0.01	0.00	0.00

Fugitive Dust Emissions

	PM10 lb/mile	PM2.5 lbs/mile
Unpaved Road Efs	0.50	0.08
	PM10 lbs/day	PM2.5 lbs/day
(based on SCAQMD worst case day)	0.50	0.08

Total Miles
1.0

No dozing/grading or soil movement

Local Daily Emission Totals		VOC	CO	NOx	SOx	PM10	PM2.5
Marshalling Yard Construction	Offroad	1.11	3.41	4.80	0.00	0.43	0.40
	Onroad	0.00	0.01	0.01	0.00	0.00	0.00
	Fugitive Dust	--	--	--	--	0.50	0.08
Total		1.12	3.42	4.81	0.00	0.93	0.48

LST Daily Emissions Estimate

Tower Construction - 2010 Tower Steel

Offroad Emissions

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM
Crane, Hydraulic, 150/300 Ton	450	1	0.1706	0.5992	1.6652	0.0017	0.0642
Crane, Hydraulic, Rough Terrain 35 ton	155	3	0.1177	0.4459	0.8298	0.0008	0.0562
Compressor, Air	75	5	0.1110	0.3005	0.3668	0.0004	0.0365
Motor, Auxilary Power	5	2	0.0057	0.0242	0.0385	0.0001	0.0023

	Daily Emissions lbs				
Hours/day	ROG	CO	NOX	SOX	PM
8	1.36	4.79	13.32	0.01	0.51
8	2.82	10.70	19.92	0.02	1.35
7.5	4.16	11.27	13.76	0.01	1.37
2	0.02	0.10	0.15	0.00	0.01
	8.37	26.86	47.15	0.05	3.24

Onroad Emissions

	Emissions Factor lb/mile				
Vehicle Type	VOC	CO	NOx	SOx	PM
Passenger	0.0009	0.0083	0.0009	0.0000	0.0001
Delivery	0.0026	0.0184	0.0206	0.0000	0.0008
Heavy-Heavy Duty	0.0030	0.0120	0.0382	0.0000	0.0018

VMT	Daily Emissions lbs				
Total	VOC	CO	NOx	SOx	PM
4.8	0.00	0.04	0.00	0.00	0.00
1.4	0.00	0.03	0.03	0.00	0.00
0.3	0.00	0.00	0.01	0.00	0.00
Totals	0.01	0.07	0.04	0.00	0.00

Fugitive Dust Emissions

	PM10	PM2.5
	lb/mile	lbs/mile
Unpaved Road Efs	0.50	0.08
	PM10	PM2.5
(based on SCAQMD worst case day)	lbs/day	lbs/day
	3.25	0.50

No dozing/grading or soil movement

Total Miles
6.5

Local Daily Emission Totals		VOC	CO	NOx	SOx	PM10	PM2.5
Tower Construction	Offroad	8.37	26.86	47.15	0.05	3.24	2.98
	Onroad	0.01	0.07	0.04	0.00	0.00	0.00
	Fugitive Dust	--	--	--	--	3.25	0.50
Total		8.38	26.93	47.19	0.05	6.49	3.48

LST Daily Emissions Estimate

Substation Construction - Transformer Element in SCAQMD Jurisdiction - 2011

Offroad Emissions

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM
50 ton Crane	200	2	0.1156	0.4330	0.9692	0.0010	0.0486	6	1.39	5.20	11.63	0.01	0.58
Forklift	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	6	0.34	1.15	1.28	0.00	0.12
Manlifts	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	6	0.34	1.15	1.28	0.00	0.12
									2.07	7.50	14.19	0.02	0.83

Onroad Emissions

	Emissions Factor lb/mile					VMT	Daily Emissions lbs				
Vehicle Type	VOC	CO	NOx	SOx	PM	Total	VOC	CO	NOx	SOx	PM
Passenger	0.0009	0.0083	0.0008	0.0000	0.0001	4.8	0.00	0.04	0.00	0.00	0.00
Delivery	0.0024	0.0169	0.0189	0.0000	0.0007	1.4	0.00	0.02	0.03	0.00	0.00
Heavy-Heavy Duty	0.0028	0.0111	0.0346	0.0000	0.0017	0.3	0.00	0.00	0.01	0.00	0.00
						Totals	0.01	0.07	0.04	0.00	0.00

Fugitive Dust Emissions

Negligible at existing SCAQMD paved substation sites

Local Daily Emission Totals		VOC	CO	NOx	SOx	PM10	PM2.5
Substation Construction	Offroad	2.07	7.50	14.19	0.02	0.83	0.77
	Onroad	0.01	0.07	0.04	0.00	0.00	0.00
	Fugitive Dust	--	--	--	--	0.00	0.00
Total		2.08	7.56	14.23	0.02	0.83	0.77

Alternative 2. - Operating Emissions

Daily Emissions (lbs)

AVAQMD		VOC	CO	NOx	SOx	PM10	PM2.5
Road Construction	Offroad	4.16	15.84	32.93	0.04	1.66	1.52
	Onroad	0.69	4.61	4.97	0.01	0.25	0.23
	Fugitive Dust	--	--	--	--	55.00	18.70
Helicopter - Hughes 500		1.68	3.76	7.67	0.06	0.42	0.38
Total		6.53	24.20	45.56	0.11	57.32	20.84

SCAQMD		VOC	CO	NOx	SOx	PM10	PM2.5
Road Construction	Offroad	4.16	15.84	32.93	0.04	1.66	1.52
	Onroad	1.08	7.10	7.82	0.02	0.39	0.35
	Fugitive Dust	--	--	--	--	58.27	17.08
Helicopter - Hughes 500		1.68	3.76	7.67	0.06	0.42	0.38
Total		6.91	26.69	48.41	0.12	60.72	19.35

KCAPCD		VOC	CO	NOx	SOx	PM10	PM2.5
Road Construction	Offroad	4.16	15.84	32.93	0.04	1.66	1.52
	Onroad	1.17	8.09	7.64	0.02	0.39	0.36
	Fugitive Dust	--	--	--	--	65.22	20.60
Helicopter - Hughes 500		1.68	3.76	7.67	0.06	0.42	0.38
Total		7.01	27.68	48.24	0.12	67.68	22.87

Annual Emissions (lbs)

AVAQMD		VOC	CO	NOx	SOx	PM10	PM2.5
Road Construction	Offroad	83.25	316.71	658.51	0.76	33.11	30.46
	Onroad	13.87	92.20	99.31	0.22	4.92	4.52
	Fugitive Dust	--	--	--	--	1,099.93	374.06
Helicopter - Hughes 500		8.38	18.78	38.34	0.32	2.09	1.92
Total		105.50	427.69	796.15	1.29	1,140.04	410.96

SCAQMD		VOC	CO	NOx	SOx	PM10	PM2.5
Road Construction	Offroad	83.25	316.71	658.51	0.76	33.11	30.46
	Onroad	21.51	141.90	156.37	0.33	7.72	7.10
	Fugitive Dust	--	--	--	--	1,165.30	341.69
Helicopter - Hughes 500		8.38	18.78	38.34	0.32	2.09	1.92
Total		113.14	477.39	853.21	1.41	1,208.21	381.17

KCAPCD		VOC	CO	NOx	SOx	PM10	PM2.5
Road Construction	Offroad	83.25	316.71	658.51	0.76	33.11	30.46
	Onroad	23.34	161.75	152.86	0.36	7.74	7.12
	Fugitive Dust	--	--	--	--	1,304.34	412.08
Helicopter - Hughes 500		8.38	18.78	38.34	0.32	2.09	1.92
Total		114.97	497.23	849.71	1.44	1,347.27	451.58

Annual Emissions (ton)

AVAQMD		VOC	CO	NOx	SOx	PM10	PM2.5
Road Construction	Offroad	0.04	0.16	0.33	0.00	0.02	0.02
	Onroad	0.01	0.05	0.05	0.00	0.00	0.00
	Fugitive Dust	--	--	--	--	0.55	0.19
Helicopter - Hughes 500		0.00	0.01	0.02	0.00	0.00	0.00
Total		0.05	0.21	0.40	0.00	0.57	0.21

SCAQMD		VOC	CO	NOx	SOx	PM10	PM2.5
Road Construction	Offroad	0.04	0.16	0.33	0.00	0.02	0.02
	Onroad	0.01	0.07	0.08	0.00	0.00	0.00
	Fugitive Dust	--	--	--	--	0.58	0.17
Helicopter - Hughes 500		0.00	0.01	0.02	0.00	0.00	0.00
Total		0.06	0.24	0.43	0.00	0.60	0.19

KCAPCD		VOC	CO	NOx	SOx	PM10	PM2.5
Road Construction	Offroad	0.04	0.16	0.33	0.00	0.02	0.02
	Onroad	0.01	0.08	0.08	0.00	0.00	0.00
	Fugitive Dust	--	--	--	--	0.65	0.21
Helicopter - Hughes 500		0.00	0.01	0.02	0.00	0.00	0.00
Total		0.06	0.25	0.42	0.00	0.67	0.23

GHG Emission Calculations

Alternative 2 - Proposed Project

Construction			Emission Factors			Emissions
		Fuel Use	CO_2	CH_4	N_2O	CO_2-eq
		gallons	kg/gal	kg/gal	kg/gal	tonnes
Offroad	Diesel	1,238,195	10.15	0.0014	0.0001	12,642
	Gasoline		8.81	0.0013	0.0001	0
	Jet A	709,571	9.57	0.0014	0.0001	6,833
Onroad	Passenger	623,964	8.55	0.0014	0.002	5,740
	Delivery	334,168	9.96	0.00072	0.0006	3,396
	HHDT	439,274	9.96	0.000312	0.00026	4,413
					Total	**33,025**

Construction	SF_6 losses	CO_2-eq
	lbs	tonnes
Elect. Eq.	1992.5	21,597

797 lbs/year final leakage rate with 5 years at 50%

Total **54,622** **tonnes, CO_2-eq**

Operation			Emission Factors			Emissions
		Fuel Use	CO_2	CH_4	N_2O	CO_2-eq
		gallons	kg/gal	kg/gal	kg/gal	tonnes
Offroad	Diesel	6,213	10.15	0.0014	0.0001	63
	Gasoline		8.81	0.0013	0.0001	0
	Jet A	787	9.57	0.0014	0.0001	8
Onroad	Passenger	641	8.55	0.0014	0.002	6
	Delivery	210	9.96	0.00072	0.0006	2
	HHDT	729	9.96	0.000312	0.00026	7
					Total	**86**

Construction	SF_6 losses	CO_2-eq
	lbs	tonnes
Elect. Eq.	797	8,639

Total **8,725** **tonnes, CO_2-eq**

Indirect GHG Emission Reductions from Wind/Solar Energy in SCE Territory

613 SCE Service Area Average GHG emissions lbs/MWh
12 Wind/Solar Energy (maintenance) GHG emissions lbs/MWh (based on Beacon Solar Project)

TRTP Renewable Capacity
3800 MW

Renewable Annual Capacity Factor
35 Percent

* Note: e-mail noted 35 percent but used 30 percent

Net Renewable Energy MWh/yr
11650800

GHG Emissions CO2eq Metric Tons/Year
3175570

Assumption
Renewable Energy Connected to TRTP is primarily Wind but will also include Solar

100 kM

	USFS Wilderness Area	4	5	6	7	8	10	11
1	Aqua Tibia	0%				73%		
2	Bighorn Mountain					58%		
3	Chumash	100%	100%	16%		0%	100%	34%
4	Cucamonga	82%	100%	100%	100%	100%	57%	100%
5	Dick Smith	100%	4%				51%	
6	Domeland	39%					100%	
7	Kiavah	100%	10%				100%	
8	Matilija	100%	30%				48%	
9	San Gabriel	100%	100%	100%	100%	100%	100%	100%
10	San Gorgonio			41%	79%	93%		
11	San Jacinto					65%		
12	San Mateo Canyon			58%	100%	100%		61%
13	Sespe	100%	100%	100%	100%	28%	100%	100%
14	Sheep Mountain	100%	100%	100%	100%	100%	100%	100%
15	Magic Mountain	100%	100%	100%	100%	100%	100%	100%
16	Pleasant View Ridge	100%	100%	100%	100%	100%	100%	100%
	BLM Wilderness Areas							
1	Bighorn Mountain					52%		
2	Black Mountain						47%	
3	Bright Star	100%	59%				100%	
4	Chimney Peak						52%	
5	Domeland	47%					100%	
6	El Paso Mountains	100%	47%				100%	
7	Golden Valley	53%					100%	
8	Grass Valley						78%	
9	Kiavah	100%	30%				100%	
10	Owens Peak	49%					100%	
11	Sacatar Trail						24%	
12	San Gorgonio					59%		

10 km

	USFS Wilderness Area	4	5	6	7	8	10	11
1	San Gabriel	0%	0%	71%	6%	0%	0%	5%
2	Pleasant View Ridge	0%	0%	26%	0%	0%	0%	0%

Total Emissions by Segment

- Onroad Emissions + Offroad Emissions

Segment	Total Annual Emissions lbs						
	Year	ROG	CO	NOx	SOx	PM10	PM2.5
4	2009	234.67	1743.94	1531.28	2.47	66.38	55.93
	2010	2791.68	19964.59	17394.18	32.67	792.67	661.33
	2011	194.57	1442.47	1183.59	2.43	54.98	45.54
5	2009	197.59	1354.54	1484.40	2.14	66.30	56.55
	2010	1584.95	10305.75	12063.03	19.01	551.74	468.63
	2011	790.53	5732.36	5047.42	9.91	234.74	195.38
	2012	6.08	45.40	35.27	0.08	1.69	1.38
6	2009	176.89	1319.29	1154.38	1.85	49.50	41.71
	2010	2047.74	13373.22	15540.64	24.48	707.29	600.63
	2011	2219.05	16591.70	13274.83	27.55	613.01	506.85
	2012	699.61	4952.02	4633.60	9.43	215.52	178.89
7	2010	877.98	5854.36	6368.88	10.47	291.25	246.40
	2011	1405.37	10607.87	8148.28	17.49	381.21	314.20
	2012	965.17	7291.02	5450.44	12.83	258.40	210.96
8	2009	71.51	523.81	482.40	0.75	20.88	17.65
	2010	2753.35	18887.52	18862.99	32.58	861.10	724.91
	2011	2440.43	18485.76	14107.36	30.24	653.90	538.73
	2012	420.65	3025.79	2676.10	5.68	126.01	104.17
9	2009	53.99	382.26	367.77	0.59	17.15	14.51
	2010	1660.18	12679.29	8199.26	19.39	390.57	317.87
	2011	539.10	4661.79	1945.80	6.55	95.40	73.79
	2012	292.16	2537.58	944.74	3.81	51.35	38.90
	2013	148.75	1279.46	478.12	2.07	26.59	19.94
10	2010	1899.67	13822.78	11048.46	22.35	515.49	427.16
	2011	99.32	718.61	630.96	1.26	29.85	24.83
11	2009	173.02	1283.80	1145.09	1.81	48.98	41.32
	2010	31.40	224.15	206.36	0.36	8.98	7.53
	2011	433.87	2941.70	3144.71	5.54	147.36	124.05
	2012	2147.11	15508.63	13500.88	29.00	638.70	527.40
	2013	70.12	486.39	470.78	1.05	22.50	18.53

100km-Wilderness Area Annaul Emissions (ton)

2009

	ROG	CO	NOx	SOx	PM10	PM2.5
USFS Wilderness Area						
Aqua Tibia	0.03	0.19	0.18	0.00	0.01	0.01
Bighorn Mountain	0.02	0.15	0.14	0.00	0.01	0.01
Chumash	0.26	1.87	1.79	0.00	0.08	0.07
Cucamonga	0.41	2.96	2.76	0.00	0.12	0.10
Dick Smith	0.12	0.90	0.79	0.00	0.03	0.03
Domeland	0.05	0.34	0.30	0.00	0.01	0.01
Kiavah	0.13	0.94	0.84	0.00	0.04	0.03
Matilija	0.15	1.07	0.99	0.00	0.04	0.04
San Gabriel	0.43	3.11	2.90	0.00	0.13	0.11
San Gorgonio	0.07	0.51	0.46	0.00	0.02	0.02
San Jacinto	0.02	0.17	0.16	0.00	0.01	0.01
San Mateo Canyon	0.14	1.04	0.93	0.00	0.04	0.03
Sespe	0.40	2.92	2.72	0.00	0.12	0.10
Sheep Mountain	0.43	3.11	2.90	0.00	0.13	0.11
Magic Mountain	0.43	3.11	2.90	0.00	0.13	0.11
Pleasant View Ridge	0.43	3.11	2.90	0.00	0.13	0.11
BLM Wilderness Areas						
Bighorn Mountain	0.02	0.14	0.12	0.00	0.01	0.00
Black Mountain	--	--	--	--	--	--
Bright Star	0.18	1.27	1.21	0.00	0.05	0.04
Chimney Peak	--	--	--	--	--	--
Domeland	0.06	0.41	0.36	0.00	0.02	0.01
El Paso Mountains	0.16	1.19	1.12	0.00	0.05	0.04
Golden Valley	0.06	0.46	0.41	0.00	0.02	0.01
Grass Valley	--	--	--	--	--	--
Kiavah	0.15	1.08	0.99	0.00	0.04	0.04
Owens Peak	0.06	0.42	0.37	0.00	0.02	0.01
Sacatar Trail	--	--	--	--	--	--
San Gorgonio	0.02	0.15	0.14	0.00	0.01	0.01

2010

	ROG	CO	NOx	SOx	PM10	PM2.5
USFS Wilderness Area						
Aqua Tibia	1.00	6.89	6.88	0.01	0.31	0.26
Bighorn Mountain	0.79	5.45	5.45	0.01	0.25	0.21
Chumash	3.31	23.14	21.52	0.04	0.99	0.83
Cucamonga	5.33	36.45	36.81	0.06	1.68	1.42
Dick Smith	1.91	13.72	11.75	0.02	0.54	0.45
Domeland	1.50	10.84	8.94	0.02	0.41	0.34
Kiavah	2.42	17.40	14.81	0.03	0.68	0.57
Matilija	2.09	14.84	13.15	0.02	0.60	0.50
San Gabriel	5.99	41.22	40.74	0.07	1.86	1.57
San Gorgonio	2.04	13.82	14.46	0.02	0.66	0.56
San Jacinto	0.89	6.10	6.09	0.01	0.28	0.23
San Mateo Canyon	2.42	16.35	17.22	0.03	0.79	0.66
Sespe	5.00	34.40	33.93	0.06	1.55	1.31
Sheep Mountain	5.99	41.22	40.74	0.07	1.86	1.57
Magic Mountain	5.99	41.22	40.74	0.07	1.86	1.57
Pleasant View Ridge	5.99	41.22	40.74	0.07	1.86	1.57
BLM Wilderness Areas						
Bighorn Mountain	0.71	4.87	4.87	0.01	0.22	0.19
Black Mountain	0.45	3.27	2.62	0.01	0.12	0.10
Bright Star	2.81	19.95	17.79	0.03	0.82	0.68
Chimney Peak	0.49	3.57	2.85	0.01	0.13	0.11
Domeland	1.61	11.61	9.62	0.02	0.44	0.37
El Paso Mountains	2.72	19.34	17.08	0.03	0.78	0.66
Golden Valley	1.69	12.23	10.16	0.02	0.47	0.39
Grass Valley	0.74	5.38	4.30	0.01	0.20	0.17
Kiavah	2.59	18.46	16.06	0.03	0.74	0.62
Owens Peak	1.63	11.76	9.75	0.02	0.45	0.37
Sacatar Trail	0.23	1.67	1.34	0.00	0.06	0.05
San Gorgonio	0.81	5.55	5.55	0.01	0.25	0.21

2011

	ROG	CO	NOx	SOx	PM10	PM2.5
USFS Wilderness Area						
Aqua Tibia	0.89	6.74	5.15	0.01	0.24	0.20
Bighorn Mountain	0.70	5.34	4.07	0.01	0.19	0.16
Chumash	0.79	5.75	5.01	0.01	0.23	0.19
Cucamonga	3.75	27.98	22.53	0.05	1.05	0.87
Dick Smith	0.14	1.01	0.85	0.00	0.04	0.03
Domeland	0.09	0.64	0.55	0.00	0.03	0.02
Kiavah	0.19	1.36	1.15	0.00	0.05	0.04
Matilija	0.24	1.75	1.50	0.00	0.07	0.06
San Gabriel	3.79	28.26	22.77	0.05	1.06	0.87
San Gorgonio	2.14	16.18	12.49	0.03	0.58	0.48
San Jacinto	0.79	5.97	4.55	0.01	0.21	0.17
San Mateo Canyon	2.70	20.30	15.97	0.03	0.74	0.61
Sespe	2.91	21.59	17.68	0.04	0.82	0.68
Sheep Mountain	3.79	28.26	22.77	0.05	1.06	0.87
Magic Mountain	3.79	28.26	22.77	0.05	1.06	0.87
Pleasant View Ridge	3.79	28.26	22.77	0.05	1.06	0.87
BLM Wilderness Areas						
Bighorn Mountain	0.63	4.77	3.64	0.01	0.17	0.14
Black Mountain	0.02	0.17	0.15	0.00	0.01	0.01
Bright Star	0.38	2.78	2.40	0.00	0.11	0.09
Chimney Peak	0.03	0.19	0.16	0.00	0.01	0.01
Domeland	0.10	0.70	0.59	0.00	0.03	0.02
El Paso Mountains	0.33	2.44	2.10	0.00	0.10	0.08
Golden Valley	0.10	0.74	0.63	0.00	0.03	0.02
Grass Valley	0.04	0.28	0.25	0.00	0.01	0.01
Kiavah	0.27	1.95	1.67	0.00	0.08	0.06
Owens Peak	0.10	0.71	0.60	0.00	0.03	0.02
Sacatar Trail	0.01	0.09	0.08	0.00	0.00	0.00
San Gorgonio	0.72	5.44	4.15	0.01	0.19	0.16

2012

	ROG	CO	NOx	SOx	PM10	PM2.5
USFS Wilderness Area						
Aqua Tibia	0.15	1.10	0.98	0.00	0.05	0.04
Bighorn Mountain	0.12	0.87	0.77	0.00	0.04	0.03
Chumash	0.42	3.02	2.65	0.01	0.13	0.10
Cucamonga	2.12	15.41	13.15	0.03	0.62	0.51
Dick Smith	0.00	0.00	0.00	0.00	0.00	0.00
Domeland	--	--	--	--	--	--
Kiavah	0.00	0.00	0.00	0.00	0.00	0.00
Matilija	0.00	0.01	0.01	0.00	0.00	0.00
San Gabriel	2.12	15.41	13.15	0.03	0.62	0.51
San Gorgonio	0.72	5.31	4.35	0.01	0.20	0.17
San Jacinto	0.14	0.98	0.86	0.00	0.04	0.03
San Mateo Canyon	1.55	11.35	9.55	0.02	0.45	0.37
Sespe	1.97	14.32	12.18	0.03	0.57	0.47
Sheep Mountain	2.12	15.41	13.15	0.03	0.62	0.51
Magic Mountain	2.12	15.41	13.15	0.03	0.62	0.51
Pleasant View Ridge	2.12	15.41	13.15	0.03	0.62	0.51
BLM Wilderness Areas						
Bighorn Mountain	0.11	0.78	0.69	0.00	0.03	0.03
Black Mountain	--	--	--	--	--	--
Bright Star	0.00	0.01	0.01	0.00	0.00	0.00
Chimney Peak	--	--	--	--	--	--
Domeland	--	--	--	--	--	--
El Paso Mountains	0.00	0.01	0.01	0.00	0.00	0.00
Golden Valley	--	--	--	--	--	--
Grass Valley	--	--	--	--	--	--
Kiavah	0.00	0.01	0.01	0.00	0.00	0.00
Owens Peak	--	--	--	--	--	--
Sacatar Trail	--	--	--	--	--	--
San Gorgonio	0.12	0.89	0.79	0.00	0.04	0.03

2013

	ROG	CO	NOx	SOx	PM10	PM2.5
USFS Wilderness Area						
Aqua Tibia	--	--	--	--	--	--
Bighorn Mountain	--	--	--	--	--	--
Chumash	0.01	0.08	0.08	0.00	0.00	0.00
Cucamonga	0.04	0.24	0.24	0.00	0.01	0.01
Dick Smith	--	--	--	--	--	--
Domeland	--	--	--	--	--	--
Kiavah	--	--	--	--	--	--
Matilija	--	--	--	--	--	--
San Gabriel	0.04	0.24	0.24	0.00	0.01	0.01
San Gorgonio	--	--	--	--	--	--
San Jacinto	--	--	--	--	--	--
San Mateo Canyon	0.02	0.15	0.14	0.00	0.01	0.01
Sespe	0.04	0.24	0.24	0.00	0.01	0.01
Sheep Mountain	0.04	0.24	0.24	0.00	0.01	0.01
Magic Mountain	0.04	0.24	0.24	0.00	0.01	0.01
Pleasant View Ridge	0.04	0.24	0.24	0.00	0.01	0.01
BLM Wilderness Areas						
Bighorn Mountain	--	--	--	--	--	--
Black Mountain	--	--	--	--	--	--
Bright Star	--	--	--	--	--	--
Chimney Peak	--	--	--	--	--	--
Domeland	--	--	--	--	--	--
El Paso Mountains	--	--	--	--	--	--
Golden Valley	--	--	--	--	--	--
Grass Valley	--	--	--	--	--	--
Kiavah	--	--	--	--	--	--
Owens Peak	--	--	--	--	--	--
Sacatar Trail	--	--	--	--	--	--
San Gorgonio	--	--	--	--	--	--

TRTP Alternative 3 Project Construction Emission Totals
AVAQMD Jurisdiction

Worst-Case Day
Same as Alternative 2

Incremental Annual Emissions

2009 Emissions
Same as Alternative 2

2010 Emissions - would be reduced by following;

	Emissions (ton/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	-0.0085	-0.0605	-0.0527	-0.0001	-0.0024	-0.0020
Offroad Vehicles/Equipm	-0.0114	-0.0385	-0.0744	-0.0001	-0.0046	-0.0042
Helicopter	-0.0005	-0.0011	-0.0023	0.0000	-0.0001	-0.0001
Fugitive Dust	--	--	--	--	-0.16	-0.04
Totals	-0.02	-0.10	-0.13	0.00	-0.17	-0.04

2011 Emissions
Same as Alternative 2

2012 Emissions
Same as Alternative 2

2013 Emissions
Same as Alternative 2

2014 Emissions
Same as Alternative 2

Note: This alternative does not significantly impact the SCAQMD, KCAPCD, or the ANF.

TRTP Alternative 4.C. Project Construction Emission Totals
SCAQMD Juridiction

Incremental Annual Emissions

2009 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.00	-0.01	-0.02	0.00	0.00	0.00
Offroad Vehicles/Equipment	-0.11	-0.37	-0.76	0.00	-0.04	-0.04
Helicopter	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Dust	--	--	--	--	-0.18	-0.06
Totals	**-0.11**	**-0.38**	**-0.78**	**0.00**	**-0.22**	**-0.10**

2010 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	-0.46	-3.19	-3.09	-0.01	-0.14	-0.12
Offroad Vehicles/Equipment	-0.89	-3.05	-5.60	-0.01	-0.36	-0.33
Helicopter	0.000	0.000	0.000	0.000	0.000	0.000
Fugitive Dust	--	--	--	--	-4.61	-1.12
Totals	**-1.35**	**-6.23**	**-8.69**	**-0.01**	**-5.11**	**-1.57**

2011 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.76	5.36	5.55	0.01	0.23	0.19
Offroad Vehicles/Equipment	1.28	4.77	11.63	0.01	0.53	0.49
Helicopter	-0.019	-0.042	-0.086	-0.001	-0.005	-0.004
Fugitive Dust	--	--	--	--	10.53	2.47
Totals	**2.02**	**10.08**	**17.09**	**0.02**	**11.28**	**3.15**

2012 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.20	1.51	1.13	0.00	0.05	0.04
Offroad Vehicles/Equipment	0.61	2.30	4.03	0.00	0.24	0.22
Helicopter	-0.017	-0.038	-0.077	-0.001	-0.004	-0.004
Fugitive Dust	--	--	--	--	2.93	0.58
Totals	**0.80**	**3.77**	**5.09**	**0.01**	**3.22**	**0.84**

2013 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.00	0.00	0.00	0.00	0.00	0.00
Offroad Vehicles/Equipment	0.00	0.00	0.00	0.00	0.00	0.00
Helicopter	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Dust	--	--	--	--	0.00	0.00
Totals	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Note: This alternative does not significantly impact the AVAQMD, KCAPCD, or the ANF.

TRTP Alternative 4.A. Project Construction Emission Totals
SCAQMD Juridiction

Incremental Annual Emissions

2009 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.00	-0.01	-0.02	0.00	0.00	0.00
Offroad Vehicles/Equipment	-0.11	-0.37	-0.76	0.00	-0.04	-0.04
Helicopter	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Dust	--	--	--	--	-0.18	-0.06
Totals	**-0.11**	**-0.38**	**-0.78**	**0.00**	**-0.22**	**-0.10**

2010 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	-0.46	-3.19	-3.09	-0.01	-0.14	-0.12
Offroad Vehicles/Equipment	-0.89	-3.05	-5.60	-0.01	-0.36	-0.33
Helicopter	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Dust	--	--	--	--	-4.61	-1.12
Totals	**-1.35**	**-6.23**	**-8.69**	**-0.01**	**-5.11**	**-1.57**

2011 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.42	2.85	3.53	0.00	0.14	0.12
Offroad Vehicles/Equipment	0.49	1.70	5.26	0.01	0.18	0.17
Helicopter	-0.047	-0.105	-0.215	-0.002	-0.012	-0.011
Fugitive Dust	--	--	--	--	2.22	1.12
Totals	**0.87**	**4.45**	**8.58**	**0.01**	**2.53**	**1.39**

2012 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.02	1.78	1.27	0.00	0.06	0.05
Offroad Vehicles/Equipment	0.33	2.11	3.81	0.00	0.22	0.20
Helicopter	-0.064	-0.143	-0.291	-0.002	-0.016	-0.01
Fugitive Dust	--	--	--	--	-0.15	-0.03
Totals	**0.29**	**3.75**	**4.79**	**0.01**	**0.12**	**0.20**

2013 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.00	0.00	0.00	0.00	0.00	0.00
Offroad Vehicles/Equipment	0.00	0.00	0.00	0.00	0.00	0.00
Helicopter	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Dust	--	--	--	--	0.00	0.00
Totals	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Note: This alternative does not significantly impact the AVAQMD, KCAPCD, or the ANF.

TRTP Alternative 4.B. Project Construction Emission Totals
SCAQMD Juridiction

Incremental Annual Emissions

2009 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.00	-0.01	-0.02	0.00	0.00	0.00
Offroad Vehicles/Equipment	-0.11	-0.37	-0.76	0.00	-0.04	-0.04
Helicopter	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Dust	--	--	--	--	-0.18	-0.06
Totals	**-0.11**	**-0.38**	**-0.78**	**0.00**	**-0.22**	**-0.10**

2010 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	-0.46	-3.19	-3.09	-0.01	-0.14	-0.12
Offroad Vehicles/Equipment	-0.89	-3.05	-5.60	-0.01	-0.36	-0.33
Helicopter	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Dust	--	--	--	--	-4.61	-1.12
Totals	**-1.35**	**-6.23**	**-8.69**	**-0.01**	**-5.11**	**-1.57**

2011 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.58	4.04	4.49	0.01	0.18	0.15
Offroad Vehicles/Equipment	0.86	3.16	8.29	0.01	0.35	0.32
Helicopter	-0.034	-0.075	-0.154	-0.001	-0.008	-0.008
Fugitive Dust	--	--	--	--	5.75	1.38
Totals	**1.42**	**7.12**	**12.62**	**0.02**	**6.27**	**1.85**

2012 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.11	0.85	0.51	0.00	0.03	0.02
Offroad Vehicles/Equipment	0.47	1.72	3.06	0.00	0.18	0.16
Helicopter	-0.041	-0.093	-0.189	-0.002	-0.010	-0.009
Fugitive Dust	--	--	--	--	1.31	0.26
Totals	**0.53**	**2.48**	**3.39**	**0.00**	**1.51**	**0.43**

2013 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.00	0.00	0.00	0.00	0.00	0.00
Offroad Vehicles/Equipment	0.00	0.00	0.00	0.00	0.00	0.00
Helicopter	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Dust	--	--	--	--	0.00	0.00
Totals	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Note: This alternative does not significantly impact the AVAQMD, KCAPCD, or the ANF.

TRTP Alternative 4.D. Project Construction Emission Totals
SCAQMD Juridiction

Incremental Annual Emissions

2009 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.00	-0.01	-0.02	0.00	0.00	0.00
Offroad Vehicles/Equipment	-0.11	-0.37	-0.76	0.00	-0.04	-0.04
Helicopter	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Dust	--	--	--	--	-0.18	-0.06
Totals	**-0.11**	**-0.38**	**-0.78**	**0.00**	**-0.22**	**-0.10**

2010 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	-0.46	-3.19	-3.09	-0.01	-0.14	-0.12
Offroad Vehicles/Equipment	-0.89	-3.05	-5.60	-0.01	-0.36	-0.33
Helicopter	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Dust	--	--	--	--	-4.61	-1.12
Totals	**-1.35**	**-6.23**	**-8.69**	**-0.01**	**-5.11**	**-1.57**

2011 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.67	4.67	4.99	0.01	0.20	0.17
Offroad Vehicles/Equipment	1.06	3.93	9.88	0.01	0.43	0.40
Helicopter	-0.027	-0.059	-0.121	-0.001	-0.007	-0.006
Fugitive Dust	--	--	--	--	8.02	1.90
Totals	**1.70**	**8.53**	**14.75**	**0.02**	**8.65**	**2.47**

2012 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.15	1.16	0.81	0.00	0.04	0.03
Offroad Vehicles/Equipment	0.54	2.00	3.52	0.00	0.21	0.19
Helicopter	-0.030	-0.066	-0.136	-0.001	-0.007	-0.007
Fugitive Dust	--	--	--	--	2.08	0.41
Totals	**0.66**	**3.09**	**4.20**	**0.01**	**2.32**	**0.63**

2013 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.00	0.00	0.00	0.00	0.00	0.00
Offroad Vehicles/Equipment	0.00	0.00	0.00	0.00	0.00	0.00
Helicopter	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Dust	--	--	--	--	0.00	0.00
Totals	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Note: This alternative does not significantly impact the AVAQMD, KCAPCD, or the ANF.

TRTP Alternative 4.C Modified . Project Construction Emission Totals SCAQMD Juridiction

Incremental Annual Emissions

2009 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.00	-0.01	-0.02	0.00	0.00	0.00
Offroad Vehicles/Equipment	-0.11	-0.37	-0.76	0.00	-0.04	-0.04
Helicopter	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Dust	--	--	--	--	-0.18	-0.06
Totals	**-0.11**	**-0.38**	**-0.78**	**0.00**	**-0.22**	**-0.10**

2010 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	-0.46	-3.19	-3.09	-0.01	-0.14	-0.12
Offroad Vehicles/Equipment	-0.89	-3.05	-5.60	-0.01	-0.36	-0.33
Helicopter	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Dust	--	--	--	--	-4.61	-1.12
Totals	**-1.35**	**-6.23**	**-8.69**	**-0.01**	**-5.11**	**-1.57**

2011 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	2.37	16.61	18.35	0.03	0.70	0.59
Offroad Vehicles/Equipment	1.06	3.93	9.88	0.01	0.43	0.40
Helicopter	-0.03	-0.06	-0.12	0.00	-0.01	-0.01
Fugitive Dust	--	--	--	--	13.90	2.68
Totals	**3.41**	**20.48**	**28.11**	**0.04**	**15.03**	**3.67**

2012 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.15	1.16	0.81	0.00	0.04	0.03
Offroad Vehicles/Equipment	0.54	2.00	3.52	0.00	0.21	0.19
Helicopter	-0.03	-0.07	-0.14	0.00	-0.01	-0.01
Fugitive Dust	--	--	--	--	2.08	0.41
Totals	**0.66**	**3.09**	**4.20**	**0.01**	**2.32**	**0.63**

2013 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.00	0.00	0.00	0.00	0.00	0.00
Offroad Vehicles/Equipment	0.00	0.00	0.00	0.00	0.00	0.00
Helicopter	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Dust	--	--	--	--	0.00	0.00
Totals	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Note: This alternative does not significantly impact the AVAQMD, KCAPCD, or the ANF.

Alternative 4C Schedule

Major Elements
 # Days in Full Month (6 days/week)
Onsite Construction Elements Begin in 2009

					Employee Vehicel			Total	Delivery Truck			Total	Heavy Heavy Duty Truck			Total
Segment 8	**Crew Size**	**Total Days**	**Start Date**	**End Date**	**no. of vehicle**	**Paved**	**Unpaved**	**VMT/day**	**no. of vehicle**	**Paved**	**Unpaved**	**VMT/day**	**no. of vehicle**	**Paved**	**Unpaved**	**VMT/day**
Marshalling Yards, -5 & +5 other elements	4	**282**	**1-May-11**	**5-Apr-12**	4	40	0.10	160.40	1	40	0.10	40.10	1	90	0.10	90.10
Road Maintenance	2	**253**	**1-Jun-11**	**31-Mar-12**	2	40	0.10	80.20	1	40	3.00	43.00	0	60	3.00	0.00
500 kV T/L Construction	**Crew Size**															
Road Construction	8	**60**	**1-May-11**	**12-Jul-11**	8	40	0.10	320.80	2	40	3.00	86.00	3	40	3.00	129.00
Foundation Construction	24	**85**	**16-May-11**	**23-Aug-11**	24	40	0.10	962.40	8	40	3.00	344.00	7	40	3.00	301.00
Tower Construction	48	**175**	**16-Jun-11**	**13-Jan-12**	48	40	0.10	1924.80	14	40	3.00	602.00	3	40	3.00	129.00
String Cable	40	**120**	**5-Nov-11**	**31-Mar-12**	40	40	0.10	1604.00	15	40	3.00	645.00	6	40	3.00	258.00
Restoration/Guard Poles	7	**75**	**7-Jan-12**	**5-Apr-12**	7	40	0.10	280.70	3	40	3.00	129.00	3	40	3.00	129.00
IT/Communications	6	**20**	**6-Apr-12**	**29-Apr-12**	6	40	0.10	240.60	1	40	3.00	43.00	0	40	3.00	0.00
230 kV Wreckout	26	**65**	**20-Jan-12**	**5-Apr-12**	26	40	0.10	1042.60	12	40	0.50	486.00	10	40	0.50	405.00
New Switchyard																
Grading Element	15	**111**	**1-May-11**	**10-Sep-11**	15	40	0.25	603.75	81	40	0.25	3260.25	3	40	0.25	120.75
Civil Element	25	**138**	**5-Aug-11**	**20-Jan-12**	25	40	0.25	1006.25	6	40	0.25	241.5	4	90	0.25	361
Electrical Element	25	**166**	**5-Dec-11**	**20-Jun-12**	25	40	0.10	1002.5	6	40	0.1	240.6	0	40	0.1	0
Testing	4	**14**	**19-Apr-12**	**4-May-12**	4	40	0.10	160.4	0	40	0.1	0	0	40	0.1	0

Assumptions/Notes

No incremental change in construction of marshalling yards for Segment 8 as a whole.
New switchyard estimate, not provided by SCE, is based partially on Whirlwind Substation estimate assuming more per acre grading required at the switchyard site and assuming no transformer element assumed for a switchyard and total construction duration of one year.
Crew sizes and equipment for various constrution elements have been made consistent with those assumed for the proposed project.
Many of the SCE durations are inconsistently long in comparison to other segment/subsegment construction assumptions and may overestimate the construction requirements for the T-Line construction.
Marshalling Yard duration increased to account for 6 day/week construction schedule and otherwise fill schedule during other elements

Alternative 4C Schedule

Major Elements	PAVED						UNPAVED						TOTAL					
# Days in Full Month (6 days/week)	2011			2012			2011			2012			2011			2012		
Onsite Construction Elements Begin in 2009																		
Segment 8	Employ Vehicle	Delivery Truck	HHDT	Employ Vehicle	Delivery Truck	HHDT	Employ Vehicle	Delivery Truck	HHDT	Employ Vehicle	Delivery Truck	HHDT	Employ Vehicle	Delivery Truck	HHDT	Employ Vehicle	Delivery Truck	HHDT
Marshalling Yards, -5 & +5 other elements	32480	8120	18270	12640	3160	7110	81.20	20.30	20.30	31.60	7.90	7.90	32561.20	8140.30	18290.30	12671.60	3167.90	7117.90
Road Maintenance	14240	7120	0	6000	3000	0	35.60	534.00	0.00	15.00	225.00	0.00	14275.60	7654.00	0.00	6015.00	3225.00	0.00
500 kV T/L Construction																		
Road Construction	19200	4800	7200	0	0	0	48	360	540	0	0	0	19248	5160	7740	0	0	0
Foundation Construction	81600	27200	23800	0	0	0	204	2040	1785	0	0	0	81804	29240	25585	0	0	0
Tower Construction	316800	92400	19800	19200	5600	1200	792	6930	1485	48	420	90	317592	99330	21285	19248	6020	1290
String Cable	72000	27000	10800	120000	45000	18000	180	2025	810	300	3375	1350	72180	29025	11610	120300	48375	19350
Restoration/Guard Poles	0	0	0	21000	9000	9000	0	0	0	53	675	675	0	0	0	21053	9675	9675
IT/Communications	0	0	0	4800	800	0	0	0	0	12	60	0	0	0	0	4812	860	0
230 kV Wreckout	0	0	0	67600	31200	26000	0	0	0	169	390	325	0	0	0	67769	31590	26325
New Switchyard																		
Grading Element	66600	359640	13320	0	0	0	416	2248	83	0	0	0	67016	361888	13403	0	0	0
Civil Element	123000	29520	44280	15000	3600	5400	769	185	123	94	23	15	123769	29705	44403	15094	3623	5415
Electrical Element	23000	5520	0	143000	34320	0	58	14	0	358	86	0	23058	5534	0	143358	34406	0
Testing	0	0	0	2240	0	0	0	0	0	6	0	0	0	0	0	2246	0	0
	748920	561320	137470	411480	135680	66710	2583.3	14355.4	4846.55	1084.95	5261.2	2462.9	751503.3	575675	142317	412565	140941	69172.9

Alternative 4 C

Onroad Equipment Maximum Daily Emissions

Segment 8

			Emissions lbs/year-2011					
2011	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	751,503	640.53	6,209.49	634.72	8.10	66.73	42.48
	Delivery	575,675	1,392.38	9,747.58	10,899.64	15.70	403.53	343.57
	Heavy-Heavy Duty	142,317	397.84	1,583.22	4,918.19	5.65	236.37	205.63
		Totals	2,430.74	17,540.29	16,452.55	29.45	706.63	591.68
		Tons/year	1.22	8.77	8.23	0.01	0.35	0.30

			Emissions lbs/day-2012					
2012	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	412,565	328.52	3,158.08	320.08	4.43	37.04	23.72
	Delivery	140,941	315.39	2,178.59	2,441.70	3.76	91.58	77.45
	Heavy-Heavy Duty	69,173	174.84	706.61	2,139.09	2.80	103.46	89.48
		Totals	818.75	6,043.28	4,900.87	10.98	232.08	190.65
		Tons/year	0.41	3.02	2.45	0.01	0.12	0.10

Swtichyard construction only

			Emissions lbs/year-2011					
2011	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	213,843	182.26	1,766.93	180.61	2.30	18.99	12.09
	Delivery	397,126	960.52	6,724.31	7,519.05	10.83	278.37	237.01
	Heavy-Heavy Duty	57,806	161.59	643.07	1,997.67	2.30	96.01	83.52
		Totals	1,304.38	9,134.31	9,697.34	15.43	393.37	332.62
		Tons/year	0.65	4.57	4.85	0.01	0.20	0.17

			Emissions lbs/day-2012					
2012	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	160,697	127.96	1,230.09	124.67	1.72	14.43	9.24
	Delivery	38,028	85.10	587.82	658.81	1.01	24.71	20.90
	Heavy-Heavy Duty	5,415	13.69	55.32	167.45	0.22	8.10	7.00
		Totals	226.74	1,873.23	950.94	2.96	47.24	37.14
		Tons/year	0.11	0.94	0.48	0.00	0.02	0.02

500 kV Line Addition

			Emissions lbs/year-2011					
2011	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	537,661	458.27	4,442.56	454.11	5.79	47.74	30.39
	Delivery	178,549	431.85	3,023.27	3,380.59	4.87	125.16	106.56
	Heavy-Heavy Duty	84,510	236.24	940.15	2,920.51	3.36	140.36	122.11
		Totals	1,126.36	8,405.98	6,755.22	14.02	313.26	259.06
		Tons/year	0.56	4.20	3.38	0.01	0.16	0.13

			Emissions lbs/day-2012					
2012	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	251,868	200.56	1,927.99	195.41	2.70	22.62	14.48
	Delivery	102,913	230.29	1,590.77	1,782.89	2.74	66.87	56.55
	Heavy-Heavy Duty	63,758	161.16	651.30	1,971.64	2.58	95.36	82.47
		Totals	592.01	4,170.05	3,949.93	8.02	184.84	153.51
		Tons/year	0.30	2.09	1.97	0.00	0.09	0.08

Alt. 4 C - Offroad Equipment Emission Calculations

2011 Emission Calculations

Marshalling Yards

Segment 8 Alt 4C			SCAQMD Emission Factor lbs/hour							Daily Emissions lbs							Annual Emissions lbs					
	HP	Number	ROG	CO	NOX	SOX	PM	CO2	Hours/day	ROG	CO	NOX	SOX	PM	CO2	Days	ROG	CO	NOX	SOX	PM	CO2
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.1112	0.4431	0.7838	0.0008	0.0535	69.3640	3	0.28	1.11	1.96	0.00	0.13	173.41	203	56.44	224.89	397.79	0.40	27.16	35,202
Forklift, 5 ton	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	20.5837	5	0.29	0.96	1.07	0.00	0.10	102.92	203	58.09	194.56	216.58	0.26	21.07	20,892
Forklift, 10 ton	85	1	0.0566	0.1984	0.2384	0.0003	0.0231	22.9484	5	0.28	0.99	1.19	0.00	0.12	114.74	203	57.47	201.36	242.03	0.28	23.43	23,293
										0.85	3.06	4.22	0.00	0.35	391.07		172.01	620.81	856.40	0.94	71.65	79,387

Road Maintenance

Segment 8 Alt 4C			SCAQMD Emission Factor lbs/hour							Daily Emissions lbs							Annual Emissions lbs					
	HP	Number	ROG	CO	NOX	SOX	PM	CO2	Hours/day	ROG	CO	NOX	SOX	PM	CO2	Days	ROG	CO	NOX	SOX	PM	CO2
Motor Grader	140	1	0.1521	0.6125	1.0195	0.0011	0.0781	92.7673	2	0.30	1.22	2.04	0.00	0.16	185.53	178	54.14	218.04	362.93	0.38	27.79	33,025
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.1862	0.7264	1.4567	0.0014	0.0806	127.1803	2	0.37	1.45	2.91	0.00	0.16	254.36	178	66.27	258.62	518.59	0.51	28.69	45,276
										0.68	2.68	4.95	0.00	0.32	439.90		120.41	476.65	881.52	0.89	56.48	78,301

Roads & Landing Work

Segment 8 Alt 4C			SCAQMD Emission Factor lbs/hour							Daily Emissions lbs							Annual Emissions lbs					
	HP	Number	ROG	CO	NOX	SOX	PM	CO2	Hours/day	ROG	CO	NOX	SOX	PM	CO2	Days	ROG	CO	NOX	SOX	PM	CO2
Crawler, Track Type, w/ blade (D8 type)	305	2	0.2133	0.6694	1.9821	0.0020	0.0789	186.6131	8	3.41	10.71	31.71	0.03	1.26	2985.81	60	204.78	642.60	1902.83	1.94	75.79	179,149
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.1862	0.7264	1.4567	0.0014	0.0806	127.1803	8	1.49	5.81	11.65	0.01	0.64	1017.44	60	89.36	348.69	699.23	0.69	38.68	61,047
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	2	0.0980	0.3505	0.4179	0.0005	0.0383	41.0376	3	0.59	2.10	2.51	0.00	0.23	246.23	60	35.28	126.18	150.44	0.18	13.81	14,774
Excavator, Grade - All	165	2	0.1359	0.6430	0.9906	0.0012	0.0644	105.2037	8	2.17	10.29	15.85	0.02	1.03	1683.26	60	130.45	617.28	950.97	1.14	61.86	100,996
Motor Grader	140	1	0.1521	0.6125	1.0195	0.0011	0.0781	92.7673	5	0.76	3.06	5.10	0.01	0.39	463.84	60	45.62	183.74	305.84	0.32	23.42	27,830
										8.42	31.97	66.82	0.07	3.56	6396.57		505.48	1918.50	4009.30	4.27	213.55	383,794

Install Foundations

Segment 8 Alt 4C			SCAQMD Emission Factor lbs/hour							Daily Emissions lbs							Annual Emissions lbs					
	HP	Number	ROG	CO	NOX	SOX	PM	CO2	Hours/day	ROG	CO	NOX	SOX	PM	CO2	Days	ROG	CO	NOX	SOX	PM	CO2
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.1862	0.7264	1.4567	0.0014	0.0806	127.1803	3	0.56	2.18	4.37	0.00	0.24	381.54	85	47.47	185.24	371.46	0.36	20.55	32,431
Crawler, track type, drill dig, Pheumatic D8	305	1	0.2133	0.6694	1.9821	0.0020	0.0789	186.6131	8	1.71	5.36	15.86	0.02	0.63	1492.91	85	145.05	455.18	1347.83	1.37	53.68	126,897
Generator, Concrete Batch Plant	50	1	0.1043	0.2826	0.3020	0.0004	0.0270	30.6230	6	0.63	1.70	1.81	0.00	0.16	183.74	85	53.19	144.14	154.04	0.20	13.78	15,618
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	2	0.0980	0.3505	0.4179	0.0005	0.0383	41.0376	4	0.78	2.80	3.34	0.00	0.31	328.30	85	66.63	238.35	284.16	0.34	26.08	27,906
Motor, Auxilary Power	5	2	0.0055	0.0237	0.0370	0.0001	0.0022	3.4026	2	0.02	0.09	0.15	0.00	0.01	13.61	85	1.86	8.07	12.58	0.02	0.74	1,157
Excavator, Grade - All	165	1	0.1359	0.6430	0.9906	0.0012	0.0644	105.2037	4	0.54	2.57	3.96	0.00	0.26	420.81	85	46.20	218.62	336.80	0.40	21.91	35,769
										4.24	14.70	29.49	0.03	1.61	2820.91		360.41	1249.60	2506.88	2.70	136.73	239,777

Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)

Segment 8 Alt 4C			SCAQMD Emission Factor lbs/hour							Daily Emissions lbs							Annual Emissions lbs					
	HP	Number	ROG	CO	NOX	SOX	PM	CO2	Hours/day	ROG	CO	NOX	SOX	PM	CO2	Days	ROG	CO	NOX	SOX	PM	CO2
Crane, Hydraulic, 150/300 Ton	450	1	0.1615	0.6498	1.0628	0.0012	0.0691	107.8679	8	1.29	5.20	8.50	0.01	0.55	862.94	165	213.14	857.74	1402.89	1.61	91.15	142,386
Crane, Hydraulic, Rough Terrain 35 ton	155	3	0.1112	0.4200	0.4951	0.0006	0.0475	46.1118	8	2.67	10.08	11.88	0.01	1.14	1106.68	165	440.43	1663.03	1960.62	2.23	187.94	182,603
Compressor, Air	75	5	0.1044	0.4421	1.3511	0.0015	0.0508	139.3358	7.5	3.92	16.58	50.66	0.05	1.90	5225.09	165	646.25	2735.25	8359.63	9.06	314.10	862,141
Motor, Auxilary Power	5	2	0.0055	0.1917	0.2134	0.0003	0.0208	20.5837	2	0.02	0.77	0.85	0.00	0.08	82.33	165	3.62	126.51	140.83	0.17	13.70	13,585
										7.90	32.62	71.90	0.08	3.68	7277.06		1303.44	5382.53	11863.97	13.07	606.89	1,200,714

Conductor & OHGW Installation

Segment 8 Alt 4C			SCAQMD Emission Factor lbs/hour							Daily Emissions lbs							Annual Emissions lbs					
	HP	Number	ROG	CO	NOX	SOX	PM	CO2	Hours/day	ROG	CO	NOX	SOX	PM	CO2	Days	ROG	CO	NOX	SOX	PM	CO2
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	1	0.0980	0.3505	0.4179	0.0005	0.0383	41.0376	3	0.29	1.05	1.25	0.00	0.12	123.11	45	13.23	47.32	56.41	0.07	5.18	5,540
Crane, Hydraulic, Rough Terrain 35 ton	155	3	0.1112	0.4431	0.7838	0.0008	0.0535	69.3640	3	1.00	3.99	7.05	0.01	0.48	624.28	45	45.04	179.47	317.45	0.32	21.67	28,092
Crawler, Track Type, w/ blade (D8 type)	305	1	0.2133	0.6694	1.9821	0.0020	0.0789	186.6131	2	0.43	1.34	3.96	0.00	0.16	373.23	45	19.20	60.24	178.39	0.18	7.11	16,795
Crawler, Track Type, Sagging (D8 type)	305	2	0.2133	0.6694	1.9821	0.0020	0.0789	186.6131	2	0.85	2.68	7.93	0.01	0.32	746.45	45	38.40	120.49	356.78	0.36	14.21	33,590
Motor, Auxilary Power	5	4	0.0055	0.0237	0.0370	0.0001	0.0022	3.4026	2	0.04	0.19	0.30	0.00	0.02	27.22	45	1.97	8.55	13.32	0.02	0.78	1,225
Tension machine, conductor	135	2	0.1176	0.5510	0.8413	0.0010	0.0645	87.8561	3	0.71	3.31	5.05	0.01	0.39	527.14	45	31.75	148.76	227.14	0.27	17.42	23,721
Tension machine, static	135	1	0.1176	0.5510	0.8413	0.0010	0.0645	87.8561	2	0.24	1.10	1.68	0.00	0.13	175.71	45	10.58	49.59	75.71	0.09	5.81	7,907
										3.56	13.65	27.23	0.03	1.60	2597.14		160.17	614.42	1225.20	1.32	72.17	116,871

New Switchyard Construction

Grading Element

Segment 8 - New Switchyard

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	CO2	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	CO2	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM	CO2
980 Loader	318	3	0.1586	0.4870	1.5801	0.0019	0.0575	172.9213	8	3.81	11.69	37.92	0.04	1.38	4150.11	111	422.55	1297.49	4209.26	4.94	153.19	460,662
Grader	285	2	0.1718	0.5036	1.7014	0.0020	0.0622	180.1452	8	2.75	8.06	27.22	0.03	0.99	2882.32	111	305.07	894.45	3021.71	3.52	110.41	319,938
Compactor	80	2	0.1161	0.3533	0.4553	0.0005	0.0421	40.1284	6	1.39	4.24	5.46	0.01	0.51	481.54	111	154.60	470.56	606.44	0.65	56.06	53,451
										7.95	23.99	70.61	0.08	2.88	7513.97		882.22	2662.50	7837.42	9.11	319.65	834,051

Civil Element

Segment 8 - New Switchyard

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	CO2	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	CO2	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM	CO2
14 ton Crane	180	1	0.1150	0.4752	0.8960	0.0009	0.0509	82.4655	4	0.46	1.90	3.58	0.00	0.20	329.86	123	56.59	233.80	440.82	0.46	25.03	40,573
Driller	305	2	0.1008	0.3906	1.1181	0.0023	0.0366	215.2074	8	1.61	6.25	17.89	0.04	0.59	3443.32	123	198.36	768.73	2200.39	4.57	72.12	423,528
Ditch Digger	75	2	0.1633	0.4453	0.5397	0.0005	0.0517	44.3383	6	1.96	5.34	6.48	0.01	0.62	532.06	123	241.08	657.32	796.55	0.81	76.27	65,443
Forklift	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	20.5837	4	0.23	0.77	0.85	0.00	0.08	82.33	123	28.16	94.31	104.98	0.12	10.21	10,127
Tractors	85	2	0.0980	0.3505	0.4179	0.0005	0.0383	41.0376	6	1.18	4.21	5.01	0.01	0.46	492.45	123	144.64	517.35	616.80	0.74	56.60	60,571
										5.44	18.47	33.82	0.05	1.95	4880.03		668.83	2271.52	4159.54	6.70	240.23	600,243

Electrical Element

Segment 8 - New Switchyard

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	CO2	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	CO2	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM	CO2
14 ton Crane	180	2	0.1150	0.4752	0.8960	0.0009	0.0509	82.4655	6	1.38	5.70	10.75	0.01	0.61	989.59	23	31.75	131.15	247.29	0.26	14.04	22,760
Crane, Hydraulic, 150 Ton (150 ton crane)	350	2	0.1393	0.4421	1.3511	0.0015	0.0508	139.3358	6	1.67	5.30	16.21	0.02	0.61	1672.03	23	38.44	122.01	372.89	0.40	14.01	38,457
Forklift	75	1	0.0572	0.1917	0.2134	0.0003	0.0208	20.5837	6	0.34	1.15	1.28	0.00	0.12	123.50	23	7.90	26.45	29.45	0.03	2.86	2,841
Manlifts	75	4	0.0572	0.1917	0.2134	0.0003	0.0208	20.5837	6	1.37	4.60	5.12	0.01	0.50	494.01	23	31.59	105.81	117.79	0.14	11.46	11,362
										4.77	16.76	33.37	0.04	1.84	3279.13		109.68	385.43	767.41	0.83	42.37	75,420

2012 Emission Calculations

Marshalling Yards

Segment 8 Alt 4C

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	CO2	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	CO2	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM	CO2
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.1050	0.4406	0.7381	0.0008	0.0499	69.3640	3	0.26	1.10	1.85	0.00	0.12	173.41	79	20.73	87.02	145.77	0.16	9.86	13,699
Forklift, 5 ton	75	1	0.0505	0.1866	0.2034	0.0003	0.0187	20.5837	5	0.25	0.93	1.02	0.00	0.09	102.92	79	19.94	73.69	80.34	0.10	7.37	8,131
Forklift, 10 ton	85	1	0.0501	0.1939	0.2252	0.0003	0.0207	22.9484	5	0.25	0.97	1.13	0.00	0.10	114.74	79	19.80	76.59	88.97	0.11	8.16	9,065
										0.77	3.00	3.99	0.00	0.32	391.07		60.48	237.30	315.08	0.37	25.39	30,895

Road Maintenance

Segment 8 Alt 4C

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	CO2	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	CO2	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM	CO2
Motor Grader	140	1	0.1423	0.6085	0.9571	0.0011	0.0721	92.7673	2	0.28	1.22	1.91	0.00	0.14	185.53	75	21.34	91.28	143.57	0.16	10.82	13,915
Crawler, Track Type, w/ blade (D6 Type)	185	1	0.1771	0.7189	1.3752	0.0014	0.0752	127.1802	2	0.35	1.44	2.75	0.00	0.15	254.36	75	26.57	107.83	206.27	0.21	11.28	19,077
										0.64	2.65	4.66	0.00	0.29	439.90		47.91	199.11	349.84	0.37	22.10	32,992

Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)

Segment 8 Alt 4C

	HP	Number	SCAQMD Emission Factor lbs/hour ROG	CO	NOX	SOX	PM	CO2	Hours/day	Daily Emissions lbs ROG	CO	NOX	SOX	PM	CO2	Days	Annual Emissions lbs ROG	CO	NOX	SOX	PM	CO2
Crane, Hydraulic, 150/300 Ton	450	1	0.1529	0.5173	1.4404	0.0017	0.0534	166.5128	8	1.22	4.14	11.52	0.01	0.43	1332.10	10	12.23	41.39	115.23	0.13	4.28	13,321
Crane, Hydraulic, Rough Terrain 35 ton	155	3	0.1050	0.4406	0.7381	0.0008	0.0499	69.3640	8	2.52	10.57	17.71	0.02	1.20	1664.74	10	25.19	105.75	177.14	0.19	11.98	16,647
Compressor, Air	75	5	0.0967	0.2875	0.3390	0.0004	0.0329	31.0852	7.5	3.63	10.78	12.71	0.01	1.23	1165.69	10	36.28	107.81	127.11	0.14	12.35	11,657
Motor, Auxilary Power	5	2	0.0052	0.0233	0.0354	0.0001	0.0020	3.4026	2	0.02	0.09	0.14	0.00	0.01	13.61	10	0.21	0.93	1.42	0.00	0.08	136
										7.39	25.59	42.09	0.05	2.87	4176.14		73.91	255.87	420.90	0.47	28.68	41,761

Conductor & OHGW Installation

Segment 8 Alt 4C

			SCAQMD Emission Factor lbs/hour							Daily Emissions lbs							Annual Emissions lbs					
	HP	Number	ROG	CO	NOX	SOX	PM	CO2	Hours/day	ROG	CO	NOX	SOX	PM	CO2	Days	ROG	CO	NOX	SOX	PM	CO2
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	1	0.0883	0.3431	0.3970	0.0005	0.0349	41.0376	3	0.26	1.03	1.19	0.00	0.10	123.11	75	19.87	77.20	89.33	0.11	7.86	9,233
Crane, Hydraulic, Rough Terrain 35 ton	155	3	0.1050	0.4406	0.7381	0.0008	0.0499	69.3640	3	0.94	3.97	6.64	0.01	0.45	624.28	75	70.86	297.41	498.22	0.53	33.68	46,821
Crawler, Track Type, w/ blade (D8 type)	305	1	0.2031	0.6323	1.8555	0.0020	0.0728	186.6131	2	0.41	1.26	3.71	0.00	0.15	373.23	75	30.47	94.84	278.33	0.30	10.92	27,992
Crawler, Track Type, Sagging (D8 type)	305	2	0.2031	0.6323	1.8555	0.0020	0.0728	186.6131	2	0.81	2.53	7.42	0.01	0.29	746.45	75	60.94	189.69	556.66	0.61	21.84	55,984
Motor, Auxilary Power	5	4	0.0052	0.0233	0.0354	0.0001	0.0020	3.4026	2	0.04	0.19	0.28	0.00	0.02	27.22	75	3.13	13.96	21.26	0.03	1.23	2,042
Tension machine, conductor	135	2	0.1078	0.5473	0.7829	0.0010	0.0588	87.8561	3	0.65	3.28	4.70	0.01	0.35	527.14	75	48.50	246.28	352.28	0.46	26.46	39,535
Tension machine, static	135	1	0.1078	0.5473	0.7829	0.0010	0.0588	87.8561	2	0.22	1.09	1.57	0.00	0.12	175.71	75	16.17	82.09	117.43	0.15	8.82	13,178
										3.33	13.35	25.51	0.03	1.48	2597.14		249.94	1001.48	1913.51	2.19	110.80	194,785

Restoration & Guard Poles

Segment 8 Alt 4C

			SCAQMD Emission Factor lbs/hour							Daily Emissions lbs							Annual Emissions lbs					
	HP	Number	ROG	CO	NOX	SOX	PM	CO2	Hours/day	ROG	CO	NOX	SOX	PM	CO2	Days	ROG	CO	NOX	SOX	PM	CO2
Backhoe	85	1	0.0883	0.3431	0.3970	0.0005	0.0349	41.0376	5	0.44	1.72	1.99	0.00	0.17	205.19	75	33.11	128.66	148.89	0.19	13.10	15,389
Motor Grader	140	1	0.1423	0.6085	0.9571	0.0011	0.0721	92.7673	8	1.14	4.87	7.66	0.01	0.58	742.14	75	85.38	365.11	574.26	0.64	43.26	55,660
										1.58	6.58	9.64	0.01	0.75	947.33		118.49	493.77	723.15	0.83	56.36	71,049

Wreck-Out (conductors, structures, & Foundations)

Segment 8 Alt 4C

			SCAQMD Emission Factor lbs/hour							Daily Emissions lbs							Annual Emissions lbs					
	HP	Number	ROG	CO	NOX	SOX	PM	CO2	Hours/day	ROG	CO	NOX	SOX	PM	CO2	Days	ROG	CO	NOX	SOX	PM	CO2
Tension Machine, Conductor or Static	135	2	0.1078	0.5473	0.7829	0.0010	0.0588	87.8561	3	0.65	3.28	4.70	0.01	0.35	527.14	65	42.04	213.44	305.31	0.40	22.93	34,264
Crawler, Track Type, w/ blade (D8 type)	305	1	0.2031	0.6323	1.8555	0.0020	0.0728	186.6131	8	1.62	5.06	14.84	0.02	0.58	1492.90	65	105.62	328.79	964.88	1.05	37.85	97,039
Backhoe w/ Bucket; backhoe w/ concrete hammer	85	4	0.0883	0.3431	0.3970	0.0005	0.0349	41.0376	8	2.83	10.98	12.70	0.02	1.12	1313.20	65	183.66	713.63	825.82	1.04	72.67	85,358
Crane, Hydraulic, Rough Terrain 35 ton	155	2	0.1050	0.4406	0.7381	0.0008	0.0499	69.3640	4	0.84	3.52	5.90	0.01	0.40	554.91	65	54.59	229.12	383.81	0.41	25.95	36,069
Motor, Auxilary Power	5	3	0.0052	0.0233	0.0354	0.0001	0.0020	3.4026	2	0.03	0.14	0.21	0.00	0.01	20.42	65	2.04	9.08	13.82	0.02	0.80	1,327
										5.97	22.99	38.36	0.04	2.46	3908.57		387.95	1494.06	2493.64	2.92	160.19	254,057

New Switchyard Construction

Civil Element

Segment 8 - New Switchyard

			SCAQMD Emission Factor lbs/hour							Daily Emissions lbs							Annual Emissions lbs					
	HP	Number	ROG	CO	NOX	SOX	PM	CO2	Hours/day	ROG	CO	NOX	SOX	PM	CO2	Days	ROG	CO	NOX	SOX	PM	CO2
14 ton Crane	180	1	0.1089	0.4722	0.8423	0.0009	0.0473	82.4655	4	0.44	1.89	3.37	0.00	0.19	329.86	15	6.54	28.33	50.54	0.06	2.84	4,948
Driller	305	2	0.0951	0.3895	0.9697	0.0023	0.0305	215.2073	8	1.52	6.23	15.51	0.04	0.49	3443.32	15	22.83	93.47	232.72	0.56	7.33	51,650
Ditch Digger	75	2	0.1548	0.4374	0.5222	0.0005	0.0493	44.3383	6	1.86	5.25	6.27	0.01	0.59	532.06	15	27.86	78.74	94.00	0.10	8.88	7,981
Forklift	75	1	0.0505	0.1866	0.2034	0.0003	0.0187	20.5837	4	0.20	0.75	0.81	0.00	0.07	82.33	15	3.03	11.19	12.20	0.02	1.12	1,235
Tractors	85	2	0.0883	0.3431	0.3970	0.0005	0.0349	41.0376	6	1.06	4.12	4.76	0.01	0.42	492.45	51	54.04	209.97	242.98	0.31	21.38	25,115
										5.08	18.23	30.73	0.05	1.76	4880.02		114.30	421.71	632.44	1.03	41.55	90,929

Electrical Element

Segment 8 Alt 4C

			SCAQMD Emission Factor lbs/hour							Daily Emissions lbs							Annual Emissions lbs					
	HP	Number	ROG	CO	NOX	SOX	PM	CO2	Hours/day	ROG	CO	NOX	SOX	PM	CO2	Days	ROG	CO	NOX	SOX	PM	CO2
14 ton Crane	180	2	0.1089	0.4722	0.8423	0.0009	0.0473	82.4655	6	1.31	5.67	10.11	0.01	0.57	989.59	143	186.95	810.34	1445.34	1.59	81.24	141,511
Crane, Hydraulic, 150 Ton (150 ton crane)	350	2	0.1316	0.4138	1.2558	0.0015	0.0461	139.3358	6	1.58	4.97	15.07	0.02	0.55	1672.03	143	225.78	710.10	2154.97	2.51	79.17	239,100
Forklift	75	1	0.0505	0.1866	0.2034	0.0003	0.0187	20.5837	6	0.30	1.12	1.22	0.00	0.11	123.50	143	43.31	160.07	174.51	0.22	16.01	17,661
Manlifts	75	4	0.0505	0.1866	0.2034	0.0003	0.0187	20.5837	6	1.21	4.48	4.88	0.01	0.45	494.01	143	173.26	640.28	698.03	0.87	64.05	70,643
										4.40	16.23	31.28	0.04	1.68	3279.13		629.31	2320.79	4472.84	5.19	240.48	468,915

Total

	Project Emissions					
	ROG	CO	NOX	SOX	PM	CO2
Total	2.98	11.00	22.71	0.03	1.22	2396.97
2011	2.14	7.79	17.05	0.02	0.88	1804.28
2012	0.84	3.21	5.66	0.01	0.34	592.69

Switchyard

	Project Emissions					
	ROG	CO	NOX	SOX	PM	CO2
Total	1.20	4.03	8.93	0.01	0.44	1034.78
2011	0.83	2.66	6.38	0.01	0.30	754.86
2012	0.37	1.37	2.55	0.00	0.14	279.92

Addition

	Project Emissions					
	ROG	CO	NOX	SOX	PM	CO2
Total	1.78	6.97	13.78	0.02	0.78	1362.19
2011	1.31	5.13	10.67	0.01	0.58	1049.42
2012	0.47	1.84	3.11	0.00	0.20	312.77

Alternative 4C
Helicopter Emissions

2011

Approach/Climbout	Hours/day	Days	Emissions lbs/hour				
			HC	CO	NOx	SOx	PM
Hughes 500	5	45	0.05	0.11	0.22	0.00	0.01

2012

Approach/Climbout	Hours/day	Days	Emissions lbs/hour				
			HC	CO	NOx	SOx	PM
Hughes 500	5	75	0.08	0.18	0.36	0.00	0.02

Fugitive Dust Emissions - Segment 8 Alternative 4C

Emission Categories
1) Earthmoving
2) Road Dust Paved/Unpaved
3) Disturbed Area Windblown Emissions

1) Earthmoving

Emission Types
A) Dozing
B) Grading
C) Material Loading/Handling
D) Disturbed Area Windblown Emissions

A) Dozing (AP-42 Section 11.9 for overburden)

$E = k \times (s)^{1.5} / (M)^{1.4}$ For PM10 and $k \times 5.7 \times (s)^{1.2} / (M)^{1.3}$ for PM2.5
E = lb/hr
k = Scaling Constant (0.75 for PM10 and 0.105 for PM2.5)
s = Silt Content (assumed to be 12% - SCAQMD Handbook for Mountain Roads)
M = Moisture Content = 10% (assumes watering when necessary for mitigation)

PM10 Emission Factor
1.241175323 lb/hr

PM2.5 Emission Factor
0.591672862 lb/hr

Total Dozer Use

	Hrs/year
2011	3617
2012	820

Dozer Emissions

Tons/year	PM10	PM2.5
2011	2.24	1.07
2012	0.51	0.24

B) Grading

$E = k \times 0.051 \times (S)^{2.0}$ for PM10 and $k \times 0.040 \times (S)^{2.5}$ for PM2.5
E = lb/VMT
k = Scaling Constant (0.60 for PM10 and 0.031 for PM2.5)
S = Mean Vehicle Speed assumed to be 3 mph
Assumes VMT = 3 x hours in use

PM10 Emission Factor
0.2754 lb/VMT

PM2.5 Emission Factor
0.019329687 lb/VMT

Annual Grader VMT

	Hrs/year	VMT/year
2011	2432	7296
2012	750	2250

Grading Emissions

Tons/year	PM10	PM2.5
2011	1.00	0.07
2012	0.31	0.02

C) Material Loading/Handling (AP-42, p. 13.2.4-3)

$E = (k)(0.0032)[(U/5)^{1.3}]/[(M/2)^{1.4}]$
E = lb/ton
k = Particle Size Constant (0.35 for PM10 and 0.11 for PM2.5)
U = average wind speed = 25 MPH worst day, 8 MPH avg daytime (engineering assumption)
M = moisture content = 10% (mitigated)
Four separate drops are assumed

2011	1,890,000	Annual tons
2012	0	Annual tons

Emission Factors and Emissions
Emission Factors

PM10 Daily	PM2.5 Daily	PM10 Annual	PM2.5 Annual
0.00103	0.00032	0.00029	0.00009

Emissions tons/year

	PM10	PM2.5
2011	1.10	0.34
2012	0.00	0.00

Fugitive Dust Emissions - Segment 8 Alternative 4C

2) Road Dust
Emission Types
A) Paved Road Dust
B) Unpaved Road Dust

A) Paved Road Dust

E = [k x (sL/2)0.65 x (W/3)1.5 -C] x (1-P/4N)
E = lb/VMT
k = Constant (0.016 for PM10 and 0.0040 for PM2.5)
sL = Silt Loading (assumed to be 0.06 g/m2 - assumes 5,000 to 10,000 ADT profile of Table 13.2.1-3 average for all traffic)
W = Average weight of vehicles in tons (calculated below)
C = Correction for exhaust, break wear, tire wear (0.00047 lb/VMT for PM10, 0.00036 lb/VMT for PM2.5)
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Passenger Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Paved VMT	Average Weight (Tons)
2011	748,920	561,320	137,470	1,447,710	7.0
2012	411,480	135,680	66,710	613,870	6.4

	PM10 Annual	PM2.5 Annual
2011	0.0053	0.0011
2012	0.0046	0.0009

Emissions tons/year

	PM10	PM2.5
2011	3.87	0.79
2012	1.41	0.28

B) Unpaved Road Dust

$E = (k)[(s/12)^{0.9}][(W/3)^{0.45}][(365-P)/365]$ (for industrial sites)

k = constant = 1.5 lb/VMT for PM10 and 0.23 lb/VMT for PM2.5
s = Silt Content (assumed to be 12% - SCAQMD Handbook for Mountain Roads)
W = avg. vehicle weight = calculated below
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Personal/Professionals/inspection Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Paved VMT	Average Weight (Tons)
2011	2,583	14,355	4,847	21,785	12.2
2012	1,085	5,261	2,463	8,809	13.4

	PM10 Annual	PM2.5 Annual
2011	2.82	0.43
2012	2.94	0.45

Emissions tons/year

	PM10	PM2.5
2011	30.70	4.71
2012	12.96	1.99

Controlled Emissions (assumes 84% efficiency with use of soil binder)

Emission Control
84%

Emissions tons/year

	PM10	PM2.5
2011	4.91	0.75
2012	2.07	0.32

Fugitive Dust Emissions - Segment 8 Alternative 4C

3) Disturbed Area Windblown Emissions

Assumptions
Emission Factor is 0.38 tons/disturbed acres/year of Total Suspended Particulate (AP-42 Section 11.9)
PM10 and PM2.5 fractions of TSP are 0.489 and 0.102 respectively per CEIDARS factors from SCAQMD CEQA Website
There are permanent and temporary disturbed acres that make up the total acre-years of disturbed area for each Segment
Disturbed areas are controlled by dust suppressants 84% control

	Disturbed Acres (acre-years)
2011	70
2012	28

Emissions (tons/year)	
PM10	PM2.5
2.12	0.43
0.84	0.17

Fugitive Dust Emission Totals	2011		2012	
	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr
Dozer	2.24	1.07	0.51	0.24
Grading	1.00	0.07	0.31	0.02
Soil Handling	1.10	0.34	0.00	0.00
Paved Road Dust	3.87	0.79	1.41	0.28
Unpaved Road Dust	4.91	0.75	2.07	0.32
Disturbed Area Dust	2.12	0.43	0.84	0.17
Totals	15.25	3.46	5.14	1.03

Incremental Change for Alternative 4C Modified, Compared to Alternative 4C.

Increase

Construction Schedule - Alternative 5 Underground

6) Soil waste truck are assumed to be double trailers with 20 cubic yard capacity. Grout loads are 10 cubic yards.
4 trucks are assumed to be used per day

Waste

	2011							
	Total Soil (cy)	Total Trips	Unpaved RT	Paved RT	Total RT	Total Unpaved	Total Paved	Total
Soil	701000	35050	0.25	40	40.25	8762.5	1402000	1410762.5

Onroad Emissions

Scenario Year: 2011 -- Model Years: 1966-2011

Passenger Vehicles	
lb/mile	
CO	0.008262757
Nox	0.000844604
ROG	0.000852333
Sox	1.07747E-05
PM10	8.87929E-05
PM2.5	5.65251E-05
CO2	1.102351544

Delivery Trucks	
lb/mile	
CO	0.016932424
NOx	0.018933664
ROG	0.002418682
SOx	2.72784E-05
PM10	0.000700971
PM2.5	0.000596818
CO2	2.751808225

Heavy-Heavy Duty Trucks	
lb/mile	
CO	0.011124628
NOx	0.034558093
ROG	0.002795432
SOx	3.97219E-05
PM10	0.001660874
PM2.5	0.001444886
CO2	4.220456802

2011

		Emissions lbs/year-2011						
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Passenger	0							
Delivery	1,410,763	3,412.19	23,887.63	26,710.90	38.48	988.90	841.97	3,882,147.85
Heavy-Heavy Duty	0							

Totals	3,412.19	23,887.63	26,710.90	38.48	988.90	841.97	3,882,147.85
Tons/year	1.71	11.94	13.36	0.02	0.49	0.42	1,941.07

Fugitive Dust Emissions

2) Road Dust

Emission Types
A) Paved Road Dust
B) Unpaved Road Dust

A) Paved Road Dust

E = [k x (sL/2)0.65 x (W/3)1.5 -C] x (1-P/4N)
E = lb/VMT
k = Constant (0.016 for PM10 and 0.0040 for PM2.5)
sL = Silt Loading (assumed to be 0.06 g/m2 - assumes 5,000 to 10,000 ADT profile of Table 13.2.1-3 average for all traffic)
W = Average weight of vehicles in tons (calculated below)
C = Correction for exhaust, break wear, tire wear (0.00047 lb/VMT for PM10, 0.00036 lb/VMT for PM2.5)
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Passenger Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Paved VMT	Average Weight (Tons)
2011		1,402,000		1,402,000	8.0

	PM10 Annual	PM2.5 Annual
2011	0.0067	0.0014

Emissions tons/year

	PM10	PM2.5
2011	4.67	1.00

B) Unpaved Road Dust

$E = (k)[(s/12)^{0.9}][(W/3)^{0.45}][(365-P)/365]$ (for industrial sites)

k = constant = 1.5 lb/VMT for PM10 and 0.23 lb/VMT for PM2.5
s = Silt Content (assumed to be 12% - SCAQMD Handbook for Mountain Roads)
W = avg. vehicle weight = calculated below
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Personal/Professionals/inspection Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Paved VMT	Average Weight (Tons)
2011		8,763		8,763	8.0

	PM10 Annual	PM2.5 Annual
2011	2.33	0.36

Emissions tons/year

	PM10	PM2.5
2011	10.22	1.57

Controlled Emissions (assumes 84% efficiency with use of soil binder)

Emission Control
84%

Emissions tons/year

	PM10	PM2.5
2011	1.63	0.25

Reduction

1) Earthmoving

Emission Types
A) Dozing
B) Grading
C) Material Loading/Handling
D) Disturbed Area Windblown Emissions

C) Material Loading/Handling (AP-42, p. 13.2.4-3)

$E = (k)(0.0032)[(U/5)^{1.3}]/[(M/2)^{1.4}]$
E = lb/ton
k = Particle Size Constant (0.35 for PM10 and 0.11 for PM2.5)
U = average wind speed = 25 MPH worst day, 8 MPH avg daytime (engineering assumption)
M = moisture content = 10% (mitigated)
Four separate drops are assumed

2011	1,050,000	Annual tons
2012	0	Annual tons

Emission Factors and Emissions
Emission Factors

PM10 Daily	PM2.5 Daily	PM10 Annual	PM2.5 Annual
0.00103	0.00032	0.00029	0.00009

Emissions tons/year

	PM10	PM2.5
2011	0.00	0.19
2012	0.00	0.00

3) Disturbed Area Windblown Emissions

Assumptions
Emission Factor is 0.38 tons/disturbed acres/year of Total Suspended Particulate (AP-42 Section 11.9)
PM10 and PM2.5 fractions of TSP are 0.489 and 0.102 respectively per CEIDARS factors from SCAQMD CEQA Website
There are permanent and temporary disturbed acres that make up the total acre-years of disturbed area for each Segment
Disturbed areas are controlled by dust suppressants 84% control

Disturbed Acres (acre-years)	
2011	14
2012	

Emissions (tons/year)	
PM10	PM2.5
0.42	0.09
0.00	0.00

Fugitive Dust Emission Totals	2011		2012	
	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr
Dozer				
Grading				
Soil Handling	0.00	0.19	0.00	0.00
Paved Road Dust				
Unpaved Road Dust				
Disturbed Area Dust	0.42	0.09	0.00	0.00
Totals	0.42	0.28	0.00	0.00

Total Increamental (compared to 4D)

Onroad

2011

		Emissions lbs/year-2011						
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Delivery	1,410,763	1.71	11.94	13.36	0.02	0.49	0.42	1,941.07

Fugitive

2011	PM10	PM2.5
	5.88	0.78

Alternative 5 Underground Construction Emission Calculation Assumptions

Proposed Project General Assumptions

1) Work occurs 6 days a week, 8 hours a day, excepting major holidays, except for tunneling which has two shifts working and one shift for maintenance (24 hour construction)
2) Project schedule is 24 months and ends at the same time as the proposed project' Segment 8 Mesa to Chino su

Offroad Equipment Emission Calculation Assumptions

1) Emission factors are the latest available from the SCAQMD website, where the nearest horsepower sized equipment given in the SCAQMD emission factor database are used with a ratio of actual assumed equipment
2) This work subtasks will be done by one contractor so equipment for each will be used throughout, so subtasks starting in 2010 would use 2010 EFs for all years for that subtask, etc.
3) Construction subtasks, durations, equipment type, number, and usage estimates are used are engineering estimates by Aspen Environment Group using very limited equipment information provided by SCE.
4) The following vehicle types, which could be offroad vehicles are assumed to be onroad vehicles considering the project description, needs and location: water trucks and dump trucks.
5) Generators to power lights and forced air through the confined spaces (access shafts, ventilation shafts, and tunnel) in the total amount of 1,000 hp (~750 kW) will be required 24 hours per day/7 days per week after the initiation of construction of elements with confined space.
6) Diesel powered water pumps, which could be additional generator power, will be needed 24 hours per day/7 days per week to remove water in the access shafts, ventilation shafts, and tunnel until the final tunnel grouting is

Onroad Equipment Emission Calculations Assumptions

1) Emission factors are the latest available from the SCAQMD website, where the vehicles have been assigned three classes, passenger (i.e. employee vehicles and pickups), delivery (all nonpassenger vehicles smaller than
2) Emission factors from each year assumed in the project schedule are used to calculate the annual emissions.
3) Trip estimates are based on engineering estimates of import/export quantities, equipment and worker trips.
4) All onroad traffic for the project is assumed to occur within SCAQMD jurisdiction.
5) Grout (i.e. concrete) for lining the access shafts, tunnel, ventilation shafts is assumed to be imported by truck
6) Soil waste truck are assumed to be double trailers with 20 cubic yard capacity. Grout loads are 10 cubic yards.
7) A ten percent contingency is added to the grout and soil waste trips. This contingency considers excavated soil expansion and grout wastage.

Fugitive Dust Emission Calculations Assumptions

1) Unpaved road travel is minimized to the extent feasible and shall be no more than one-half mile per round trip for all employee trips and for equipment that must access the access shafts sites and no more than one mile per round trip for equipment to access the ventilation shaft sites.
2) Unpaved road emission factors are calculated using the most current version of USEPA AP-42 Section 13.2.1 and use the following assumptions: 1) Silt content is assumed to be 6% on average (SCAQMD level for sand and
and 2) average vehicle weight based on VMT estimate for unpaved roads
3) Paved road emission factors are calculated using the most current version of USEPA AP-42 Section 13.2.1 and use the following assumptions: 1) Silt loading is average for 5000-10000 ADT road; 2) average vehicle weight
4) Earthmoving emission factors are calculated using the recent version of USEPA AP-42 Section 11.9 for Dozing and Grading, and Section 13.2.4 for soil handling (drop emissions).
5) Due to the work areas primarily being in pits and SCAQMD fugitive dust measure requirement for any waste piles the wind erosion potential is considered negligible for most of the project.

TRTP Alternative 5 Project Construction Emission Totals
SCAQMD Juridiction

Worst-Case Day	Emissions (lbs/day)					
(Year 2010)	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	40.37	275.40	274.53	0.48	12.78	10.75
Offroad Vehicles/Equipment	104.44	348.73	953.55	1.04	42.49	39.09
Helicopter	275.95	1,004.12	1,092.23	9.14	60.30	55.47
Fugitive Dust	---	---	---	---	590.78	136.82
Totals	**420.77**	**1,628.25**	**2,320.31**	**10.66**	**706.35**	**242.14**

Incremental Annual Emissions

2010 Emissions

	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.551	3.396	4.251	0.007	0.210	0.179
Offroad Vehicles/Equipment	5.625	18.682	56.026	0.062	2.290	2.107
Helicopter	0.000	0.000	0.000	0.000	0.000	0.000
Fugitive Dust	---	---	---	---	5.222	0.984
Totals	**6.18**	**22.08**	**60.28**	**0.07**	**7.72**	**3.27**

2011 Emissions

	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.526	3.181	4.327	0.007	0.219	0.186
Offroad Vehicles/Equipment	6.264	20.855	64.549	0.073	2.519	2.317
Helicopter	0.000	0.000	0.000	0.000	0.000	0.000
Fugitive Dust	---	---	---	---	6.498	1.229
Totals	**6.79**	**24.04**	**68.88**	**0.08**	**9.24**	**3.73**

2012 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.085	0.471	0.800	0.001	0.039	0.034
Offroad Vehicles/Equipment	1.086	3.598	12.391	0.016	0.413	0.380
Helicopter	0.000	0.000	0.000	0.000	0.000	0.000
Fugitive Dust	---	---	---	---	1.326	0.272
Totals	**1.17**	**4.07**	**13.19**	**0.02**	**1.78**	**0.69**

Note: This alternative does not significantly impact the AVAQMD, KCAPCD, or the ANF.

TRTP Alternative 5 Project Construction Emission Totals
Incremental Tower Construction Reduction Emission Totals
SCAQMD Juridiction

Worst-Case Day	Emissions (lbs/day)					
(Year 2010)	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	31.91	224.03	207.46	0.38	9.48	7.94
Offroad Vehicles/Equipment	25.54	86.57	165.52	0.17	10.25	9.43
Helicopter	275.95	1,004.12	1,092.23	9.14	60.30	55.47
Fugitive Dust	---	---	---	---	494.30	115.44
Totals	**333.41**	**1,314.72**	**1,465.21**	**9.68**	**574.33**	**188.29**

Incremental Annual Emissions

2010 Emissions

	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	-0.026	-0.169	-0.201	0.000	-0.009	-0.008
Offroad Vehicles/Equipment	-0.053	-0.184	-0.329	0.000	-0.022	-0.020
Helicopter	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Dust	---	---	---	---		
Totals	**-0.08**	**-0.35**	**-0.53**	**0.00**	**-0.03**	**-0.03**

2011 Emissions

	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	-0.159	-1.208	-0.918	-0.002	-0.042	-0.035
Offroad Vehicles/Equipment	-0.067	-0.258	-0.515	-0.001	-0.030	-0.028
Helicopter	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Dust	---	---	---	---		
Totals	**-0.23**	**-1.47**	**-1.43**	**0.00**	**-0.07**	**-0.06**

2012 Emissions

	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	-0.016	-0.101	-0.128	0.000	-0.006	-0.005
Offroad Vehicles/Equipment	-0.003	-0.012	-0.017	0.000	-0.001	-0.001
Helicopter	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Dust						
Totals	**-0.02**	**-0.11**	**-0.14**	**0.00**	**-0.01**	**-0.01**

Note: This alternative does not significantly impact the AVAQMD, KCAPCD, or the ANF.

TRTP Alternative 5 Project Construction Emission Totals
Underground Construction Emission Totals
SCAQMD Juridiction

Worst-Case Day 2010	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	8.46	51.37	67.07	0.11	3.30	2.81
Offroad Vehicles/Equipment	78.90	262.16	788.03	0.87	32.24	29.66
Helicopter	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Dust	---	---	---	---	96.48	21.38
Totals	**87.36**	**313.53**	**855.10**	**0.98**	**132.01**	**53.85**

Worst-Case Day 2011	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	6.66	44.34	47.73	0.09	2.40	2.01
Offroad Vehicles/Equipment	59.48	201.64	597.79	0.66	24.26	22.32
Helicopter	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Dust	---	---	---	---	70.94	14.60
Totals	**66.14**	**245.97**	**645.52**	**0.75**	**97.60**	**38.94**

Worst-Case Day 2012	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	4.40	23.35	43.12	0.07	2.11	1.80
Offroad Vehicles/Equipment	35.91	117.86	410.10	0.52	13.54	12.46
Helicopter	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Dust	---	---	---	---	66.23	14.60
Totals	**40.31**	**141.21**	**453.22**	**0.58**	**81.88**	**28.86**

Incremental Annual Emissions

2010 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.58	3.56	4.45	0.01	0.22	0.19
Offroad Vehicles/Equipment	5.68	18.87	56.36	0.06	2.31	2.13
Helicopter	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Dust	---	---	---	---	5.22	0.98
Totals	**6.26**	**22.43**	**60.81**	**0.07**	**7.75**	**3.30**

2011 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.68	4.39	5.24	0.01	0.26	0.22
Offroad Vehicles/Equipment	6.33	21.11	65.06	0.07	2.55	2.34
Helicopter	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Dust	---	---	---	---	6.50	1.23
Totals	**7.02**	**25.50**	**70.31**	**0.08**	**9.31**	**3.79**

2012 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.10	0.57	0.93	0.00	0.05	0.04
Offroad Vehicles/Equipment	1.09	3.61	12.41	0.02	0.41	0.38
Helicopter	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Dust	---	---	---	---	1.33	0.27
Totals	**1.19**	**4.18**	**13.34**	**0.02**	**1.79**	**0.69**

Note: This alternative does not significantly impact the AVAQMD, KCAPCD, or the ANF.

Construction Schedule - Alternative 5 Underground																		
Major Elements																		
# Days in Full Month (6 days/week)																		
Onsite Construction Elements Begin in 2009							**Employee Vehicel**			**Total**	**Delivery Truck**			**Total**	**Heavy Heavy Duty Truck**			**Total**
Segment 8	**Crew Size**	**Total Days**	**Start Date**	**End Date**	**Hrs/day**		**no. of vehicle**	**Paved**	**Unpaved**	**VMT/day**	**no. of vehicle**	**Paved**	**Unpaved**	**VMT/day**	**no. of vehicle**	**Paved**	**Unpaved**	**VMT/day**
500 kV Undergrounding																		
Clear, Grub, Stage	6	**25**	**24-Apr-10**	**24-May-10**	8		6	29.5	0.50	180.00	2	19.50	0.50	40.00	2	24.50	0.50	60.00
Marshalling Yard	4	**590**	**18-May-10**	**28-Apr-12**	8		4	29.5	0.50	120.00	2	19.50	0.50	40.00	0	0.00	0.00	0.00
Access Shaft Excavation	20	**91**	**25-May-10**	**9-Sep-10**	8		20	29.5	0.50	600.00	4	19.50	0.50	80.00	26	20.01	0.50	526.95
Tunneling	90	**322**	**1-Jul-10**	**25-Jul-11**	24		90	29.5	0.50	2700.00	7	19.50	0.50	140.00	50	19.65	0.50	1005.45
Ventilation Shaft Excavation	15	**91**	**1-Jul-11**	**24-Oct-11**	8		15	29.5	0.50	450.00	4	19.50	1.00	82.00	7	20.43	1.00	152.30
Tunnel Grouting	20	**60**	**16-Sep-11**	**28-Nov-11**	8		20	29.5	0.50	600.00	4	19.50	0.50	80.00	10	20.49	0.50	212.33
Cable Installation	20	**90**	**28-Nov-11**	**18-Feb-12**	8		20	29.5	0.50	600.00	4	19.50	0.50	80.00	11	109.20	0.50	1231.11
Access Features and Cleanup	10	**75**	**27-Jan-12**	**23-Apr-12**	8		10	29.5	0.50	300.00	2	19.50	0.50	40.00	2	21.32	0.50	48.00

PAVED

	2009			**2010**			**2011**			**2012**			**2013**			**2014**		
Segment 8	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**
500 kV Undergrounding																		
Clear, Grub, Stage	0.0	0.0	0.0	4425.0	975.0	1470.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
Marshalling Yard	0.0	0.0	0.0	22066.0	7293.0	0.0	35754.0	11817.0	0.0	11800.0	3900.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
Access Shaft Excavation	0.0	0.0	0.0	53690.0	7098.0	46783.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
Tunneling	0.0	0.0	0.0	400905.0	20611.5	148056.0	454005.0	23341.5	167666.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
Ventilation Shaft Excavation	0.0	0.0	0.0	0.0	0.0	0.0	40267.5	7098.0	13212.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
Tunnel Grouting	0.0	0.0	0.0	0.0	0.0	0.0	35400.0	4680.0	12436.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00
Cable Installation	0.0	0.0	0.0	0.0	0.0	0.0	29500.0	3900.0	61275.0	23600.0	3120.0	49020.0	0.0	0.0	0.0	0.0	0.00	0.00
Access Features and Cleanup	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22125.0	2925.0	3517.5	0.0	0.0	0.0	0.0	0.00	0.00

UNPAVED

	2009			**2010**			**2011**			**2012**			**2013**			**2014**		
Segment 8	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**
500 kV Undergrounding																		
Clear, Grub, Stage	0.0	0.0	0.0	75.0	25.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
Marshalling Yard	0.0	0.0	0.0	374.0	187.0	0.0	606.0	303.0	0.0	200.0	100.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
Access Shaft Excavation	0.0	0.0	0.0	910.0	182.0	1168.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
Tunneling	0.0	0.0	0.0	6795.0	528.5	3767.5	7695.0	598.5	4266.5	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
Ventilation Shaft Excavation	0.0	0.0	0.0	0.0	0.0	0.0	682.5	364.0	646.8	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
Tunnel Grouting	0.0	0.0	0.0	0.0	0.0	0.0	600.0	120.0	303.5	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
Cable Installation	0.0	0.0	0.0	0.0	0.0	0.0	500.0	100.0	280.6	400.0	80.0	224.4	0.0	0.0	0.0	0.00	0.00	0.00
Access Features and Cleanup	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	375.0	75.0	82.5	0.0	0.0	0.0	0.00	0.00	0.00

TOTAL

	2009			**2010**			**2011**			**2012**			**2013**			**2014**		
Segment 8	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**	**Employee Vehicle**	**Delivery Truck**	**HHDT**
500 kV Undergrounding																		
Clear, Grub, Stage	0.0	0.0	0.0	4500.0	1000.0	1500.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Marshalling Yard	0.0	0.0	0.0	22440.0	7480.0	0.0	36360.0	12120.0	0.0	12000.0	4000.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Access Shaft Excavation	0.0	0.0	0.0	54600.0	7280.0	47952.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Tunneling	0.0	0.0	0.0	407700.0	21140.0	151823.5	461700.0	23940.0	171932.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Ventilation Shaft Excavation	0.0	0.0	0.0	0.0	0.0	0.0	40950.0	7462.0	13859.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Tunnel Grouting	0.0	0.0	0.0	0.0	0.0	0.0	36000.0	4800.0	12740.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
Cable Installation	0.0	0.0	0.0	0.0	0.0	0.0	30000.0	4000.0	61555.6	24000.0	3200.0	49244.4	0.0	0.0	0.0	0.0	0.0	0.00
Access Features and Cleanup	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22500.0	3000.0	3600.0	0.0	0.0	0.0	0.0	0.0	0.00

Alternative 5 - Segment 8

Onroad Equipment Maximum Daily Emissions

			Emissions lbs/day-2010					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	3,420	3.13	28.26	3.14	0.04	0.30	0.19
	Delivery	260	0.67	4.79	5.36	0.01	0.20	0.17
	Heavy-Heavy Duty	1,532	4.66	18.32	58.57	0.06	2.81	2.45
		Totals	8.46	51.37	67.07	0.11	3.30	2.81

			Emissions lbs/day-2011					
2011	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	3,270	2.79	27.02	2.76	0.04	0.29	0.18
	Delivery	262	0.63	4.44	4.96	0.01	0.18	0.16
	Heavy-Heavy Duty	1,158	3.24	12.88	40.01	0.05	1.92	1.67
		Totals	6.66	44.34	47.73	0.09	2.40	2.01

			Emissions lbs/day-2012					
2012	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	1,020	0.81	7.81	0.79	0.01	0.09	0.06
	Delivery	160	0.36	2.47	2.77	0.00	0.10	0.09
	Heavy-Heavy Duty	1,279	3.23	13.07	39.55	0.05	1.91	1.65
		Totals	4.40	23.35	43.12	0.07	2.11	1.80

Annual Emissions

			Emissions lbs/year					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	489,240	447.16	4,042.47	449.19	5.27	42.55	26.80
	Delivery	36,900	95.56	680.35	761.05	1.00	27.72	23.70
	Heavy-Heavy Duty	201,275	612.19	2,406.16	7,692.95	8.32	368.46	322.21
		Totals	1,154.91	7,128.98	8,903.19	14.58	438.73	372.71

			Emissions lbs/year					
2011	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	605,010	515.67	4,999.05	510.99	6.52	53.72	34.20
	Delivery	52,322	126.55	885.94	990.65	1.43	36.68	31.23
	Heavy-Heavy Duty	260,087	727.06	2,893.38	8,988.13	10.33	431.97	375.80
		Totals	1,369.28	8,778.37	10,489.77	18.28	522.37	441.22

			Emissions lbs/year					
2012	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	58,500	46.58	447.80	45.39	0.63	5.25	3.36
	Delivery	10,200	22.83	157.67	176.71	0.27	6.63	5.61
	Heavy-Heavy Duty	52,844	133.57	539.82	1,634.15	2.14	79.04	68.36
		Totals	202.98	1,145.28	1,856.24	3.04	90.92	77.33

Offroad Equipment Emission Calculations - Alternative 5 Underground

2010 Emission Calculations

Clear, Grub, Stage

			SCAQMD Emission Factor lbs/hour							Daily Emissions lbs						Annual Emissions lbs				
	HP	Number	ROG	CO	NOX	SOX	PM	CO2	Hours/day	ROG	CO	NOX	SOX	PM	Days	ROG	CO	NOX	SOX	PM
Dozer, D7	240	1	0.203678	0.599044	1.882011	0.001802	0.07939	160.13907	8	1.63	4.79	15.06	0.01	0.64	25	40.74	119.81	376.40	0.36	15.88
Forklift - 10 ton	85	1	0.063371	0.203333	0.251387	0.000278	0.025245	22.948429	2	0.13	0.41	0.50	0.00	0.05	25	3.17	10.17	12.57	0.01	1.26
Motor Grader - 120H	125	1	0.157016	0.563609	0.965544	0.000926	0.084288	79.415466	4	0.63	2.25	3.86	0.00	0.34	25	15.70	56.36	96.55	0.09	8.43
Loader - 928	143	1	0.131872	0.512856	0.901921	0.000902	0.066203	78.736034	4	0.53	2.05	3.61	0.00	0.26	25	13.19	51.29	90.19	0.09	6.62
Chippers - WC 342G	100	1	0.190591	0.585192	0.875843	0.000859	0.083418	71.962395	2	0.38	1.17	1.75	0.00	0.17	10	3.81	11.70	17.52	0.02	1.67
Chainsaws Stihl MS 460	6	1	0.794048	2.973942	0.026455	2.27E-05	0.050926	0.0509259	4	3.18	11.90	0.11	0.00	0.20	10	31.76	118.96	1.06	0.00	2.04
										6.47	22.57	24.89	0.02	1.66		108.37	368.28	594.29	0.58	35.89

Marshalling Yard

			SCAQMD Emission Factor lbs/hour							Daily Emissions lbs						Annual Emissions lbs				
	HP	Number	ROG	CO	NOX	SOX	PM	CO2	Hours/day	ROG	CO	NOX	SOX	PM	Days	ROG	CO	NOX	SOX	PM
Crane Rough Terrain 35 Ton	155	1	0.117658	0.445914	0.829817	0.000789	0.056161	69.363991	2	0.24	0.89	1.66	0.00	0.11	187	44.00	166.77	310.35	0.30	21.00
Forklift, 5 ton	75	1	0.064297	0.197346	0.223286	0.000253	0.022681	20.58372	6	0.39	1.18	1.34	0.00	0.14	187	72.14	221.42	250.53	0.28	25.45
Forklift, 10 ton	85	1	0.063371	0.203333	0.251387	0.000278	0.025245	22.948429	6	0.38	1.22	1.51	0.00	0.15	187	71.10	228.14	282.06	0.31	28.32
Motor, Auxilary Power	5	1	0.005748	0.024187	0.038469	5.29E-05	0.002293	3.4025532	1	0.01	0.02	0.04	0.00	0.00	187	1.07	4.52	7.19	0.01	0.43
										1.01	3.32	4.55	0.00	0.40		188.32	620.86	850.13	0.90	75.21

Access Shaft Excavation

			SCAQMD Emission Factor lbs/hour							Daily Emissions lbs						Annual Emissions lbs				
	HP	Number	ROG	CO	NOX	SOX	PM	CO2	Hours/day	ROG	CO	NOX	SOX	PM	Days	ROG	CO	NOX	SOX	PM
Excavator Cat 345	345	1	0.165371	0.478034	1.658845	0.001979	0.059221	187.20277	8	1.32	3.82	13.27	0.02	0.47	91	120.39	348.01	1,207.64	1.44	43.11
Excavator/Rock Drill Cat 320	138	2	0.142017	0.577073	0.929879	0.000994	0.074214	86.255316	8	2.27	9.23	14.88	0.02	1.19	91	206.78	840.22	1,353.90	1.45	108.06
Pile Driver Crane	240	1	0.123862	0.365245	1.19629	0.001214	0.047899	107.91695	8	0.99	2.92	9.57	0.01	0.38	91	90.17	265.90	870.90	0.88	34.87
Loader - 928	143	1	0.131872	0.512856	0.901921	0.000902	0.066203	78.736034	8	1.05	4.10	7.22	0.01	0.53	91	96.00	373.36	656.60	0.66	48.20
Crane 250 Ton	390	1	0.156683	0.523384	1.536838	0.001545	0.059032	150.2066	2	0.31	1.05	3.07	0.00	0.12	91	28.52	95.26	279.70	0.28	10.74
Generator - 250 hp	250	4	0.161826	0.501826	2.072047	0.002391	0.061794	212.50495	24	15.54	48.18	198.92	0.23	5.93	106	1,646.74	5,106.58	21,085.16	24.33	628.82
Grout Pump	100	1	0.141219	0.464783	0.757681	0.00078	0.06268	65.48811	8	1.13	3.72	6.06	0.01	0.50	91	102.81	338.36	551.59	0.57	45.63
Water Pumps - 100 hp	100	2	0.141219	0.464783	0.757681	0.00078	0.06268	65.48811	24	6.78	22.31	36.37	0.04	3.01	106	718.52	2,364.82	3,855.08	3.97	318.92
										29.40	95.33	289.35	0.32	12.13		3,009.92	9,732.50	29,860.57	33.58	1,238.34

Tunneling

			SCAQMD Emission Factor lbs/hour							Daily Emissions lbs						Annual Emissions lbs				
	HP	Number	ROG	CO	NOX	SOX	PM	CO2	Hours/day	ROG	CO	NOX	SOX	PM	Days	ROG	CO	NOX	SOX	PM
Generator - TBM	1500	1	0.767505	2.859928	9.929255	0.010935	0.300315	1087.5797	16	12.28	45.76	158.87	0.17	4.81	151	1,854.29	6,909.58	23,989.08	26.42	725.56
Loader - 928	143	1	0.131872	0.512856	0.901921	0.000902	0.066203	78.736034	16	2.11	8.21	14.43	0.01	1.06	151	318.60	1,239.06	2,179.04	2.18	159.95
Crane 250 Ton	390	2	0.156683	0.523384	1.536838	0.001545	0.059032	150.2066	16	5.01	16.75	49.18	0.05	1.89	151	757.09	2,528.99	7,426.00	7.47	285.24
Generator - 250 hp	250	4	0.161826	0.501826	2.072047	0.002391	0.061794	212.50495	24	15.54	48.18	198.92	0.23	5.93	176	2,734.20	8,478.85	35,009.31	40.40	1,044.08
Water Pump - 100 hp	100	4	0.141219	0.464783	0.757681	0.00078	0.06268	65.48811	24	13.56	44.62	72.74	0.07	6.02	176	2,386.03	7,852.97	12,801.77	13.18	1,059.04
										48.50	163.51	494.13	0.54	19.70		8,050.23	27,009.45	81,405.21	89.64	3,273.87

2011 Emission Calculations

Marshalling Yard

			SCAQMD Emission Factor lbs/hour							Daily Emissions lbs						Annual Emissions lbs				
	HP	Number	ROG	CO	NOX	SOX	PM	CO2	Hours/day	ROG	CO	NOX	SOX	PM	Days	ROG	CO	NOX	SOX	PM
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.117658	0.445914	0.829817	0.000789	0.056161	69.363991	2	0.24	0.89	1.66	0.00	0.11	303	38.59	146.26	272.18	0.26	18.42
Forklift, 5 ton	75	1	0.064297	0.197346	0.223286	0.000253	0.022681	20.58372	6	0.39	1.18	1.34	0.00	0.14	303	63.27	194.19	219.71	0.25	22.32
Forklift, 10 ton	85	1	0.063371	0.203333	0.251387	0.000278	0.025245	22.948429	6	0.38	1.22	1.51	0.00	0.15	303	62.36	200.08	247.36	0.27	24.84
Motor, Auxilary Power	5	1	0.005748	0.024187	0.038469	5.29E-05	0.002293	3.4025532	1	0.05	0.18	0.38	0.00	0.02	303	8.44	29.32	62.73	0.07	3.45
										1.05	3.47	4.89	0.01	0.42		172.66	569.85	801.99	0.86	69.03

Tunneling

			SCAQMD Emission Factor lbs/hour							Daily Emissions lbs						Annual Emissions lbs				
	HP	Number	ROG	CO	NOX	SOX	PM	CO2	Hours/day	ROG	CO	NOX	SOX	PM	Days	ROG	CO	NOX	SOX	PM
Generator - TBM	1500	1	0.767505	2.859928	9.929255	0.010935	0.300315	1087.5797	16	12.28	45.76	158.87	0.17	4.81	171	2,099.89	7,824.76	27,166.44	29.92	821.66
Loader - 928	143	1	0.131872	0.512856	0.901921	0.000902	0.066203	78.736034	16	2.11	8.21	14.43	0.01	1.06	171	360.80	1,403.17	2,467.66	2.47	181.13
Crane 250 Ton	390	2	0.156683	0.523384	1.536838	0.001545	0.059032	150.2066	16	5.01	16.75	49.18	0.05	1.89	171	857.37	2,863.96	8,409.58	8.46	323.02
Generator - 250 hp	250	4	0.161826	0.501826	2.072047	0.002391	0.061794	212.50495	24	15.54	48.18	198.92	0.23	5.93	200	3,107.05	9,635.05	39,783.31	45.91	1,186.45
Water Pump - 100 hp	100	4	0.141219	0.464783	0.757681	0.00078	0.06268	65.48811	24	13.56	44.62	72.74	0.07	6.02	200	2,711.40	8,923.83	14,547.47	14.98	1,203.46
										48.50	163.51	494.13	0.54	19.70		9,136.52	30,650.78	92,374.45	101.73	3,715.72

Ventilation Shaft Excavation

			SCAQMD Emission Factor lbs/hour							Daily Emissions lbs						Annual Emissions lbs				
	HP	Number	ROG	CO	NOX	SOX	PM	CO2	Hours/day	ROG	CO	NOX	SOX	PM	Days	ROG	CO	NOX	SOX	PM
Vertical Shaft Machine	550	1	0.239063	0.913326	3.158838	0.003739	0.093607	378.24026	8	1.91	7.31	25.27	0.03	0.75	91	174.04	664.90	2,299.63	2.72	68.15
Loader - 928	143	1	0.123605	0.509538	0.848985	0.000902	0.062686	78.736013	8	0.99	4.08	6.79	0.01	0.50	91	89.98	370.94	618.06	0.66	45.64
Crane 250 Ton	390	1	0.148156	0.487839	1.430589	0.001545	0.053941	150.20664	2	0.30	0.98	2.86	0.00	0.11	91	26.96	88.79	260.37	0.28	9.82
Generator - 250 hp	250	1	0.148282	0.470218	1.937316	0.002391	0.055788	212.50499	24	3.56	11.29	46.50	0.06	1.34	106	377.23	1,196.23	4,928.53	6.08	141.92
Water Pump - 100 hp	100	1	0.132263	0.458792	0.722904	0.00078	0.060041	65.488108	24	3.17	11.01	17.35	0.02	1.44	106	336.48	1,167.17	1,839.07	1.98	152.74
										9.93	34.65	98.77	0.12	4.14		1,004.70	3,488.03	9,945.66	11.73	418.27

Tunnel Grouting

			SCAQMD Emission Factor lbs/hour							Daily Emissions lbs						Annual Emissions lbs				
	HP	Number	ROG	CO	NOX	SOX	PM	CO2	Hours/day	ROG	CO	NOX	SOX	PM	Days	ROG	CO	NOX	SOX	PM
Crane 250 Ton	390	1	0.148156	0.487839	1.430589	0.001545	0.053941	150.20664	6	0.89	2.93	8.58	0.01	0.32	60	53.34	175.62	515.01	0.56	19.42
Grout Pump	100	1	0.132263	0.458792	0.722904	0.00078	0.060041	65.488108	6	0.79	2.75	4.34	0.00	0.36	60	47.61	165.17	260.25	0.28	21.61
Generator - 250 hp	250	4	0.148282	0.470218	1.937316	0.002391	0.055788	212.50499	24	14.24	45.14	185.98	0.23	5.36	70	996.46	3,159.87	13,018.76	16.07	374.90
Water Pump - 100 hp	100	1	0.132263	0.458792	0.722904	0.00078	0.060041	65.488108	24	3.17	11.01	17.35	0.02	1.44	70	222.20	770.77	1,214.48	1.31	100.87
										19.09	61.83	216.25	0.26	7.48		1,319.61	4,271.42	15,008.50	18.22	516.80

Cable Installation

			SCAQMD Emission Factor lbs/hour							Daily Emissions lbs						Annual Emissions lbs				
	HP	Number	ROG	CO	NOX	SOX	PM	CO2	Hours/day	ROG	CO	NOX	SOX	PM	Days	ROG	CO	NOX	SOX	PM
Welder	50	2	0.115728	0.294932	0.268298	0.000336	0.02746	25.958061	6	1.39	3.54	3.22	0.00	0.33	50	69.44	176.96	160.98	0.20	16.48
Generator - 250 hp	250	4	0.148282	0.470218	1.937316	0.002391	0.055788	212.50499	24	14.24	45.14	185.98	0.23	5.36	58	825.64	2,618.17	10,786.98	13.31	310.63
Forklift, 5 ton	75	2	0.056618	0.198383	0.238449	0.000278	0.02308	22.948431	8	0.91	3.17	3.82	0.00	0.37	50	45.29	158.71	190.76	0.22	18.46
Crane 250 Ton	240	2	0.148156	0.487839	1.430589	0.001545	0.053941	150.20664	6	1.78	5.85	17.17	0.02	0.65	50	88.89	292.70	858.35	0.93	32.36
										18.31	57.71	210.18	0.26	6.70		1,029.26	3,246.54	11,997.07	14.66	377.93

2012 Emission Calculations

Marshalling Yard

			SCAQMD Emission Factor lbs/hour							Daily Emissions lbs						Annual Emissions lbs				
	HP	Number	ROG	CO	NOX	SOX	PM	CO2	Hours/day	ROG	CO	NOX	SOX	PM	Days	ROG	CO	NOX	SOX	PM
Crane, Hydraulic, Rough Terrain 35 ton	155	1	0.117658	0.445914	0.829817	0.000789	0.056161	69.363991	2	0.24	0.89	1.66	0.00	0.11	100	23.53	89.18	165.96	0.16	11.23
Forklift, 5 ton	75	1	0.064297	0.197346	0.223286	0.000253	0.022681	20.58372	6	0.39	1.18	1.34	0.00	0.14	100	38.58	118.41	133.97	0.15	13.61
Forklift, 10 ton	85	1	0.063371	0.203333	0.251387	0.000278	0.025245	22.948429	6	0.38	1.22	1.51	0.00	0.15	100	38.02	122.00	150.83	0.17	15.15
Motor, Auxilary Power	5	1	0.005748	0.024187	0.038469	5.29E-05	0.002293	3.4025532	1	0.01	0.02	0.04	0.00	0.00	100	0.57	2.42	3.85	0.01	0.23
										1.01	3.32	4.55	0.00	0.40		100.71	332.01	454.61	0.48	40.22

Cable Installation

			SCAQMD Emission Factor lbs/hour							Daily Emissions lbs						Annual Emissions lbs				
	HP	Number	ROG	CO	NOX	SOX	PM	CO2	Hours/day	ROG	CO	NOX	SOX	PM	Days	ROG	CO	NOX	SOX	PM
Welder	50	2	0.115728	0.294932	0.268298	0.000336	0.02746	25.958061	6	1.39	3.54	3.22	0.00	0.33	40	55.55	141.57	128.78	0.16	13.18
Generator - 250 hp	250	4	0.148282	0.470218	1.937316	0.002391	0.055788	212.50499	24	14.24	45.14	185.98	0.23	5.36	47	669.05	2,121.62	8,741.17	10.79	251.72
Forklift, 5 ton	75	2	0.056618	0.198383	0.238449	0.000278	0.02308	22.948431	8	0.91	3.17	3.82	0.00	0.37	40	36.24	126.97	152.61	0.18	14.77
Crane 250 Ton	240	2	0.148156	0.487839	1.430589	0.001545	0.053941	150.20664	6	1.78	5.85	17.17	0.02	0.65	40	71.11	234.16	686.68	0.74	25.89
										18.31	57.71	210.18	0.26	6.70		831.95	2,624.32	9,709.24	11.87	305.56

Access Features and Cleanup

			SCAQMD Emission Factor lbs/hour							Daily Emissions lbs						Annual Emissions lbs				
	HP	Number	ROG	CO	NOX	SOX	PM	CO2	Hours/day	ROG	CO	NOX	SOX	PM	Days	ROG	CO	NOX	SOX	PM
Excavator - 320	188	1	0.121734	0.569689	0.805673	0.000994	0.062845	86.255326	4	0.49	2.28	3.22	0.00	0.25	75	36.52	170.91	241.70	0.30	18.85
Backhoe	85	2	0.0883	0.343093	0.397029	0.0005	0.034936	41.037556	4	0.71	2.74	3.18	0.00	0.28	75	52.98	205.86	238.22	0.30	20.96
Crane 250 Ton	390	1	0.140086	0.455224	1.329652	0.001545	0.04906	150.20663	4	0.56	1.82	5.32	0.01	0.20	75	42.03	136.57	398.90	0.46	14.72
Loader - 928	143	1	0.115666	0.506574	0.796398	0.000902	0.057874	78.736032	6	0.69	3.04	4.78	0.01	0.35	75	52.05	227.96	358.38	0.41	26.04
Motor Grader - 120H	125	1	0.136682	0.553776	0.855964	0.000926	0.073543	79.415452	4	0.55	2.22	3.42	0.00	0.29	75	41.00	166.13	256.79	0.28	22.06
Vib. Compactor CS-433E	100	1	0.106876	0.378283	0.549308	0.00059	0.048546	49.558577	4	0.43	1.51	2.20	0.00	0.19	75	32.06	113.48	164.79	0.18	14.56
Generator - 250 hp	250	4	0.137226	0.450226	1.804742	0.002391	0.05078	212.50499	24	13.17	43.22	173.26	0.23	4.87	75	988.02	3,241.63	12,994.14	17.22	365.62
										16.60	56.83	195.37	0.26	6.44		1,244.67	4,262.53	14,652.92	19.14	482.82

Maximum Day - Lbs/Day

Year	ROG	CO	NOX	SOX	PM
2010	78.90	262.16	788.03	0.87	32.24
2011	59.48	201.64	597.79	0.66	24.26
2012	35.91	117.86	410.10	0.52	13.54

Annual - Tons/Year

Year	ROG	CO	NOX	SOX	PM
2010	5.68	18.87	56.36	0.06	2.31
2011	6.33	21.11	65.06	0.07	2.55
2012	1.09	3.61	12.41	0.02	0.41
Total Tons	13.10	43.59	133.83	0.15	5.27

Incremental Worst Case Day SCAQMD

Year	ROG	CO	NOX	SOX	PM
2010	49.50	166.83	498.68	0.55	20.11

Fugitive Dust Emissions - Alternative 5 Underground

Emission Categories

1) Earthmoving
2) Road Dust Paved/Unpaved
3) Disturbed Area Windblown Emissions

1) Earthmoving

Emission Types
A) Dozing
B) Grading
C) Material Loading/Handling

A) Dozing (AP-42 Section 11.9 for overburden)

$E = k \times (s)^{1.5} / (M)^{1.4}$ For PM10 and $k \times 5.7 \times (s)^{1.2} / (M)^{1.3}$ for PM2.5
E = lb/hr
k = Scaling Constant (0.75 for PM10 and 0.105 for PM2.5)
s = Silt Content (assumed to be 6% - SCAQMD Handbook for Sand and Gravel Plant Road)
M = Moisture Content = 10% (assumes watering when necessary for mitigation)

PM10 Emission Factor
0.438821744 lb/hr

PM2.5 Emission Factor
0.257540572 lb/hr

Maximum Daily Dozer Use

	Hrs/day
2010	8
2011	0
2012	0

Total Dozer Use

	Hrs/year
2010	200
2011	0
2012	0

Dozer Emissions

Lbs/Day	PM10	PM2.5
2010	3.51	2.06
2011	0.00	0.00
2012	0.00	0.00

Tons/year	PM10	PM2.5
2010	0.04	0.03
2011	0.00	0.00
2012	0.00	0.00

B) Grading

$E = k \times 0.051 \times (S)^{2.0}$ for PM10 and $k \times 0.040 \times (S)^{2.5}$ for PM2.5
E = lb/VMT
k = Scaling Constant (0.60 for PM10 and 0.031 for PM2.5)
S = Mean Vehicle Speed assumed to be 3 mph
Assumes VMT = 3 x hours in use

PM10 Emission Factor
0.2754 lb/VMT

PM2.5 Emission Factor
0.019329687 lb/VMT

Maximum Daily Grader VMT

	Hrs/day	VMT/day
2010	4	12
2011	0	0
2012	4	12

Annual Grader VMT

	Hrs/year	VMT/year
2010	100	300
2011	0	0
2012	300	900

Grading Emissions

Lbs/Day	PM10	PM2.5
2010	3.30	0.23
2011	0.00	0.00
2012	3.30	0.23

Tons/year	PM10	PM2.5
2010	0.04	0.00
2011	0.00	0.00
2012	0.12	0.01

C) Material Loading/Handling (AP-42, p. 13.2.4-3)

$E = (k)(0.0032)[(U/5)^{1.3}]/[(M/2)^{1.4}]$
E = lb/ton
k = Particle Size Constant (0.35 for PM10 and 0.11 for PM2.5)
U = average wind speed = 26.5 MPH worst day, 6.4 MPH avg from Norco Met File
M = moisture content = 10% (mitigated)
Max daily productivity is assume to be two times average
Three separate drops are assumed

2010	2646	Maximum daily tons
2011	1882	Maximum daily tons
2012	0	Maximum daily tons
2010	170400	Annual tons
2011	152730	Annual tons
2012	0	Annual tons

Emission Factors and Emissions
Emission Factors

PM10 Daily	PM2.5 Daily	PM10 Annual	PM2.5 Annual
0.00103	0.00032	0.00016	0.00005

Emissions lbs/day

	PM10	PM2.5
2010	8.16	2.57
2011	5.81	1.83
2012	0.00	0.00

Emissions tons/year

	PM10	PM2.5
2010	0.04	0.01
2011	0.04	0.01
2012	0.00	0.00

2) Road Dust
Emission Types
A) Paved Road Dust
B) Unpaved Road Dust

A) Paved Road Dust

E = [k x (sL/2)0.65 x (W/3)1.5 -C] x (1-P/4N)
E = lb/VMT
k = Constant (0.016 for PM10 and 0.0040 for PM2.5)
sL = Silt Loading (assumed to be 0.06 g/m2 - assumes 5,000 to 10,000 ADT profile of Table 13.2.1-3 average for all traffic)
W = Average weight of vehicles in tons (calculated below)
C = Correction for exhaust, break wear, tire wear (0.00047 lb/VMT for PM10, 0.00036 lb/VMT for PM2.5)
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Passenger Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Paved VMT	Average Weight (Tons)
2010	3,363	254	1,495	5111	10.5
2011	3,216	254	1,126	4595	9.2
2012	1,003	156	1,272	2431	17.0

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Paved VMT	Average Weight (Tons)
2010	481,086	35,978	196,309	713373	10.0
2011	594,927	50,837	254,590	900353	10.3
2012	57,525	9,945	52,538	120008	14.8

Emission Factors and Emissions
Emission Factors

Daily Efs	PM10 Daily	PM2.5 Daily
2010	0.0102	0.0023
2011	0.0083	0.0018
2012	0.0217	0.0052

Emissions lbs/day

	PM10	PM2.5
2010	52.29	11.83
2011	38.19	8.43
2012	52.75	12.60

Annual Efs	PM10 Annual	PM2.5 Annual
2010	0.0095	0.0021
2011	0.0099	0.0022
2012	0.0174	0.0041

Emissions tons/year

	PM10	PM2.5
2010	3.39	0.76
2011	4.45	1.00
2012	1.04	0.25

B) Unpaved Road Dust

$E = (k)[(s/12)^{0.9}][(W/3)^{0.45}][(365-P)/365]$ (for industrial sites)

k = constant = 1.5 lb/VMT for PM10 and 0.23 lb/VMT for PM2.5
s = Silt Content (assumed to be 6% - SCAQMD Handbook for Sand and Gravel Plant Road)
W = avg. vehicle weight = calculated below
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Personal/Professionals/inspection Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Unpaved VMT	Average Weight (Tons)
2010	57	7	38	101	12.8
2011	55	9	32	95	12.0
2012	17	4	7	28	9.6

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Unpaved VMT	Average Weight (Tons)
2010	8,154	923	4,966	14043	12.3
2011	10,084	1,486	5,497	17066	11.5
2012	975	255	307	1537	8.6

Uncontrolled Emission Factors and Emissions
Emission Factors (lb/VMT)

Annual Efs	PM10 Daily	PM2.5 Daily
2010	1.55	0.24
2011	1.50	0.23
2012	1.36	0.21

Emissions lbs/day

	PM10	PM2.5
2010	156.59	24.01
2011	142.48	21.85
2012	37.68	5.78

Annual Efs	PM10 Annual	PM2.5 Annual
2010	1.52	0.16
2011	1.47	0.16
2012	1.29	0.14

Emissions tons/year

	PM10	PM2.5
2010	10.65	1.13
2011	12.58	1.34
2012	0.99	0.11

Controlled Emissions (assumes 84% efficiency with use of soil binder)

Emissions lbs/day

	PM10	PM2.5
2010	25.06	3.84
2011	22.80	3.50
2012	6.03	0.92

Emission Control
84%

Emissions tons/year

	PM10	PM2.5
2010	1.70	0.18
2011	2.01	0.21
2012	0.16	0.02

3) Disturbed Area Windblown Emissions

Assumptions
Emission Factor is 0.38 tons/disturbed acres/year of Total Suspended Particulate (AP-42 Section 11.9)
PM10 and PM2.5 fractions of TSP are 0.489 and 0.102 respectively per CEIDARS factors from SCAQMD CEQA Website
Disturbed areas are controlled by dust suppressants 84% control

	Disturbed Acres		Emissions (lbs/day)		Emissions (tons/year)	
	Acres	Acre-years	PM10	PM2.5	PM10	PM2.5
2010	25	15	4.15	0.85	0.45	0.09
2011	25	25	4.15	0.85	0.76	0.16
2012	25	8	4.15	0.85	0.24	0.05

Fugitive Dust Emission Totals	2010		2011		2012	
Maximum Daily Emissions	PM10 lb/day	PM2.5 lb/day	PM10 lb/day	PM2.5 lb/day	PM10 lb/day	PM2.5 lb/day
Dozer	3.51	2.06	0.00	0.00	0.00	0.00
Grading	3.30	0.23	0.00	0.00	3.30	0.23
Soil Handling	8.16	2.57	5.81	1.83	0.00	0.00
Paved Road Dust	52.29	11.83	38.19	8.43	52.75	12.60
Unpaved Road Dust	25.06	3.84	22.80	3.50	6.03	0.92
Disturbed Area Dust	4.15	0.85	4.15	0.85	4.15	0.85
Totals	96.48	21.38	70.94	14.60	66.23	14.60

Annual Emissions	2010		2011		2012	
	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr
Dozer	0.04	0.03	0.00	0.00	0.00	0.00
Grading	0.04	0.00	0.00	0.00	0.12	0.01
Soil Handling	0.04	0.01	0.04	0.01	0.00	0.00
Paved Road Dust	3.39	0.76	4.45	1.00	1.04	0.25
Unpaved Road Dust	1.70	0.18	2.01	0.21	0.16	0.02
Disturbed Area Dust	0.45	0.09	0.76	0.16	0.24	0.05
Totals	5.22	0.98	6.50	1.23	1.33	0.27

TRTP Alternative 6 Project Construction Emission Totals
All Jurisdictions

Incremental Annual Emissions

2009 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	-0.0012	-0.0075	-0.0112	0.0000	-0.0005	-0.0004
Offroad Vehicles/Equipment	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Helicopter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Fugitive Dust	---	---	---	---	-0.5884	-0.3824
Totals	**0.00**	**-0.01**	**-0.01**	**0.00**	**-0.59**	**-0.38**

2010 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.0015	0.0090	0.0151	0.0000	0.0006	0.0006
Offroad Vehicles/Equipment	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Helicopter	7.9803	24.4616	24.2866	0.2038	1.3401	1.2329
Fugitive Dust	---	---	---	---	0.2848	0.0437
Totals	**7.98**	**24.47**	**24.30**	**0.20**	**1.63**	**1.28**

2011 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.0002	0.0033	-0.0017	0.0000	-0.0002	-0.0001
Offroad Vehicles/Equipment	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Helicopter	3.5942	17.5913	21.9893	0.1831	1.2152	1.1180
Fugitive Dust	---	---	---	---	-0.0309	-0.0047
Totals	**3.59**	**17.59**	**21.99**	**0.18**	**1.18**	**1.11**

2012 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	-0.0183	-0.1070	-0.1723	-0.0002	-0.0074	-0.0063
Offroad Vehicles/Equipment	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Helicopter	6.9786	27.4759	30.2986	0.2533	1.6742	1.5403
Fugitive Dust	---	---	---	---	-3.9454	-0.6050
Totals	**6.96**	**27.37**	**30.13**	**0.25**	**-2.28**	**0.93**

2013 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	-0.0007	-0.0043	-0.0070	0.0000	-0.0003	-0.0003
Offroad Vehicles/Equipment	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Helicopter	45.9333	40.8336	0.3434	2.2637	0.0000	0.0000
Fugitive Dust	---	---	---	---	-0.1774	0.3129
Totals	**45.93**	**40.83**	**0.34**	**2.26**	**-0.18**	**0.31**

Note: This alternative does not significantly impact the KCAPCD.

TRTP Alternative 6 Project Construction Emission Totals
SCAQMD Jurisdiction

Incremental Annual Emissions

2009 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	-0.0012	-0.0075	-0.0112	0.0000	-0.0005	-0.0004
Offroad Vehicles/Equipment	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Helicopter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Fugitive Dust	---	---	---	---	-0.1942	-0.0298
Totals	**0.00**	**-0.01**	**-0.01**	**0.00**	**-0.19**	**-0.03**

2010 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.0009	0.0055	0.0092	0.0000	0.0004	0.0003
Offroad Vehicles/Equipment	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Helicopter	5.5640	16.5516	15.6177	0.1313	0.8625	0.7935
Fugitive Dust	---	---	---	---	0.1766	0.0271
Totals	**5.56**	**16.56**	**15.63**	**0.13**	**1.04**	**0.82**

2011 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	-0.0005	-0.0009	-0.0080	0.0000	-0.0004	-0.0004
Offroad Vehicles/Equipment	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Helicopter	3.2871	15.6756	19.5228	0.1626	1.0787	0.9924
Fugitive Dust	---	---	---	---	-0.1546	-0.0237
Totals	**3.29**	**15.67**	**19.51**	**0.16**	**0.92**	**0.97**

2012 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	-0.0107	-0.0632	-0.1000	-0.0001	-0.0043	-0.0036
Offroad Vehicles/Equipment	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Helicopter	4.1113	16.1284	17.8785	0.1494	0.9877	0.9087
Fugitive Dust	---	---	---	---	-2.3724	-0.3638
Totals	**4.10**	**16.07**	**17.78**	**0.15**	**-1.39**	**0.54**

2013 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	-0.0001	-0.0003	-0.0005	0.0000	0.0000	0.0000
Offroad Vehicles/Equipment	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Helicopter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Fugitive Dust	---	---	---	---	-0.0106	-0.0016
Totals	**0.00**	**0.00**	**0.00**	**0.00**	**-0.01**	**0.00**

TRTP Alternative 6 Project Construction Emission Totals
AVAQMD Jurisdiction

Incremental Annual Emissions

2009 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Offroad Vehicles/Equipment	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Helicopter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Fugitive Dust	---	---	---	---	0.0000	0.0000
Totals	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2010 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.0006	0.0035	0.0059	0.0000	0.0003	0.0002
Offroad Vehicles/Equipment	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Helicopter	2.4163	7.9100	8.6690	0.0726	0.4776	0.4394
Fugitive Dust	---	---	---	---	0.1082	0.0166
Totals	**2.42**	**7.91**	**8.67**	**0.07**	**0.59**	**0.46**

2011 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.0007	0.0042	0.0063	0.0000	0.0003	0.0002
Offroad Vehicles/Equipment	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Helicopter	0.3071	1.9157	2.4665	0.0205	0.1365	0.1256
Fugitive Dust	---	---	---	---	0.1236	0.0190
Totals	**0.31**	**1.92**	**2.47**	**0.02**	**0.26**	**0.14**

2012 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	-0.0076	-0.0438	-0.0722	-0.0001	-0.0031	-0.0027
Offroad Vehicles/Equipment	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Helicopter	2.8673	11.3476	12.4202	0.1038	0.6864	0.6315
Fugitive Dust	---	---	---	---	-1.5730	-0.2412
Totals	**2.86**	**11.30**	**12.35**	**0.10**	**-0.89**	**0.39**

2013 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	-0.0007	-0.0040	-0.0064	0.0000	-0.0003	-0.0002
Offroad Vehicles/Equipment	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Helicopter	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Fugitive Dust	---	---	---	---	-0.1667	-0.0256
Totals	**0.00**	**0.00**	**-0.01**	**0.00**	**-0.17**	**-0.03**

TRTP Alternative 6 Project Construction Emission Totals
All Jurisdictions - ANF Total

2009 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.123	0.916	0.807	0.001	0.035	0.029
Offroad Vehicles/Equipment	0.128	0.391	0.550	0.001	0.050	0.046
Helicopter	0.000	0.000	0.000	0.000	0.000	0.000
Fugitive Dust	---	---	---	---	2.068	0.425
Totals	**0.25**	**1.31**	**1.36**	**0.00**	**2.15**	**0.50**

2010 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.828	5.382	6.353	0.010	0.288	0.245
Offroad Vehicles/Equipment	1.314	4.613	8.864	0.009	0.542	0.498
Helicopter	9.476	32.186	32.960	0.276	1.820	1.674
Fugitive Dust	---	---	---	---	21.013	4.735
Totals	**11.62**	**42.18**	**48.18**	**0.30**	**23.66**	**7.15**

2011 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	1.099	8.095	6.807	0.014	0.315	0.261
Offroad Vehicles/Equipment	1.466	5.166	9.078	0.010	0.601	0.553
Helicopter	4.647	22.361	27.989	0.233	1.546	1.423
Fugitive Dust	---	---	---	---	22.733	4.640
Totals	**7.21**	**35.62**	**43.87**	**0.26**	**25.20**	**6.88**

2012 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.899	6.428	5.787	0.012	0.274	0.227
Offroad Vehicles/Equipment	1.350	5.033	8.598	0.010	0.550	0.506
Helicopter	9.333	36.597	40.634	0.340	2.245	2.065
Fugitive Dust	---	---	---	---	16.984	3.854
Totals	**11.58**	**48.06**	**55.02**	**0.36**	**20.05**	**6.65**

2013 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.007	0.049	0.055	0.000	0.003	0.002
Offroad Vehicles/Equipment	0.008	0.033	0.049	0.000	0.003	0.003
Helicopter	0.001	0.002	0.003	0.000	0.000	0.000
Fugitive Dust	---	---	---	---	0.000	0.000
Totals	**0.016**	**0.084**	**0.108**	**0.000**	**0.006**	**0.005**

TRTP Alternative 6 Project Construction Emission Totals
ANF - SCAQMD Jurisdiction

2009 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.067	0.502	0.444	0.001	0.019	0.016
Offroad Vehicles/Equipment	0.070	0.213	0.300	0.000	0.027	0.025
Helicopter	0.000	0.000	0.000	0.000	0.000	0.000
Fugitive Dust	---	---	---	---	1.402	0.285
Totals	**0.14**	**0.72**	**0.74**	**0.00**	**1.45**	**0.33**

2010 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.610	3.986	4.661	0.007	0.211	0.179
Offroad Vehicles/Equipment	0.979	3.439	6.656	0.007	0.403	0.371
Helicopter	7.059	24.276	24.292	0.204	1.342	1.235
Fugitive Dust	---	---	---	---	13.229	2.989
Totals	**8.65**	**31.70**	**35.61**	**0.22**	**15.19**	**4.77**

2011 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.865	6.347	5.388	0.011	0.250	0.207
Offroad Vehicles/Equipment	1.176	4.152	7.326	0.008	0.482	0.443
Helicopter	4.320	20.399	25.429	0.212	1.405	1.292
Fugitive Dust	---	---	---	---	18.521	3.829
Totals	**6.36**	**30.90**	**38.14**	**0.23**	**20.66**	**5.77**

2012 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.454	3.250	2.898	0.006	0.138	0.114
Offroad Vehicles/Equipment	0.645	2.409	4.039	0.005	0.264	0.243
Helicopter	4.982	19.496	21.701	0.181	1.199	1.103
Fugitive Dust	---	---	---	---	10.045	2.282
Totals	**6.08**	**25.15**	**28.64**	**0.19**	**11.65**	**3.74**

2013 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.004	0.025	0.033	0.000	0.002	0.001
Offroad Vehicles/Equipment	0.005	0.021	0.030	0.000	0.002	0.002
Helicopter	0.000	0.000	0.000	0.000	0.000	0.000
Fugitive Dust	---	---	---	---	0.000	0.000
Totals	**0.009**	**0.046**	**0.063**	**0.000**	**0.004**	**0.003**

TRTP Alternative 6 Project Construction Emission Totals
ANF - AVAQMD/MDAB Jurisdiction

2009 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.056	0.414	0.363	0.001	0.016	0.013
Offroad Vehicles/Equipment	0.058	0.178	0.250	0.000	0.023	0.021
Helicopter	0.000	0.000	0.000	0.000	0.000	0.000
Fugitive Dust	---	---	---	---	0.666	0.140
Totals	**0.11**	**0.59**	**0.61**	**0.00**	**0.70**	**0.17**

2010 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.217	1.397	1.692	0.003	0.077	0.066
Offroad Vehicles/Equipment	0.336	1.174	2.208	0.002	0.138	0.127
Helicopter	2.416	7.910	8.669	0.073	0.478	0.439
Fugitive Dust	---	---	---	---	7.784	1.746
Totals	**2.97**	**10.48**	**12.57**	**0.08**	**8.48**	**2.38**

2011 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.235	1.748	1.419	0.003	0.065	0.054
Offroad Vehicles/Equipment	0.290	1.015	1.753	0.002	0.119	0.110
Helicopter	0.328	1.962	2.561	0.021	0.142	0.130
Fugitive Dust	---	---	---	---	4.212	0.811
Totals	**0.85**	**4.72**	**5.73**	**0.03**	**4.54**	**1.10**

2012 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.446	3.178	2.889	0.006	0.136	0.113
Offroad Vehicles/Equipment	0.705	2.624	4.559	0.005	0.286	0.263
Helicopter	4.351	17.101	18.932	0.158	1.046	0.962
Fugitive Dust	---	---	---	---	6.940	1.572
Totals	**5.50**	**22.90**	**26.38**	**0.17**	**8.41**	**2.91**

2013 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.003	0.025	0.022	0.000	0.001	0.001
Offroad Vehicles/Equipment	0.003	0.012	0.020	0.000	0.001	0.001
Helicopter	0.001	0.002	0.003	0.000	0.000	0.000
Fugitive Dust	---	---	---	---	0.000	0.000
Totals	**0.007**	**0.038**	**0.045**	**0.000**	**0.002**	**0.002**

Alternative 6. Onroad Emissions - Reduction

Segment 6

2009	VMT	VMT	Emissions lbs -2009					
Vehicle Type	Incremental Change	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	0	60,220	0.00	0.00	0.00	0.00	0.00	0.00
Delivery	0	30,110	0.00	0.00	0.00	0.00	0.00	0.00
Heavy-Heavy Duty	0	10,037	0.00	0.00	0.00	0.00	0.00	0.00
		Totals	0.00	0.00	0.00	0.00	0.00	0.00

2010	VMT	VMT	Emissions lbs -2010					
Vehicle Type	Incremental Change	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	0	652,566	0.00	0.00	0.00	0.00	0.00	0.00
Delivery	831	276,601	2.15	15.32	17.14	0.02	0.62	0.53
Heavy-Heavy Duty	447	242,272	1.36	5.34	17.09	0.02	0.82	0.72
		Totals	3.51	20.66	34.22	0.04	1.44	1.25

2011	VMT	VMT	Emissions lbs -2011					
Vehicle Type	Incremental Change	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	0	1,049,767	0.00	0.00	0.00	0.00	0.00	0.00
Delivery	1,377	363,802	3.33	23.31	26.07	0.04	0.97	0.82
Heavy-Heavy Duty	481	160,156	1.34	5.35	16.62	0.02	0.80	0.70
		Totals	4.67	28.66	42.69	0.06	1.76	1.52

2012	VMT	VMT	Emissions lbs -2012					
Vehicle Type	Incremental Change	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	0	294,310	0.00	0.00	0.00	0.00	0.00	0.00
Delivery	29	127,729	0.06	0.45	0.50	0.00	0.02	0.02
Heavy-Heavy Duty	32	70,846	0.08	0.33	0.99	0.00	0.05	0.04
		Totals	0.15	0.78	1.49	0.00	0.07	0.06

Segment 11

2009	VMT	VMT	Emissions lbs -2009					
Vehicle Type	Incremental Change	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	0	56,975	0.00	0.00	0.00	0.00	0.00	0.00
Delivery	-617	29,328	-1.72	-12.43	-13.79	-0.02	-0.50	-0.43
Heavy-Heavy Duty	-206	9,776	-0.68	-2.64	-8.60	-0.01	-0.41	-0.36
		Totals	-2.40	-15.07	-22.40	-0.02	-0.91	-0.79

2010	VMT	VMT	Emissions lbs -2010					
Vehicle Type	Incremental Change	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	0	11,179	0.00	0.00	0.00	0.00	0.00	0.00
Delivery	-121	5,754	-0.31	-2.23	-2.50	0.00	-0.09	-0.08
Heavy-Heavy Duty	-40	1,918	-0.12	-0.48	-1.54	0.00	-0.07	-0.06
		Totals	-0.44	-2.71	-4.04	0.00	-0.16	-0.14

2011	VMT	VMT	Emissions lbs -2011					
Vehicle Type	Incremental Change	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	0	165,035	0.00	0.00	0.00	0.00	0.00	0.00
Delivery	-665	55,629	-1.61	-11.25	-12.58	-0.02	-0.47	-0.40
Heavy-Heavy Duty	-970	55,075	-2.71	-10.79	-33.52	-0.04	-1.61	-1.40
		Totals	-4.32	-22.05	-46.11	-0.06	-2.08	-1.80

2012	VMT	VMT	Emissions lbs -2012					
Vehicle Type	Incremental Change	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	0	1,019,597	0.00	0.00	0.00	0.00	0.00	0.00
Delivery	-10,315	349,552	-23.08	-159.44	-178.69	-0.28	-6.70	-5.67
Heavy-Heavy Duty	-5,413	203,699	-13.68	-55.29	-167.38	-0.22	-8.10	-7.00
		Totals	-36.76	-214.73	-346.07	-0.49	-14.80	-12.67

2013	VMT	VMT	Emissions lbs -2013					
Vehicle Type	Incremental Change	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	0	31,132	0.00	0.00	0.00	0.00	0.00	0.00
Delivery	-442	12,534	-0.91	-6.22	-6.96	-0.01	-0.26	-0.22
Heavy-Heavy Duty	-254	8,634	-0.57	-2.36	-6.96	-0.01	-0.34	-0.29
		Totals	-1.48	-8.58	-13.92	-0.02	-0.60	-0.51

TOTALS

2009	VMT	VMT	Emissions lbs -2011					
Vehicle Type	Incremental Change	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	0	117,195	0	0	0	0	0	0
Delivery	-617	59,438	-2	-12	-14	0	0	0
Heavy-Heavy Duty	-206	19,813	-1	-3	-9	0	0	0
		Totals	-2.40	-15.07	-22.40	-0.02	-0.91	-0.79

2010	VMT	VMT	Emissions lbs -2011					
Vehicle Type	Incremental Change	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	0	663,744	0.00	0.00	0.00	0.00	0.00	0.00
Delivery	710	282,356	1.84	13.09	14.64	0.02	0.53	0.46
Heavy-Heavy Duty	407	244,191	1.24	4.86	15.54	0.02	0.74	0.65
		Totals	3.08	17.95	30.19	0.04	1.28	1.11

2011	VMT	VMT	Emissions lbs -2011					
Vehicle Type	Incremental Change	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	0	1,214,801	0.00	0.00	0.00	0.00	0.00	0.00
Delivery	712	419,431	1.72	12.06	13.48	0.02	0.50	0.43
Heavy-Heavy Duty	-489	215,232	-1.37	-5.44	-16.90	-0.02	-0.81	-0.71
		Totals	0.36	6.62	-3.41	0.00	-0.31	-0.28

2012	VMT	VMT	Emissions lbs -2012					
Vehicle Type	Incremental Change	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	0	1,313,906	0.00	0.00	0.00	0.00	0.00	0.00
Delivery	-10,286	477,281	-23.02	-158.99	-178.19	-0.27	-6.68	-5.65
Heavy-Heavy Duty	-5,381	274,545	-13.60	-54.96	-166.39	-0.22	-8.05	-6.96
		Totals	-36.62	-213.95	-344.58	-0.49	-14.73	-12.61

2013	VMT	VMT	Emissions lbs -2012					
Vehicle Type	Incremental Change	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	0	31,132	0.00	0.00	0.00	0.00	0.00	0.00
Delivery	-442	12,534	-0.91	-6.22	-6.96	-0.01	-0.26	-0.22
Heavy-Heavy Duty	-254	8,634	-0.57	-2.36	-6.96	-0.01	-0.34	-0.29
		Totals	-1.48	-8.58	-13.92	-0.02	-0.60	-0.51

Total	VMT	VMT	Emissions lbs -2012					
Vehicle Type	Incremental Change	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	0	3,223,584	0.00	0.00	0.00	0.00	0.00	0.00
Delivery	-9,305	1,191,601	-20.37	-140.06	-157.03	-0.25	-5.92	-4.99
Heavy-Heavy Duty	-5,717	742,601	-14.30	-57.91	-174.70	-0.23	-8.45	-7.31
		Totals	-34.67	-197.96	-331.73	-0.48	-14.37	-12.30

Alternative 6

Helicopter Trip Emissions for Alternative 6 (Segment 6)

Summary of Total Number of Helicopter Trips for Entire Tower Sites

	220 kV Construction	500 kV Construction
Hughes 500		
Eurocopter	7372	10714
Skyking	1044	7052
Skycrane	30	1512

220 kV	Suspension	7921
	Dead End	525
500 kV	Suspension	16878
	Dead End	2400

230kV Wreckout - Total Emissions (lbs)

Helicopter Type	Year	HC	CO	NOx	SOx	PM
Eurocopter	2010	1,985.07	4,447.28	9,080.78	75.29	494.12
	2012	91.44	204.86	418.30	3.47	22.76
Skyking	2010	2,475.23	8,962.38	7,967.35	67.01	441.68
	2012	114.02	412.85	367.01	3.09	20.35
Skycrane	2010	80.27	569.00	733.61	6.10	40.64
	2012	3.70	26.21	33.79	0.28	1.87

500kV Construction - Total Emissions (lbs)

Helicopter Type	Year	HC	CO	NOx	SOx	PM
Eurocopter	2010	1,293.38	2,897.63	5,916.59	49.05	321.94
	2011	1,612.03	3,611.53	7,374.30	61.14	401.26
	2012	112.47	251.97	514.49	4.27	28.00
Skyking	2010	13,117.39	47,495.80	42,222.67	355.11	2,340.69
	2011	3,231.82	11,701.86	10,402.69	87.49	576.69
	2012	1,140.64	4,130.07	3,671.54	30.88	203.54
Skycrane	2010	0.00	0.00	0.00	0.00	0.00
	2011	3,955.97	28,042.30	36,154.54	300.50	2,003.02
	2012	276.00	1,956.44	2,522.41	20.97	139.75

Total Emissions (lbs)

Helicopter Type	Year	HC	CO	NOx	SOx	PM
Eurocopter	2010	3,278.45	7,344.90	14,997.37	124.34	816.07
	2011	1,612.03	3,611.53	7,374.30	61.14	401.26
	2012	203.91	456.83	932.79	7.73	50.76
Skyking	2010	15,592.62	56,458.18	50,190.02	422.12	2,782.37
	2011	3,231.82	11,701.86	10,402.69	87.49	576.69
	2012	1,254.66	4,542.92	4,038.55	33.97	223.88
Skycrane	2010	80.27	569.00	733.61	6.10	40.64
	2011	3,955.97	28,042.30	36,154.54	300.50	2,003.02
	2012	279.70	1,982.65	2,556.20	21.25	141.62

Total Emissions (ton)

Helicopter Type	Year	HC	CO	NOx	SOx	PM
Eurocopter	2010	1.64	3.67	7.50	0.06	0.41
	2011	0.81	1.81	3.69	0.03	0.20
	2012	0.10	0.23	0.47	0.00	0.03
Skyking	2010	7.80	28.23	25.10	0.21	1.39
	2011	1.62	5.85	5.20	0.04	0.29
	2012	0.63	2.27	2.02	0.02	0.11
Skycrane	2010	0.04	0.28	0.37	0.00	0.02
	2011	1.98	14.02	18.08	0.15	1.00
	2012	0.14	0.99	1.28	0.01	0.07

Total Emissions (ton)

Helicopter Type	HC	CO	NOx	SOx	PM
Hughes 500					
Eurocopter	2.55	5.71	11.65	0.10	0.63
Skyking	10.04	36.35	32.32	0.27	1.79
Skycrane	2.16	15.30	19.72	0.16	1.09

Helicopter Trip Emissions for Alternative 6 (Segment 11)

Summary of Total Number of Helicopter Trips for Entire Tower Sites

	220 kV Construction	500 kV Construction
Hughes 500		
Eurocopter	4150	6436
Skyking	587	4088
Skycrane	12	912

220 kV	Suspension	4539
	Dead End	210
500 kV	Suspension	10476
	Dead End	960

230kV Wreckout - Total Emissions (lbs)

Helicopter Type	Year	HC	CO	NOx	SOx	PM
Eurocopter	2011	138.69	310.71	634.44	5.26	34.52
	2012	1,030.27	2,308.17	4,712.98	39.07	256.45
Skyking	2011	172.73	625.41	555.98	4.68	30.82
	2012	1,283.11	4,645.91	4,130.11	34.74	228.96
Skycrane	2011	3.98	28.25	36.42	0.30	2.02
	2012	29.60	209.84	270.54	2.25	14.99

500kV Construction - Total Emissions (lbs)

Helicopter Type	Year	HC	CO	NOx	SOx	PM
Eurocopter	2012	1,812.87	4,061.47	8,293.02	68.76	451.26
Skyking	2012	10,138.75	36,710.69	32,634.95	274.47	1,809.18
Skycrane	2012	2,552.61	18,094.48	23,328.95	193.90	1,292.46

Total Emissions (lbs)

Helicopter Type	Year	HC	CO	NOx	SOx	PM
Eurocopter	2011	138.69	310.71	634.44	5.26	34.52
	2012	2,843.13	6,369.64	13,006.00	107.83	707.71
Skyking	2011	172.73	625.41	555.98	4.68	30.82
	2012	11,421.86	41,356.60	36,765.06	309.21	2,038.14
Skycrane	2011	3.98	28.25	36.42	0.30	2.02
	2012	2,582.22	18,304.32	23,599.49	196.15	1,307.45

Total Emissions (tons)

Helicopter Type	Year	HC	CO	NOx	SOx	PM
Eurocopter	2011	0.07	0.16	0.32	0.00	0.02
	2012	1.42	3.18	6.50	0.05	0.35
Skyking	2011	0.09	0.31	0.28	0.00	0.02
	2012	5.71	20.68	18.38	0.15	1.02
Skycrane	2011	0.00	0.01	0.02	0.00	0.00
	2012	1.29	9.15	11.80	0.10	0.65

Total Emissions (ton)

Helicopter Type	HC	CO	NOx	SOx	PM
Hughes 500					
Eurocopter	1.49	3.34	6.82	0.06	0.37
Skyking	5.80	20.99	18.66	0.16	1.03
Skycrane	1.29	9.17	11.82	0.10	0.65

Alt. 6 Segment 6 + Segment 11

Total Emissions (ton)

Helicopter Type	HC	CO	NOx	SOx	PM
Hughes 500	1.03	2.31	4.71	0.04	0.26
Eurocopter	4.04	9.05	18.47	0.15	1.01
Skyking	15.84	57.34	50.98	0.43	2.83
Skycrane	3.45	24.46	31.54	0.26	1.75
Totals	24.36	93.16	105.70	0.88	5.83

Total Helipcopter Emissions - Alternative 6

Helicopter Type	Year	HC	CO	NOx	SOx	PM
Hughes 500	2010	0.205	0.460	0.939	0.008	0.051
	2011	0.473	1.061	2.166	0.018	0.118
	2012	0.346	0.776	1.584	0.013	0.086
	2013	0.005	0.011	0.022	0.000	0.001
Eurocopter	2010	1.64	3.67	7.50	0.06	0.41
	2011	0.88	1.96	4.00	0.03	0.22
	2012	1.52	3.41	6.97	0.06	0.38
Skyking	2010	7.80	28.23	25.10	0.21	1.39
	2011	1.70	6.16	5.48	0.05	0.30
	2012	6.34	22.95	20.40	0.17	1.13
Skycrane	2010	0.04	0.28	0.37	0.00	0.02
	2011	1.98	14.04	18.10	0.15	1.00
	2012	1.43	10.14	13.08	0.11	0.72

Total Emissions (ton)

Year	HC	CO	NOx	SOx	PM
2010	9.68	32.65	33.90	0.28	1.87
2011	5.03	23.22	29.74	0.25	1.64
2012	9.64	37.28	42.03	0.35	2.32
2013	0.00	0.01	0.02	0.00	0.00

Total Emissions (ton)

Helicopter Type	HC	CO	NOx	SOx	PM
Hughes 500	1.03	2.31	4.71	0.04	0.26
Eurocopter	4.04	9.05	18.47	0.15	1.01
Skyking	15.84	57.34	50.98	0.43	2.83
Skycrane	3.45	24.46	31.54	0.26	1.75
Totals	24.36	93.16	105.70	0.88	5.83

Alternative 6 By Jurisdiction

Helicopter Trip Emissions for SCE's Alternative 6 (Segment 6)

AVAQMD/MDAB (lbs)

		Helicopter Type	Year	HC	CO	NOx	SOx	PM
Segment 6	Wreckout	Eurocopter	2010	358.75	803.74	1,641.13	13.61	89.30
			2012	91.44	204.86	418.30	3.47	22.76
		Skyking	2010	447.34	1,619.74	1,439.91	12.11	79.82
			2012	114.02	412.85	367.01	3.09	20.35
		Skycrane	2010	14.51	102.83	132.58	1.10	7.35
			2012	3.70	26.21	33.79	0.28	1.87
Segment 6	Construction	Eurocopter	2010	893.00	2,000.65	4,085.07	33.87	222.28
			2011	0.00	0.00	0.00	0.00	0.00
			2012	112.47	251.97	514.49	4.27	28.00
		Skyking	2010	3,118.90	11,293.01	10,039.23	84.43	556.54
			2011	0.00	0.00	0.00	0.00	0.00
			2012	1,140.64	4,130.07	3,671.54	30.88	203.54
		Skycrane	2010	0.00	0.00	0.00	0.00	0.00
			2011	484.63	3,435.38	4,429.19	36.81	245.38
			2012	276.00	1,956.44	2,522.41	20.97	139.75

Segment 6 Totals (ton)						
2010	2.42	7.91	8.67	0.07	0.48	
2011	0.24	1.72	2.21	0.02	0.12	
2012	0.87	3.49	3.76	0.03	0.21	

SCAQMD (lbs)

		Helicopter Type	Year	HC	CO	NOx	SOx	PM
Segment 6	Wreckout	Eurocopter	2010	1,626.32	3,643.54	7,439.65	61.68	404.82
			2012	0.00	0.00	0.00	0.00	0.00
		Skyking	2010	2,027.89	7,342.65	6,527.44	54.90	361.86
			2012	0.00	0.00	0.00	0.00	0.00
		Skycrane	2010	65.76	466.17	601.02	5.00	33.30
			2012	0.00	0.00	0.00	0.00	0.00
Segment 6	Construction	Eurocopter	2010	400.37	896.98	1,831.52	15.18	99.66
			2011	1,612.03	3,611.53	7,374.30	61.14	401.26
			2012	0.00	0.00	0.00	0.00	0.00
		Skyking	2010	9,998.48	36,202.79	32,183.44	270.68	1,784.15
			2011	3,231.82	11,701.86	10,402.69	87.49	576.69
			2012	0.00	0.00	0.00	0.00	0.00
		Skycrane	2010	0.00	0.00	0.00	0.00	0.00
			2011	3,471.33	24,606.92	31,725.35	263.69	1,757.64
			2012	0.00	0.00	0.00	0.00	0.00

Segment 6 Totals (ton)						
2010	7.06	24.28	24.29	0.20	1.34	
2011	4.16	19.96	24.75	0.21	1.37	
2012	0.00	0.00	0.00	0.00	0.00	

Helicopter Trip Emissions for SCE's Alternative 6 (Segment 11)

SCAQMD

		Helicopter Type	Year	HC	CO	NOx	SOx	PM
Segment 11	Wreckout	Eurocopter	2011	81.73	183.10	373.87	3.10	20.34
			2012	607.12	1,360.17	2,777.29	23.03	151.12
		Skyking	2011	101.78	368.55	327.63	2.76	18.16
			2012	756.12	2,737.77	2,433.81	20.47	134.92
		Skycrane	2011	2.35	16.65	21.46	0.18	1.19
			2012	17.44	123.65	159.43	1.33	8.83
Segment 11	Construction	Eurocopter	2012	1,068.30	2,393.37	4,886.96	40.52	265.92
		Skyking	2012	5,974.62	21,633.08	19,231.31	161.74	1,066.12
		Skycrane	2012	1,504.22	10,662.82	13,747.42	114.26	761.63

Segment 11 Totals (ton)						
2011	0.09	0.28	0.36	0.00	0.02
2012	4.96	19.46	21.62	0.18	1.19

AVAQMD/MDAB

		Helicopter Type	Year	HC	CO	NOx	SOx	PM
Segment 11	Wreckout	Eurocopter	2011	56.96	127.61	260.57	2.16	14.18
			2012	423.14	948.00	1,935.69	16.05	105.33
		Skyking	2011	70.94	256.87	228.35	1.92	12.66
			2012	526.99	1,908.14	1,696.29	14.27	94.04
		Skycrane	2011	1.64	11.60	14.96	0.12	0.83
			2012	12.16	86.18	111.12	0.92	6.16
Segment 11	Construction	Eurocopter	2012	744.57	1,668.10	3,406.06	28.24	185.34
		Skyking	2012	4,164.13	15,077.60	13,403.64	112.73	743.05
		Skycrane	2012	1,048.40	7,431.66	9,581.53	79.64	530.83

Segment 11 Totals (ton)						
2011	0.06	0.20	0.25	0.00	0.01
2012	3.46	13.56	15.07	0.13	0.83

Total Helicopter Trip Emissions for SCE's Alternative 6 by Jurisdiction

KCAPCD

Year	HC	CO	NOx	SOx	PM
2010	0.09	0.21	0.42	0.00	0.02
2011	0.03	0.07	0.15	0.00	0.01

SCAQMD

Year	HC	CO	NOx	SOx	PM
2010	7.13	24.43	24.61	0.21	1.36
2011	4.58	20.99	26.63	0.22	1.47
2012	5.27	20.14	23.01	0.19	1.27

AVAQMD/MDAB

Year	HC	CO	NOx	SOx	PM
2010	2.46	8.01	8.87	0.07	0.49
2011	0.42	2.16	2.97	0.02	0.16
2012	4.37	17.14	19.02	0.16	1.05
2013	0.00	0.01	0.02	0.00	0.00

Alt. 6 ANF - Onroad Emissions

Alt.6 Tower Construction- ANF
Segment 6

		VMT	Emissions lbs -2009					
2009	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	25,701	25.51	248.93	25.83	0.27	2.21	1.38
	Delivery	12,850	35.84	259.08	287.42	0.34	10.35	8.90
	Heavy-Heavy Duty	4,283	14.11	54.92	179.25	0.17	8.55	7.51
		Totals	75.45	562.93	492.50	0.79	21.11	17.79

		VMT	Emissions lbs -2010					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	498,864	455.96	4,121.99	458.03	5.38	43.39	27.33
	Delivery	221,419	573.38	4,082.44	4,566.67	5.98	166.33	142.22
	Heavy-Heavy Duty	195,672	595.15	2,339.17	7,478.76	8.08	358.20	313.24
		Totals	1,624.48	10,543.59	12,503.46	19.44	567.92	482.79

		VMT	Emissions lbs -2011					
2011	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	935,988	797.77	7,733.84	790.54	10.09	83.11	52.91
	Delivery	324,394	784.61	5,492.78	6,141.97	8.85	227.39	193.60
	Heavy-Heavy Duty	140,648	393.17	1,564.66	4,860.52	5.59	233.60	203.22
		Totals	1,975.55	14,791.27	11,793.03	24.52	544.10	449.73

		VMT	Emissions lbs -2012					
2012	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	153,607	122.31	1,175.82	119.17	1.65	13.79	8.83
	Delivery	64,483	144.30	996.75	1,117.12	1.72	41.90	35.44
	Heavy-Heavy Duty	45,422	114.81	463.99	1,404.61	1.84	67.94	58.75
		Totals	381.42	2,636.56	2,640.91	5.20	123.63	103.02

Segment 6 Total in ANF	VMT	Emissions lbs					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	1,614,159.54	1,401.55	13,280.58	1,393.57	17.38	142.50	90.45
Delivery	623,146.46	1,538.12	10,831.04	12,113.18	16.89	445.97	380.16
Heavy-Heavy Duty	386,024.47	1,117.24	4,422.74	13,923.14	15.68	668.28	582.72
Totals	4,056.91	28,534.35	27,429.90	49.95	1,256.76	1,053.33	

Segment 11

2009	VMT	Emissions lbs -2009					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	56,975	56.54	551.84	57.27	0.61	4.90	3.07
Delivery	29,328	81.80	591.27	655.96	0.79	23.62	20.30
Heavy-Heavy Duty	9,776	32.19	125.35	409.08	0.39	19.51	17.13
Totals		170.53	1,268.46	1,122.31	1.79	48.03	40.50

2010	VMT	Emissions lbs -2010					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	11,179	10.22	92.37	10.26	0.12	0.97	0.61
Delivery	5,754	14.90	106.09	118.68	0.16	4.32	3.70
Heavy-Heavy Duty	1,918	5.83	22.93	73.31	0.08	3.51	3.07
Totals		30.95	221.39	202.25	0.36	8.81	7.38

2011	VMT	Emissions lbs -2011					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	70,178	59.82	579.87	59.27	0.76	6.23	3.97
Delivery	23,207	56.13	392.96	439.40	0.63	16.27	13.85
Heavy-Heavy Duty	38,265	106.97	425.69	1,322.38	1.52	63.55	55.29
Totals		222.91	1,398.51	1,821.05	2.91	86.05	73.11

2012	VMT	Emissions lbs -2012					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	680,466	541.84	5,208.79	527.92	7.30	61.10	39.12
Delivery	229,489	513.54	3,547.31	3,975.72	6.12	149.11	126.11
Heavy-Heavy Duty	143,234	362.05	1,463.17	4,429.35	5.79	214.23	185.28
Totals		1,417.43	10,219.27	8,933.00	19.21	424.44	350.52

2013	VMT	Emissions lbs -2013					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	5,289	3.94	37.51	3.76	0.06	0.48	0.31
Delivery	2,887	5.96	40.64	45.54	0.08	1.73	1.45
Heavy-Heavy Duty	2,222	5.03	20.71	60.95	0.09	2.97	2.55
Totals		14.93	98.86	110.25	0.22	5.18	4.30

Segment 11 Total in ANF	VMT	Emissions lbs					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	824,087	672.36	6,470.38	658.50	8.84	73.68	47.08
Delivery	290,665	672.32	4,678.27	5,235.29	7.77	195.06	165.41
Heavy-Heavy Duty	195,416	512.07	2,057.84	6,295.08	7.87	303.78	263.32
Totals		1,856.76	13,206.49	12,188.86	24.49	572.51	475.81

Onroad Emissions Total

ANF Totals (lbs)

	VMT	Emissions lbs					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	2,438,247	2,073.91	19,750.96	2,052.07	26.22	216.19	137.53
Delivery	913,812	2,210.45	15,509.31	17,348.47	24.67	641.03	545.57
Heavy-Heavy Duty	581,440	1,629.31	6,480.58	20,218.22	23.55	972.06	846.03
	Totals	5,913.67	41,740.84	39,618.76	74.44	1,829.27	1,529.14

ANF Totals (ton)

	VMT	Emissions ton					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	2,438,247	1.04	9.88	1.03	0.01	0.11	0.07
Delivery	913,812	1.11	7.75	8.67	0.01	0.32	0.27
Heavy-Heavy Duty	581,440	0.81	3.24	10.11	0.01	0.49	0.42
	Totals	2.96	20.87	19.81	0.04	0.91	0.76

Alt. 6 ANF - Offroad Emissions

Segment 6

2009		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	17.73	64.00	125.11	0.11	8.40
	Forklift, 5 ton	30.90	87.51	100.42	0.11	10.58
	Forklift, 10 ton	30.33	89.66	113.81	0.12	11.78
	Motor, Auxilary Power	0.43	1.75	2.84	0.00	0.17
2010 Total Emission		**79.39**	**242.93**	**342.18**	**0.34**	**30.93**

2010		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	70.83	268.44	499.55	0.48	33.81
	Forklift, 5 ton	116.12	356.41	403.25	0.46	40.96
	Forklift, 10 ton	114.45	367.22	454.00	0.50	45.59
	Motor, Auxilary Power	1.73	7.28	11.58	0.02	0.69
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	27.23	103.19	192.04	0.18	13.00
	Forklift, 5 ton	29.76	91.34	103.35	0.12	10.50
	Forklift, 10 ton	29.33	94.11	116.35	0.13	11.68
Road Maintenance	Motor Grader	5.18	19.71	34.57	0.03	2.64
	Crawler, Track Type, w/ blade (D6 Type)	6.25	23.49	49.24	0.05	2.70
Roads & Landing Work	Crawler, Track Type, w/ blade (D8 type)	431.05	1,366.55	4,069.97	3.88	164.25
	Crawler, Track Type, w/ blade (D6 Type)	188.11	706.86	1,481.89	1.38	81.39
	Backhoe w/ Bucket; backhoe w/ concrete hammer	78.13	258.64	316.58	0.36	29.83
	Excavator, Grade - All	279.47	1,240.54	2,047.45	2.29	131.63
	Motor Grader	97.50	370.74	650.27	0.64	49.58
Install Foundations	Crawler, Track Type, w/ blade (D6 Type)	39.28	147.61	309.46	0.29	17.00
	Excavator, Grade - All	38.91	172.71	285.05	0.32	18.32
	Crawler, track type, drill dig, Pheumatic D8	120.02	380.50	1,133.24	1.08	45.73
	Generator, Concrete Batch Plant	44.86	116.66	123.31	0.16	11.40
	Backhoe w/ Bucket; backhoe w/ concrete hammer	58.01	192.05	235.07	0.27	22.15
	Motor, Auxilary Power	1.54	6.48	10.30	0.01	0.61
Wreck-Out (conductors, structures, & Foundations)	Tension Machine, Conductor or Static	89.81	389.76	631.83	0.71	48.20
	Crawler, Track Type, w/ blade (D8 type)	209.83	665.22	1,981.22	1.89	79.96
	Backhoe w/ Bucket; backhoe w/ concrete hammer	405.67	1,342.99	1,643.84	1.87	154.87
	Crane, Hydraulic, Rough Terrain 35 ton	110.17	417.52	776.97	0.74	52.58
	Motor, Auxilary Power	4.04	16.98	27.01	0.04	1.61
2010 Total Emission		**2,597.28**	**9,123.01**	**17,587.39**	**17.88**	**1,070.69**

2011		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	84.25	335.67	593.75	0.60	40.53
	Forklift, 5 ton	86.71	290.40	323.27	0.38	31.44
	Forklift, 10 ton	85.78	300.55	361.25	0.42	34.97
Road Maintenance	Motor Grader	84.56	340.53	566.82	0.59	43.40
	Crawler, Track Type, w/ blade (D6 Type)	103.51	403.91	809.94	0.80	44.81
Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton	265.90	916.40	2,552.21	2.74	96.67
	Crane, Hydraulic, Rough Terrain 35 ton	549.44	2,189.12	3,872.21	3.90	264.35
	Compressor, Air	806.19	2,275.12	2,731.18	2.95	269.87
	Motor, Auxilary Power	4.52	19.55	30.46	0.04	1.78
Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	25.17	90.03	107.34	0.13	9.85
	Crane, Hydraulic, Rough Terrain 35 ton	85.71	341.47	604.02	0.61	41.24
	Crawler, Track Type, w/ blade (D8 type)	36.53	114.63	339.42	0.35	13.52
	Crawler, Track Type, Sagging (D8 type)	73.06	229.25	678.85	0.69	27.04
	Motor, Auxilary Power	3.76	16.27	25.34	0.04	1.48
	Tension machine, conductor	60.40	283.05	432.18	0.52	33.14
	Tension machine, static	20.13	94.35	144.06	0.17	11.05
Restoration & Guard Poles	Backhoe	11.44	40.92	48.79	0.06	4.48
	Motor Grader	28.41	114.41	190.45	0.20	14.58
2011 Total Emission		**2,415.45**	**8,395.65**	**14,411.52**	**15.19**	**984.20**

2012		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	35.43	148.71	249.11	0.27	16.84
	Forklift, 5 ton	34.08	125.93	137.29	0.17	12.60
	Forklift, 10 ton	33.84	130.88	152.03	0.19	13.95
Road Maintenance	Motor Grader	37.00	158.22	248.85	0.28	18.75
	Crawler, Track Type, w/ blade (D6 Type)	46.05	186.90	357.54	0.37	19.55
Install Foundations	Crawler, Track Type, w/ blade (D6 Type)	5.46	22.18	42.43	0.04	2.32
	Crawler, track type, drill dig, Pheumatic D8	16.71	52.03	152.68	0.17	5.99
	Generator, Concrete Batch Plant	5.92	16.87	18.30	0.02	1.57
	Backhoe w/ Bucket; backhoe w/ concrete hammer	7.27	28.23	32.67	0.04	2.87
	Motor, Auxilary Power	0.21	0.96	1.46	0.00	0.08
	Excavator, Grade - All	5.22	26.38	37.82	0.05	2.41
Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton	38.26	129.48	360.51	0.42	13.38
	Crane, Hydraulic, Rough Terrain 35 ton	78.82	330.84	554.21	0.59	37.47
	Compressor, Air	113.50	337.28	397.67	0.45	38.64
	Motor, Auxilary Power	0.65	2.91	4.43	0.01	0.26
Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	2.84	11.03	12.76	0.02	1.12
	Crane, Hydraulic, Rough Terrain 35 ton	10.12	42.49	71.17	0.08	4.81
	Crawler, Track Type, w/ blade (D8 type)	4.35	13.55	39.76	0.04	1.56
	Crawler, Track Type, Sagging (D8 type)	8.71	27.10	79.52	0.09	3.12
	Motor, Auxilary Power	0.45	1.99	3.04	0.00	0.18
	Tension machine, conductor	6.93	35.18	50.33	0.07	3.78
	Tension machine, static	2.31	11.73	16.78	0.02	1.26
Wreck-Out (conductors, structures, & Foundations)	Tension Machine, Conductor or Static	4.71	23.92	34.22	0.04	2.57
	Crawler, Track Type, w/ blade (D8 type)	11.84	36.85	108.15	0.12	4.24
	Backhoe w/ Bucket; backhoe w/ concrete hammer	20.59	79.99	92.56	0.12	8.15
	Crane, Hydraulic, Rough Terrain 35 ton	6.12	25.68	43.02	0.05	2.91
	Motor, Auxilary Power	0.23	1.02	1.55	0.00	0.09
Restoration & Guard Poles	Backhoe	0.95	3.68	4.25	0.01	0.37
	Motor Grader	2.44	10.43	16.41	0.02	1.24
2012 Total Emission		**540.99**	**2,022.44**	**3,320.53**	**3.73**	**222.08**

Segment 11

2009		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	39.31	141.88	277.36	0.25	18.61
	Forklift, 5 ton	68.50	194.00	222.61	0.24	23.47
	Forklift, 10 ton	67.23	198.76	252.29	0.26	26.11
	Motor, Auxilary Power	0.95	3.89	6.30	0.01	0.38
2009 Total Emission		**176.00**	**538.53**	**758.56**	**0.76**	**68.58**

2010		Annual Emissions lbs				
		ROG	CO	NOX	SOX	PM
Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	7.29	27.65	51.45	0.05	3.48
	Forklift, 5 ton	11.96	36.71	41.53	0.05	4.22
	Forklift, 10 ton	11.79	37.82	46.76	0.05	4.70
	Motor, Auxilary Power	0.18	0.75	1.19	0.00	0.07
2010 Total Emission		**31.22**	**102.92**	**140.93**	**0.15**	**12.47**

2011		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	30.59	121.86	215.55	0.22	14.72
	Forklift, 5 ton	31.48	105.43	117.36	0.14	11.42
	Forklift, 10 ton	31.14	109.11	131.15	0.15	12.69
Road Maintenance	Motor Grader	2.13	8.57	14.27	0.01	1.09
	Crawler, Track Type, w/ blade (D6 Type)	2.61	10.17	20.39	0.02	1.13
Roads & Landing Work (Road Work)	Crawler, Track Type, w/ blade (D8 type)	151.22	474.54	1,405.16	1.43	55.97
	Crawler, Track Type, w/ blade (D6 Type)	65.99	257.50	516.35	0.51	28.56
	Backhoe w/ Bucket; backhoe w/ concrete hammer	26.05	93.18	111.09	0.13	10.19
	Excavator, Grade - All	96.33	455.84	702.26	0.84	45.68
	Motor Grader	33.69	135.68	225.85	0.24	17.29
Wreck-Out (Conductors, Structures & Foundations)	Tension Machine	4.94	23.14	35.33	0.04	2.71
	Crawler, Track Type, w/ blade (D8 type)	11.95	37.49	111.00	0.11	4.42
	Backhoe w/ Bucket; backhoe w/ concrete hammer	21.95	78.51	93.61	0.11	8.59
	Crane, Hydraulic, Rough Terrain 35 ton	6.23	24.82	43.89	0.04	3.00
	Motor, Auxilary Power	0.23	1.00	1.55	0.00	0.09
2011 Total Emission		**516.51**	**1,936.84**	**3,744.83**	**4.01**	**217.55**

2012		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	3.35	14.05	23.54	0.03	1.59
	Forklift, 5 ton	4.83	17.85	19.46	0.02	1.79
	Forklift, 10 ton	4.80	18.55	21.55	0.03	1.98
	Motor, Auxilary Power	0.08	0.37	0.56	0.00	0.03
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	58.33	244.83	410.13	0.44	27.73
	Forklift, 5 ton	56.10	207.33	226.03	0.28	20.74
	Forklift, 10 ton	55.71	215.47	250.30	0.31	22.97
Road Maintenance	Motor Grader	68.71	293.82	462.13	0.52	34.82
	Crawler, Track Type, w/ blade (D6 Type)	85.51	347.10	663.98	0.69	36.31
Construct New Roads & Landing Work	Crawler, Track Type, w/ blade (D8 type)	124.47	387.45	1,137.03	1.24	44.61
	Crawler, Track Type, w/ blade (D6 Type)	54.26	220.25	421.33	0.44	23.04
	Backhoe w/ Bucket; backhoe w/ concrete hammer	20.29	78.84	91.23	0.11	8.03
	Excavator, Grade - All	77.77	392.95	563.28	0.73	35.84
	Motor Grader	27.25	116.53	183.28	0.20	13.81
Install Foundations	Crawler, Track Type, w/ blade (D6 Type)	22.93	93.05	178.01	0.19	9.74
	Crawler, track type, drill dig, Pheumatic D8	70.12	218.26	640.52	0.70	25.13
	Generator, Concrete Batch Plant	24.83	70.79	76.79	0.10	6.59
	Backhoe w/ Bucket; backhoe w/ concrete hammer	30.48	118.43	137.05	0.17	12.06
	Motor, Auxilary Power	0.90	4.02	6.11	0.01	0.35
	Excavator, Grade - All	21.91	110.68	158.66	0.21	10.10
Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton	146.45	495.66	1,380.04	1.60	51.20
	Crane, Hydraulic, Rough Terrain 35 ton	301.72	1,266.44	2,121.49	2.27	143.43
	Compressor, Air	434.47	1,291.10	1,522.26	1.71	147.90
	Motor, Auxilary Power	2.50	11.15	16.97	0.03	0.98
Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	12.98	50.43	58.36	0.07	5.14
	Crane, Hydraulic, Rough Terrain 35 ton	46.29	194.31	325.50	0.35	22.01
	Crawler, Track Type, w/ blade (D8 type)	19.91	61.96	181.84	0.20	7.13
	Crawler, Track Type, Sagging (D8 type)	39.81	123.93	363.69	0.40	14.27
	Motor, Auxilary Power	2.05	9.12	13.89	0.02	0.80
	Tension machine, conductor	31.69	160.90	230.16	0.30	17.28
	Tension machine, static	10.56	53.63	76.72	0.10	5.76
Wreck-Out (conductors, structures, & Foundations)	Tension Machine, Conductor or Static	30.78	156.30	223.57	0.29	16.79
	Crawler, Track Type, w/ blade (D8 type)	77.34	240.76	706.55	0.77	27.72
	Backhoe w/ Bucket; backhoe w/ concrete hammer	134.49	522.57	604.72	0.76	53.21
	Crane, Hydraulic, Rough Terrain 35 ton	39.97	167.77	281.05	0.30	19.00
	Motor, Auxilary Power	1.49	6.65	10.12	0.02	0.58
Restoration & Guard Poles	Backhoe	3.97	15.44	17.87	0.02	1.57
	Motor Grader	10.25	43.81	68.91	0.08	5.19
2012 Total Emission		**2,159.36**	**8,042.58**	**13,874.68**	**15.68**	**877.23**

2013		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	0.28	1.20	1.34	0.00	0.11
	Crane, Hydraulic, Rough Terrain 35 ton	1.06	4.71	7.47	0.01	0.50
	Crawler, Track Type, w/ blade (D8 type)	0.46	1.43	4.15	0.00	0.16
	Crawler, Track Type, Sagging (D8 type)	0.92	2.86	8.29	0.01	0.32
	Motor, Auxilary Power	0.05	0.22	0.32	0.00	0.02
	Tension machine, conductor	0.71	3.90	5.23	0.01	0.38
	Tension machine, static	0.24	1.30	1.74	0.00	0.13
Restoration & Guard Poles	Backhoe	3.07	13.00	14.42	0.02	1.20
	Motor Grader	8.23	37.42	55.59	0.07	4.08
2013 Total Emission		**15.03**	**66.04**	**98.54**	**0.12**	**6.89**

Alt. 6 ANF - Helicopter Emissions

Hughes 500 Emissions (tons)

		HC	CO	NOx	SOx	PM
Segment 6	2011	0.090	0.201	0.410	0.003	0.022
	2012	0.011	0.025	0.051	0.000	0.003
Segment 11	2011	0.000	0.000	0.000	0.000	0.000
	2012	0.029	0.065	0.133	0.001	0.007
	2013	0.001	0.002	0.003	0.000	0.000

Segment 6
Total Emissions (lbs)

Helicopter Type	Year	HC	CO	NOx	SOx	PM
Eurocopter (personnel)	2010	3278.45	7344.90	14997.37	124.34	816.07
	2011	1,612.03	3,611.53	7,374.30	61.14	401.26
	2012	203.91	456.83	932.79	7.73	50.76
Skyking (foundation)	2010	15,592.62	56,458.18	50,190.02	422.12	2,782.37
	2011	3,231.82	11,701.86	10,402.69	87.49	576.69
	2012	1,254.66	4,542.92	4,038.55	33.97	223.88
Skycrane (tower)	2010	80.27	569.00	733.61	6.10	40.64
	2011	3,955.97	28,042.30	36,154.54	300.50	2,003.02
	2012	279.70	1,982.65	2,556.20	21.25	141.62

Segment 6
Total Emissions (ton)

Helicopter Type	Year	HC	CO	NOx	SOx	PM
Eurocopter (personnel)	2010	1.64	3.67	7.50	0.06	0.41
	2011	0.81	1.81	3.69	0.03	0.20
	2012	0.10	0.23	0.47	0.00	0.03
Skyking (foundation)	2010	7.80	28.23	25.10	0.21	1.39
	2011	1.62	5.85	5.20	0.04	0.29
	2012	0.63	2.27	2.02	0.02	0.11
Skycrane (tower)	2010	0.04	0.28	0.37	0.00	0.02
	2011	1.98	14.02	18.08	0.15	1.00
	2012	0.14	0.99	1.28	0.01	0.07

Segment 11
Total Emissions (lbs)

Helicopter Type	Year	HC	CO	NOx	SOx	PM
Eurocopter	2011	138.69	310.71	634.44	5.26	34.52
	2012	2,843.13	6,369.64	13,006.00	107.83	707.71
Skyking	2011	172.73	625.41	555.98	4.68	30.82
	2012	11,421.86	41,356.60	36,765.06	309.21	2,038.14
Skycrane	2011	3.98	28.25	36.42	0.30	2.02
	2012	2,582.22	18,304.32	23,599.49	196.15	1,307.45

Segment 11
Total Emissions (ton)

Helicopter Type	Year	HC	CO	NOx	SOx	PM
Eurocopter	2011	0.07	0.16	0.32	0.00	0.02
	2012	1.42	3.18	6.50	0.05	0.35
Skyking	2011	0.09	0.31	0.28	0.00	0.02
	2012	5.71	20.68	18.38	0.15	1.02
Skycrane	2011	0.00	0.01	0.02	0.00	0.00
	2012	1.29	9.15	11.80	0.10	0.65

Total ANF Helicopter Emissions (ton)

Year	HC	CO	NOx	SOx	PM
2010	9.48	32.19	32.96	0.28	1.82
2011	4.65	22.36	27.99	0.23	1.55
2012	9.33	36.60	40.63	0.34	2.24
2013	0.00	0.00	0.00	0.00	0.00

Alt. 6 ANF - SCAQMD - Onroad Emissions

Proposed Tower Construction- ANF
Segment 6

		VMT	Emissions lbs -2009					
2009	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	0	0.00	0.00	0.00	0.00	0.00	0.00
	Delivery	0	0.00	0.00	0.00	0.00	0.00	0.00
	Heavy-Heavy Duty	0	0.00	0.00	0.00	0.00	0.00	0.00
		Totals	0.00	0.00	0.00	0.00	0.00	0.00

		VMT	Emissions lbs -2010					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	376,849	344.44	3,113.81	346.00	4.06	32.78	20.64
	Delivery	171,041	442.92	3,153.59	3,527.65	4.62	128.49	109.86
	Heavy-Heavy Duty	142,552	433.58	1,704.15	5,448.48	5.89	260.96	228.20
		Totals	1,220.94	7,971.54	9,322.13	14.57	422.22	358.71

		VMT	Emissions lbs -2011					
2011	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	717,312	611.39	5,926.97	605.84	7.73	63.69	40.55
	Delivery	247,353	598.27	4,188.28	4,683.29	6.75	173.39	147.62
	Heavy-Heavy Duty	106,090	296.57	1,180.22	3,666.28	4.21	176.20	153.29
		Totals	1,506.22	11,295.47	8,955.42	18.69	413.28	341.46

		VMT	Emissions lbs -2012					
2012	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	48,080	38.29	368.04	37.30	0.52	4.32	2.76
	Delivery	16,754	37.49	258.97	290.24	0.45	10.89	9.21
	Heavy-Heavy Duty	26,204	66.23	267.68	810.32	1.06	39.19	33.90
		Totals	142.01	894.68	1,137.86	2.02	54.39	45.87

Segment 6 Total in ANF	VMT	Emissions lbs					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	1,142,240	994.11	9,408.82	989.15	12.31	100.79	63.95
Delivery	435,147	1,078.68	7,600.84	8,501.18	11.81	312.76	266.70
Heavy-Heavy Duty	274,846	796.38	3,152.04	9,925.08	11.16	476.35	415.38
	Totals	2,869.17	20,161.69	19,415.41	35.28	889.90	746.04

Segment 11

		VMT	Emissions lbs -2009					
2009	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	45,094	44.75	436.76	45.33	0.48	3.88	2.43
	Delivery	23,212	64.74	467.98	519.17	0.62	18.70	16.07
	Heavy-Heavy Duty	7,737	25.48	99.21	323.78	0.31	15.44	13.56
		Totals	134.97	1,003.95	888.28	1.41	38.02	32.06

		VMT	Emissions lbs -2010					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	0	0.00	0.00	0.00	0.00	0.00	0.00
	Delivery	0	0.00	0.00	0.00	0.00	0.00	0.00
	Heavy-Heavy Duty	0	0.00	0.00	0.00	0.00	0.00	0.00
		Totals	0.00	0.00	0.00	0.00	0.00	0.00

		VMT	Emissions lbs -2011					
2011	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	70,178	59.82	579.87	59.27	0.76	6.23	3.97
	Delivery	23,207	56.13	392.96	439.40	0.63	16.27	13.85
	Heavy-Heavy Duty	38,265	106.97	425.69	1,322.38	1.52	63.55	55.29
		Totals	222.91	1,398.51	1,821.05	2.91	86.05	73.11

		VMT	Emissions lbs -2012					
2012	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	381,818	304.03	2,922.72	296.23	4.10	34.28	21.95
	Delivery	127,441	285.18	1,969.90	2,207.81	3.40	82.80	70.03
	Heavy-Heavy Duty	69,685	176.14	711.84	2,154.91	2.82	104.22	90.14
		Totals	765.35	5,604.46	4,658.95	10.31	221.31	182.13

		VMT	Emissions lbs -2013					
2013	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	2,041	1.52	14.47	1.45	0.02	0.19	0.12
	Delivery	1,501	3.10	21.13	23.67	0.04	0.90	0.75
	Heavy-Heavy Duty	1,501	3.40	13.98	41.16	0.06	2.01	1.72
		Totals	8.01	49.58	66.29	0.12	3.09	2.59

Segment 11 Total in ANF	VMT	Emissions lbs					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	499,131	410.12	3,953.82	402.28	5.36	44.58	28.47
Delivery	175,361	409.15	2,851.96	3,190.05	4.69	118.67	100.71
Heavy-Heavy Duty	117,188	311.98	1,250.73	3,842.23	4.71	185.23	160.71
Totals		1,131.25	8,056.51	7,434.56	14.76	348.47	289.88

Onroad Emissions Total

ANF Totals (lbs)

	VMT	Emissions lbs					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	1,641,371	1,404.23	13,362.64	1,391.42	17.66	145.37	92.42
Delivery	610,508	1,487.83	10,452.79	11,691.23	16.51	431.43	367.40
Heavy-Heavy Duty	392,034	1,108.37	4,402.76	13,767.31	15.87	661.58	576.09
	Totals	4,000.43	28,218.20	26,849.97	50.04	1,238.38	1,035.92

ANF Totals (ton)

	VMT	Emissions ton					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	1,641,371	0.70	6.68	0.70	0.01	0.07	0.05
Delivery	610,508	0.74	5.23	5.85	0.01	0.22	0.18
Heavy-Heavy Duty	392,034	0.55	2.20	6.88	0.01	0.33	0.29
	Totals	2.00	14.11	13.42	0.03	0.62	0.52

Alt. 6 ANF - SCAQMD - Offroad Emissions

Segment 6

2009		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	0.00	0.00	0.00	0.00	0.00
	Forklift, 5 ton	0.00	0.00	0.00	0.00	0.00
	Forklift, 10 ton	0.00	0.00	0.00	0.00	0.00
	Motor, Auxilary Power	0.00	0.00	0.00	0.00	0.00
2009 Total Emission		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2010		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	61.74	233.98	435.43	0.41	29.47
	Forklift, 5 ton	101.21	310.66	351.49	0.40	35.70
	Forklift, 10 ton	99.76	320.08	395.73	0.44	39.74
	Motor, Auxilary Power	1.51	6.35	10.09	0.01	0.60
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	0.00	0.00	0.00	0.00	0.00
	Forklift, 5 ton	0.00	0.00	0.00	0.00	0.00
	Forklift, 10 ton	0.00	0.00	0.00	0.00	0.00
Road Maintenance	Motor Grader	0.00	0.00	0.00	0.00	0.00
	Crawler, Track Type, w/ blade (D6 Type)	0.00	0.00	0.00	0.00	0.00
Roads & Landing Work	Crawler, Track Type, w/ blade (D8 type)	332.27	1,053.38	3,137.27	2.99	126.61
	Crawler, Track Type, w/ blade (D6 Type)	145.00	544.87	1,142.29	1.06	62.74
	Backhoe w/ Bucket; backhoe w/ concrete hammer	60.22	199.37	244.03	0.28	22.99
	Excavator, Grade - All	215.42	956.25	1,578.24	1.76	101.46
	Motor Grader	75.15	285.78	501.25	0.49	38.22
Install Foundations	Crawler, Track Type, w/ blade (D6 Type)	30.28	113.79	238.54	0.22	13.10
	Excavator, Grade - All	29.99	133.13	219.72	0.25	14.13
	Crawler, track type, drill dig, Pheumatic D8	92.52	293.30	873.54	0.83	35.25
	Generator, Concrete Batch Plant	34.58	89.92	95.05	0.12	8.79
	Backhoe w/ Bucket; backhoe w/ concrete hammer	44.72	148.04	181.20	0.21	17.07
	Motor, Auxilary Power	1.19	4.99	7.94	0.01	0.47
Wreck-Out (conductors, structures, & Foundations)	Tension Machine, Conductor or Static	69.23	300.44	487.03	0.55	37.16
	Crawler, Track Type, w/ blade (D8 type)	161.74	512.77	1,527.19	1.46	61.63
	Backhoe w/ Bucket; backhoe w/ concrete hammer	312.71	1,035.22	1,267.13	1.44	119.38
	Crane, Hydraulic, Rough Terrain 35 ton	84.92	321.84	598.92	0.57	40.53
	Motor, Auxilary Power	3.11	13.09	20.82	0.03	1.24
2010 Total Emission		**1,957.27**	**6,877.27**	**13,312.91**	**13.54**	**806.29**

2011		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	66.43	264.69	468.19	0.47	31.96
	Forklift, 5 ton	68.37	228.99	254.91	0.30	24.80
	Forklift, 10 ton	67.64	236.99	284.86	0.33	27.57
Road Maintenance	Motor Grader	51.34	206.77	344.18	0.36	26.35
	Crawler, Track Type, w/ blade (D6 Type)	62.85	245.25	491.80	0.48	27.21
Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton	204.96	706.39	1,967.33	2.12	74.52
	Crane, Hydraulic, Rough Terrain 35 ton	423.52	1,687.44	2,984.83	3.01	203.77
	Compressor, Air	621.44	1,753.74	2,105.28	2.27	208.03
	Motor, Auxilary Power	3.48	15.07	23.48	0.03	1.38
Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	19.40	69.40	82.74	0.10	7.59
	Crane, Hydraulic, Rough Terrain 35 ton	66.06	263.22	465.60	0.47	31.79
	Crawler, Track Type, w/ blade (D8 type)	28.16	88.36	261.64	0.27	10.42
	Crawler, Track Type, Sagging (D8 type)	56.31	176.72	523.28	0.53	20.84
	Motor, Auxilary Power	2.90	12.54	19.53	0.03	1.14
	Tension machine, conductor	46.56	218.19	333.14	0.40	25.55
	Tension machine, static	15.52	72.73	111.05	0.13	8.52
Restoration & Guard Poles	Backhoe	8.82	31.55	37.61	0.04	3.45
	Motor Grader	21.90	88.19	146.80	0.15	11.24
2011 Total Emission		**1,835.68**	**6,366.23**	**10,906.23**	**11.50**	**746.12**

2012		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	35.43	148.71	249.11	0.27	16.84
	Forklift, 5 ton	34.08	125.93	137.29	0.17	12.60
	Forklift, 10 ton	33.84	130.88	152.03	0.19	13.95
Road Maintenance	Motor Grader	37.00	158.22	248.85	0.28	18.75
	Crawler, Track Type, w/ blade (D6 Type)	46.05	186.90	357.54	0.37	19.55
Install Foundations	Crawler, Track Type, w/ blade (D6 Type)	0.00	0.00	0.00	0.00	0.00
	Crawler, track type, drill dig, Pheumatic D8	0.00	0.00	0.00	0.00	0.00
	Generator, Concrete Batch Plant	0.00	0.00	0.00	0.00	0.00
	Backhoe w/ Bucket; backhoe w/ concrete hammer	0.00	0.00	0.00	0.00	0.00
	Motor, Auxilary Power	0.00	0.00	0.00	0.00	0.00
	Excavator, Grade - All	0.00	0.00	0.00	0.00	0.00
Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton	0.00	0.00	0.00	0.00	0.00
	Crane, Hydraulic, Rough Terrain 35 ton	0.00	0.00	0.00	0.00	0.00
	Compressor, Air	0.00	0.00	0.00	0.00	0.00
	Motor, Auxilary Power	0.00	0.00	0.00	0.00	0.00
Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	0.00	0.00	0.00	0.00	0.00
	Crane, Hydraulic, Rough Terrain 35 ton	0.00	0.00	0.00	0.00	0.00
	Crawler, Track Type, w/ blade (D8 type)	0.00	0.00	0.00	0.00	0.00
	Crawler, Track Type, Sagging (D8 type)	0.00	0.00	0.00	0.00	0.00
	Motor, Auxilary Power	0.00	0.00	0.00	0.00	0.00
	Tension machine, conductor	0.00	0.00	0.00	0.00	0.00
	Tension machine, static	0.00	0.00	0.00	0.00	0.00
Wreck-Out (conductors, structures, & Foundations)	Tension Machine, Conductor or Static	0.00	0.00	0.00	0.00	0.00
	Crawler, Track Type, w/ blade (D8 type)	0.00	0.00	0.00	0.00	0.00
	Backhoe w/ Bucket; backhoe w/ concrete hammer	0.00	0.00	0.00	0.00	0.00
	Crane, Hydraulic, Rough Terrain 35 ton	0.00	0.00	0.00	0.00	0.00
	Motor, Auxilary Power	0.00	0.00	0.00	0.00	0.00
Restoration & Guard Poles	Backhoe	0.00	0.00	0.00	0.00	0.00
	Motor Grader	0.00	0.00	0.00	0.00	0.00
2012 Total Emission		**186.39**	**750.63**	**1,144.81**	**1.27**	**81.69**

nent 11 2009		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	31.11	112.30	219.52	0.20	14.73
	Forklift, 5 ton	54.22	153.55	176.19	0.19	18.57
	Forklift, 10 ton	53.21	157.31	199.68	0.21	20.67
	Motor, Auxilary Power	0.75	3.08	4.99	0.01	0.30
2009 Total Emission		**139.30**	**426.23**	**600.38**	**0.60**	**54.28**

2010		Annual Emissions lbs				
		ROG	CO	NOX	SOX	PM
Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	0.00	0.00	0.00	0.00	0.00
	Forklift, 5 ton	0.00	0.00	0.00	0.00	0.00
	Forklift, 10 ton	0.00	0.00	0.00	0.00	0.00
	Motor, Auxilary Power	0.00	0.00	0.00	0.00	0.00
2010 Total Emission		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2011		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	30.59	121.86	215.55	0.22	14.72
	Forklift, 5 ton	31.48	105.43	117.36	0.14	11.42
	Forklift, 10 ton	31.14	109.11	131.15	0.15	12.69
Road Maintenance	Motor Grader	2.13	8.57	14.27	0.01	1.09
	Crawler, Track Type, w/ blade (D6 Type)	2.61	10.17	20.39	0.02	1.13
Roads & Landing Work (Road Work)	Crawler, Track Type, w/ blade (D8 type)	151.22	474.54	1,405.16	1.43	55.97
	Crawler, Track Type, w/ blade (D6 Type)	65.99	257.50	516.35	0.51	28.56
	Backhoe w/ Bucket; backhoe w/ concrete hammer	26.05	93.18	111.09	0.13	10.19
	Excavator, Grade - All	96.33	455.84	702.26	0.84	45.68
	Motor Grader	33.69	135.68	225.85	0.24	17.29
Wreck-Out (Conductors, Structures & Foundations)	Tension Machine	4.94	23.14	35.33	0.04	2.71
	Crawler, Track Type, w/ blade (D8 type)	11.95	37.49	111.00	0.11	4.42
	Backhoe w/ Bucket; backhoe w/ concrete hammer	21.95	78.51	93.61	0.11	8.59
	Crane, Hydraulic, Rough Terrain 35 ton	6.23	24.82	43.89	0.04	3.00
	Motor, Auxilary Power	0.23	1.00	1.55	0.00	0.09
2011 Total Emission		**516.51**	**1,936.84**	**3,744.83**	**4.01**	**217.55**

2012		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	0.00	0.00	0.00	0.00	0.00
	Forklift, 5 ton	0.00	0.00	0.00	0.00	0.00
	Forklift, 10 ton	0.00	0.00	0.00	0.00	0.00
	Motor, Auxilary Power	0.00	0.00	0.00	0.00	0.00
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	24.34	102.15	171.12	0.18	11.57
	Forklift, 5 ton	23.41	86.51	94.31	0.12	8.65
	Forklift, 10 ton	23.25	89.90	104.44	0.13	9.58
Road Maintenance	Motor Grader	41.15	175.96	276.75	0.31	20.85
	Crawler, Track Type, w/ blade (D6 Type)	51.21	207.86	397.64	0.41	21.75
Construct New Roads & Landing Work	Crawler, Track Type, w/ blade (D8 type)	15.13	47.11	138.25	0.15	5.42
	Crawler, Track Type, w/ blade (D6 Type)	6.60	26.78	51.23	0.05	2.80
	Backhoe w/ Bucket; backhoe w/ concrete hammer	2.47	9.59	11.09	0.01	0.98
	Excavator, Grade - All	9.46	47.78	68.49	0.09	4.36
	Motor Grader	3.31	14.17	22.28	0.02	1.68
Install Foundations	Crawler, Track Type, w/ blade (D6 Type)	13.99	56.78	108.62	0.11	5.94
	Crawler, track type, drill dig, Pheumatic D8	42.78	133.18	390.83	0.43	15.33
	Generator, Concrete Batch Plant	15.15	43.19	46.85	0.06	4.02
	Backhoe w/ Bucket; backhoe w/ concrete hammer	18.60	72.26	83.62	0.11	7.36
	Motor, Auxilary Power	0.55	2.45	3.73	0.01	0.22
	Excavator, Grade - All	13.37	67.53	96.81	0.13	6.16
Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton	89.36	302.44	842.06	0.97	31.24
	Crane, Hydraulic, Rough Terrain 35 ton	184.10	772.74	1,294.47	1.38	87.52
	Compressor, Air	265.10	787.79	928.84	1.05	90.25
	Motor, Auxilary Power	1.53	6.80	10.35	0.02	0.60
Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	8.11	31.52	36.48	0.05	3.21
	Crane, Hydraulic, Rough Terrain 35 ton	28.94	121.45	203.45	0.22	13.76
	Crawler, Track Type, w/ blade (D8 type)	12.44	38.73	113.66	0.12	4.46
	Crawler, Track Type, Sagging (D8 type)	24.88	77.46	227.32	0.25	8.92
	Motor, Auxilary Power	1.28	5.70	8.68	0.01	0.50
	Tension machine, conductor	19.81	100.57	143.86	0.19	10.80
	Tension machine, static	6.60	33.52	47.95	0.06	3.60
Wreck-Out (conductors, structures, & Foundations)	Tension Machine, Conductor or Static	17.02	86.41	123.60	0.16	9.28
	Crawler, Track Type, w/ blade (D8 type)	42.76	133.10	390.61	0.42	15.32
	Backhoe w/ Bucket; backhoe w/ concrete hammer	74.35	288.89	334.31	0.42	29.42
	Crane, Hydraulic, Rough Terrain 35 ton	22.10	92.75	155.37	0.17	10.50
	Motor, Auxilary Power	0.82	3.67	5.59	0.01	0.32
Restoration & Guard Poles	Backhoe	0.00	0.00	0.00	0.00	0.00
	Motor Grader	0.00	0.00	0.00	0.00	0.00
2012 Total Emission		**1,103.96**	**4,066.77**	**6,932.66**	**7.82**	**446.38**

2013		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	0.00	0.00	0.00	0.00	0.00
	Crane, Hydraulic, Rough Terrain 35 ton	0.00	0.00	0.00	0.00	0.00
	Crawler, Track Type, w/ blade (D8 type)	0.00	0.00	0.00	0.00	0.00
	Crawler, Track Type, Sagging (D8 type)	0.00	0.00	0.00	0.00	0.00
	Motor, Auxilary Power	0.00	0.00	0.00	0.00	0.00
	Tension machine, conductor	0.00	0.00	0.00	0.00	0.00
	Tension machine, static	0.00	0.00	0.00	0.00	0.00
Restoration & Guard Poles	Backhoe	2.59	10.97	12.16	0.02	1.01
	Motor Grader	6.95	31.57	46.90	0.06	3.44
2013 Total Emission		**9.54**	**42.54**	**59.06**	**0.07**	**4.45**

Alt. 6 ANF - SCAQMD - Helicopter Emissions

Hughes 500

	Year	HC	CO	NOx	SOx	PM
Segment 6	2011	0.069	0.155	0.316	0.003	0.017
	2012	0.000	0.000	0.000	0.000	0.000
Segment 11	2011	0.000	0.000	0.000	0.000	0.000
	2012	0.018	0.041	0.083	0.001	0.005
	2013	0.000	0.000	0.000	0.000	0.000

Segment 6
Total Emissions (ton)

	Year	HC	CO	NOx	SOx	PM
Total	2010	7.06	24.28	24.29	0.20	1.34
	2011	4.16	19.96	24.75	0.21	1.37
	2012	0.00	0.00	0.00	0.00	0.00

Segment 11
Total Emissions (ton)

	Year	HC	CO	NOx	SOx	PM
Total	2011	0.09	0.28	0.36	0.00	0.02
	2012	4.96	19.46	21.62	0.18	1.19

Total ANF Helicopter Emissions (ton)

Year	HC	CO	NOx	SOx	PM
2010	7.06	24.28	24.29	0.20	1.34
2011	4.32	20.40	25.43	0.21	1.40
2012	4.98	19.50	21.70	0.18	1.20
2013	0.00	0.00	0.00	0.00	0.00

Alt. 6 ANF - AVAQMD/MDAB - Onroad Emissions

Proposed Tower Construction- ANF
Segment 6

		VMT	Emissions lbs -2009					
2009	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	25,701	25.51	248.93	25.83	0.27	2.21	1.38
	Delivery	12,850	35.84	259.08	287.42	0.34	10.35	8.90
	Heavy-Heavy Duty	4,283	14.11	54.92	179.25	0.17	8.55	7.51
		Totals	75.45	562.93	492.50	0.79	21.11	17.79

		VMT	Emissions lbs -2010					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	122,015	111.52	1,008.18	112.03	1.31	10.61	6.68
	Delivery	50,378	130.46	928.85	1,039.02	1.36	37.84	32.36
	Heavy-Heavy Duty	53,120	161.57	635.02	2,030.28	2.19	97.24	85.04
		Totals	403.54	2,572.05	3,181.34	4.87	145.70	124.08

		VMT	Emissions lbs -2011					
2011	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	218,676	186.38	1,806.87	184.69	2.36	19.42	12.36
	Delivery	77,041	186.34	1,304.50	1,458.68	2.10	54.00	45.98
	Heavy-Heavy Duty	34,558	96.60	384.44	1,194.24	1.37	57.40	49.93
		Totals	469.33	3,495.80	2,837.61	5.83	130.82	108.27

		VMT	Emissions lbs -2012					
2012	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	105,527	84.03	807.78	81.87	1.13	9.48	6.07
	Delivery	47,730	106.81	737.78	826.88	1.27	31.01	26.23
	Heavy-Heavy Duty	19,218	48.58	196.31	594.29	0.78	28.74	24.86
		Totals	239.41	1,741.87	1,503.04	3.18	69.23	57.16

Segment 6 Total in ANF	VMT	Emissions lbs					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	471,919	407.44	3,871.76	404.43	5.08	41.72	26.50
Delivery	187,999	459.44	3,230.20	3,612.00	5.08	133.21	113.46
Heavy-Heavy Duty	111,179	320.85	1,270.70	3,998.06	4.52	191.93	167.33
	Totals	1,187.74	8,372.66	8,014.49	14.67	366.86	307.29

Segment 11

		VMT	Emissions lbs -2009					
2009	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	11,881	11.79	115.07	11.94	0.13	1.02	0.64
	Delivery	6,116	17.06	123.30	136.79	0.16	4.93	4.23
	Heavy-Heavy Duty	2,039	6.71	26.14	85.31	0.08	4.07	3.57
	Totals		35.56	264.51	234.03	0.37	10.02	8.45

		VMT	Emissions lbs -2010					
2010	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	11,179	10.22	92.37	10.26	0.12	0.97	0.61
	Delivery	5,754	14.90	106.09	118.68	0.16	4.32	3.70
	Heavy-Heavy Duty	1,918	5.83	22.93	73.31	0.08	3.51	3.07
	Totals		30.95	221.39	202.25	0.36	8.81	7.38

		VMT	Emissions lbs -2011					
2011	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	0	0.00	0.00	0.00	0.00	0.00	0.00
	Delivery	0	0.00	0.00	0.00	0.00	0.00	0.00
	Heavy-Heavy Duty	0	0.00	0.00	0.00	0.00	0.00	0.00
	Totals		0.00	0.00	0.00	0.00	0.00	0.00

		VMT	Emissions lbs -2012					
2012	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	298,648	237.81	2,286.08	231.70	3.20	26.82	17.17
	Delivery	102,048	228.36	1,577.40	1,767.91	2.72	66.31	56.08
	Heavy-Heavy Duty	73,550	185.91	751.33	2,274.44	2.97	110.01	95.14
	Totals		652.07	4,614.80	4,274.05	8.90	203.13	168.39

		VMT	Emissions lbs -2013					
2013	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	3,249	2.42	23.04	2.31	0.03	0.29	0.19
	Delivery	1,386	2.86	19.52	21.87	0.04	0.83	0.70
	Heavy-Heavy Duty	721	1.63	6.72	19.79	0.03	0.96	0.83
	Totals		6.92	49.28	43.97	0.10	2.09	1.71

Segment 11 Total in ANF	VMT	Emissions lbs					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	324,956	262.24	2,516.56	256.22	3.49	29.10	18.61
Delivery	115,305	263.18	1,826.31	2,045.24	3.08	76.39	64.70
Heavy-Heavy Duty	78,228	200.09	807.12	2,452.85	3.16	118.55	102.61
Totals		725.50	5,149.98	4,754.30	9.73	224.04	185.93

Onroad Emissions Total

ANF Totals (lbs)

	VMT	Emissions lbs					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	796,875	669.68	6,388.32	660.64	8.56	70.82	45.11
Delivery	303,304	722.62	5,056.51	5,657.24	8.16	209.60	178.17
Heavy-Heavy Duty	189,406	520.94	2,077.82	6,450.91	7.68	310.48	269.94
	Totals	1,913.24	13,522.64	12,768.79	24.40	590.90	493.22

ANF Totals (ton)

	VMT	Emissions ton					
Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
Passenger	796,875	0.33	3.19	0.33	0.00	0.04	0.02
Delivery	303,304	0.36	2.53	2.83	0.00	0.10	0.09
Heavy-Heavy Duty	189,406	0.26	1.04	3.23	0.00	0.16	0.13
	Totals	0.96	6.76	6.38	0.01	0.30	0.25

Alt. 6 ANF - AVAQMD/MDAB - Offroad Emissions

Segment 6

2009		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	17.73	64.00	125.11	0.11	8.40
	Forklift, 5 ton	30.90	87.51	100.42	0.11	10.58
	Forklift, 10 ton	30.33	89.66	113.81	0.12	11.78
	Motor, Auxilary Power	0.43	1.75	2.84	0.00	0.17
2009 Total Emission		**79.39**	**242.93**	**342.18**	**0.34**	**30.93**

2010		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	9.09	34.46	64.12	0.06	4.34
	Forklift, 5 ton	14.91	45.75	51.76	0.06	5.26
	Forklift, 10 ton	14.69	47.14	58.28	0.06	5.85
	Motor, Auxilary Power	0.22	0.93	1.49	0.00	0.09
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	27.23	103.19	192.04	0.18	13.00
	Forklift, 5 ton	29.76	91.34	103.35	0.12	10.50
	Forklift, 10 ton	29.33	94.11	116.35	0.13	11.68
Road Maintenance	Motor Grader	5.18	19.71	34.57	0.03	2.64
	Crawler, Track Type, w/ blade (D6 Type)	6.25	23.49	49.24	0.05	2.70
Roads & Landing Work	Crawler, Track Type, w/ blade (D8 type)	98.78	313.17	932.70	0.89	37.64
	Crawler, Track Type, w/ blade (D6 Type)	43.11	161.99	339.60	0.32	18.65
	Backhoe w/ Bucket; backhoe w/ concrete hammer	17.90	59.27	72.55	0.08	6.84
	Excavator, Grade - All	64.05	284.29	469.21	0.52	30.16
	Motor Grader	22.34	84.96	149.02	0.15	11.36
Install Foundations	Crawler, Track Type, w/ blade (D6 Type)	9.00	33.83	70.92	0.07	3.90
	Excavator, Grade - All	8.92	39.58	65.32	0.07	4.20
	Crawler, track type, drill dig, Pheumatic D8	27.50	87.20	259.70	0.25	10.48
	Generator, Concrete Batch Plant	10.28	26.73	28.26	0.04	2.61
	Backhoe w/ Bucket; backhoe w/ concrete hammer	13.29	44.01	53.87	0.06	5.08
	Motor, Auxilary Power	0.35	1.48	2.36	0.00	0.14
Wreck-Out (conductors, structures, & Foundations)	Tension Machine, Conductor or Static	20.58	89.32	144.79	0.16	11.05
	Crawler, Track Type, w/ blade (D8 type)	48.09	152.45	454.03	0.43	18.32
	Backhoe w/ Bucket; backhoe w/ concrete hammer	92.97	307.77	376.71	0.43	35.49
	Crane, Hydraulic, Rough Terrain 35 ton	25.25	95.68	178.06	0.17	12.05
	Motor, Auxilary Power	0.92	3.89	6.19	0.01	0.37
2010 Total Emission		**640.00**	**2,245.74**	**4,274.48**	**4.34**	**264.40**

2011		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	17.82	70.98	125.56	0.13	8.57
	Forklift, 5 ton	18.34	61.41	68.36	0.08	6.65
	Forklift, 10 ton	18.14	63.56	76.39	0.09	7.39
Road Maintenance	Motor Grader	33.21	133.76	222.64	0.23	17.05
	Crawler, Track Type, w/ blade (D6 Type)	40.66	158.65	318.14	0.31	17.60
Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton	60.93	210.01	584.88	0.63	22.15
	Crane, Hydraulic, Rough Terrain 35 ton	125.91	501.67	887.38	0.89	60.58
	Compressor, Air	184.75	521.38	625.89	0.68	61.85
	Motor, Auxilary Power	1.03	4.48	6.98	0.01	0.41
Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	5.77	20.63	24.60	0.03	2.26
	Crane, Hydraulic, Rough Terrain 35 ton	19.64	78.25	138.42	0.14	9.45
	Crawler, Track Type, w/ blade (D8 type)	8.37	26.27	77.78	0.08	3.10
	Crawler, Track Type, Sagging (D8 type)	16.74	52.54	155.57	0.16	6.20
	Motor, Auxilary Power	0.86	3.73	5.81	0.01	0.34
	Tension machine, conductor	13.84	64.87	99.04	0.12	7.60
	Tension machine, static	4.61	21.62	33.01	0.04	2.53
Restoration & Guard Poles	Backhoe	2.62	9.38	11.18	0.01	1.03
	Motor Grader	6.51	26.22	43.64	0.05	3.34
2011 Total Emission		**579.77**	**2,029.42**	**3,505.30**	**3.68**	**238.09**

2012		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	0.00	0.00	0.00	0.00	0.00
	Forklift, 5 ton	0.00	0.00	0.00	0.00	0.00
	Forklift, 10 ton	0.00	0.00	0.00	0.00	0.00
Road Maintenance	Motor Grader	0.00	0.00	0.00	0.00	0.00
	Crawler, Track Type, w/ blade (D6 Type)	0.00	0.00	0.00	0.00	0.00
Install Foundations	Crawler, Track Type, w/ blade (D6 Type)	5.46	22.18	42.43	0.04	2.32
	Crawler, track type, drill dig, Pheumatic D8	16.71	52.03	152.68	0.17	5.99
	Generator, Concrete Batch Plant	5.92	16.87	18.30	0.02	1.57
	Backhoe w/ Bucket; backhoe w/ concrete hammer	7.27	28.23	32.67	0.04	2.87
	Motor, Auxilary Power	0.21	0.96	1.46	0.00	0.08
	Excavator, Grade - All	5.22	26.38	37.82	0.05	2.41
Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton	38.26	129.48	360.51	0.42	13.38
	Crane, Hydraulic, Rough Terrain 35 ton	78.82	330.84	554.21	0.59	37.47
	Compressor, Air	113.50	337.28	397.67	0.45	38.64
	Motor, Auxilary Power	0.65	2.91	4.43	0.01	0.26
Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	2.84	11.03	12.76	0.02	1.12
	Crane, Hydraulic, Rough Terrain 35 ton	10.12	42.49	71.17	0.08	4.81
	Crawler, Track Type, w/ blade (D8 type)	4.35	13.55	39.76	0.04	1.56
	Crawler, Track Type, Sagging (D8 type)	8.71	27.10	79.52	0.09	3.12
	Motor, Auxilary Power	0.45	1.99	3.04	0.00	0.18
	Tension machine, conductor	6.93	35.18	50.33	0.07	3.78
	Tension machine, static	2.31	11.73	16.78	0.02	1.26
Wreck-Out (conductors, structures, & Foundations)	Tension Machine, Conductor or Static	4.71	23.92	34.22	0.04	2.57
	Crawler, Track Type, w/ blade (D8 type)	11.84	36.85	108.15	0.12	4.24
	Backhoe w/ Bucket; backhoe w/ concrete hammer	20.59	79.99	92.56	0.12	8.15
	Crane, Hydraulic, Rough Terrain 35 ton	6.12	25.68	43.02	0.05	2.91
	Motor, Auxilary Power	0.23	1.02	1.55	0.00	0.09
Restoration & Guard Poles	Backhoe	0.95	3.68	4.25	0.01	0.37
	Motor Grader	2.44	10.43	16.41	0.02	1.24
2012 Total Emission		**354.61**	**1,271.81**	**2,175.72**	**2.46**	**140.38**

Segment 11

2009		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	8.20	29.59	57.84	0.05	3.88
	Forklift, 5 ton	14.28	40.45	46.42	0.05	4.89
	Forklift, 10 ton	14.02	41.45	52.61	0.05	5.45
	Motor, Auxilary Power	0.20	0.81	1.31	0.00	0.08
2009 Total Emission		**36.70**	**112.30**	**158.18**	**0.16**	**14.30**

2010		Annual Emissions lbs				
		ROG	CO	NOX	SOX	PM
Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	7.29	27.65	51.45	0.05	3.48
	Forklift, 5 ton	11.96	36.71	41.53	0.05	4.22
	Forklift, 10 ton	11.79	37.82	46.76	0.05	4.70
	Motor, Auxilary Power	0.18	0.75	1.19	0.00	0.07
2010 Total Emission		**31.22**	**102.92**	**140.93**	**0.15**	**12.47**

2011		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	0.00	0.00	0.00	0.00	0.00
	Forklift, 5 ton	0.00	0.00	0.00	0.00	0.00
	Forklift, 10 ton	0.00	0.00	0.00	0.00	0.00
Road Maintenance	Motor Grader	0.00	0.00	0.00	0.00	0.00
	Crawler, Track Type, w/ blade (D6 Type)	0.00	0.00	0.00	0.00	0.00
Roads & Landing Work (Road Work)	Crawler, Track Type, w/ blade (D8 type)	0.00	0.00	0.00	0.00	0.00
	Crawler, Track Type, w/ blade (D6 Type)	0.00	0.00	0.00	0.00	0.00
	Backhoe w/ Bucket; backhoe w/ concrete hammer	0.00	0.00	0.00	0.00	0.00
	Excavator, Grade - All	0.00	0.00	0.00	0.00	0.00
	Motor Grader	0.00	0.00	0.00	0.00	0.00
Wreck-Out (Conductors, Structures & Foundations)	Tension Machine	0.00	0.00	0.00	0.00	0.00
	Crawler, Track Type, w/ blade (D8 type)	0.00	0.00	0.00	0.00	0.00
	Backhoe w/ Bucket; backhoe w/ concrete hammer	0.00	0.00	0.00	0.00	0.00
	Crane, Hydraulic, Rough Terrain 35 ton	0.00	0.00	0.00	0.00	0.00
	Motor, Auxilary Power	0.00	0.00	0.00	0.00	0.00
2011 Total Emission		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2012		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Construction of Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	3.35	14.05	23.54	0.03	1.59
	Forklift, 5 ton	4.83	17.85	19.46	0.02	1.79
	Forklift, 10 ton	4.80	18.55	21.55	0.03	1.98
	Motor, Auxilary Power	0.08	0.37	0.56	0.00	0.03
Marshalling Yards	Crane, Hydraulic, Rough Terrain 35 ton	33.99	142.68	239.01	0.26	16.16
	Forklift, 5 ton	32.69	120.82	131.72	0.16	12.09
	Forklift, 10 ton	32.47	125.57	145.87	0.18	13.39
Road Maintenance	Motor Grader	27.56	117.86	185.38	0.21	13.97
	Crawler, Track Type, w/ blade (D6 Type)	34.30	139.23	266.35	0.28	14.57
Construct New Roads & Landing Work	Crawler, Track Type, w/ blade (D8 type)	109.33	340.34	998.78	1.09	39.18
	Crawler, Track Type, w/ blade (D6 Type)	47.66	193.47	370.10	0.39	20.24
	Backhoe w/ Bucket; backhoe w/ concrete hammer	17.82	69.25	80.14	0.10	7.05
	Excavator, Grade - All	68.32	345.17	494.79	0.64	31.48
	Motor Grader	23.94	102.36	160.99	0.18	12.13
Install Foundations	Crawler, Track Type, w/ blade (D6 Type)	8.94	36.28	69.39	0.07	3.80
	Crawler, track type, drill dig, Pheumatic D8	27.33	85.09	249.70	0.27	9.80
	Generator, Concrete Batch Plant	9.68	27.60	29.93	0.04	2.57
	Backhoe w/ Bucket; backhoe w/ concrete hammer	11.88	46.17	53.43	0.07	4.70
	Motor, Auxilary Power	0.35	1.57	2.38	0.00	0.14
	Excavator, Grade - All	8.54	43.15	61.85	0.08	3.94
Steel (Hauling, Shake-out, Light Assembly, Heavy Assembly, Erection)	Crane, Hydraulic, 150/300 Ton	57.09	193.23	537.98	0.62	19.96
	Crane, Hydraulic, Rough Terrain 35 ton	117.62	493.70	827.02	0.88	55.92
	Compressor, Air	169.37	503.31	593.43	0.67	57.66
	Motor, Auxilary Power	0.98	4.35	6.62	0.01	0.38
Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	4.87	18.91	21.88	0.03	1.93
	Crane, Hydraulic, Rough Terrain 35 ton	17.36	72.86	122.05	0.13	8.25
	Crawler, Track Type, w/ blade (D8 type)	7.46	23.23	68.18	0.07	2.67
	Crawler, Track Type, Sagging (D8 type)	14.93	46.47	136.37	0.15	5.35
	Motor, Auxilary Power	0.77	3.42	5.21	0.01	0.30
	Tension machine, conductor	11.88	60.33	86.30	0.11	6.48
	Tension machine, static	3.96	20.11	28.77	0.04	2.16
Wreck-Out (conductors, structures, & Foundations)	Tension Machine, Conductor or Static	13.76	69.89	99.97	0.13	7.51
	Crawler, Track Type, w/ blade (D8 type)	34.59	107.66	315.94	0.34	12.39
	Backhoe w/ Bucket; backhoe w/ concrete hammer	60.14	233.67	270.41	0.34	23.79
	Crane, Hydraulic, Rough Terrain 35 ton	17.87	75.02	125.67	0.13	8.50
	Motor, Auxilary Power	0.67	2.97	4.52	0.01	0.26
Restoration & Guard Poles	Backhoe	3.97	15.44	17.87	0.02	1.57
	Motor Grader	10.25	43.81	68.91	0.08	5.19
2012 Total Emission		**1,055.41**	**3,975.81**	**6,942.02**	**7.86**	**430.85**

2013		Annual Emissions lbs				
		ROG	CO	NOx	SOx	PM
Conductor & OHGW Installation	Backhoe w/ Bucket; backhoe w/ concrete hammer	0.28	1.20	1.34	0.00	0.11
	Crane, Hydraulic, Rough Terrain 35 ton	1.06	4.71	7.47	0.01	0.50
	Crawler, Track Type, w/ blade (D8 type)	0.46	1.43	4.15	0.00	0.16
	Crawler, Track Type, Sagging (D8 type)	0.92	2.86	8.29	0.01	0.32
	Motor, Auxilary Power	0.05	0.22	0.32	0.00	0.02
	Tension machine, conductor	0.71	3.90	5.23	0.01	0.38
	Tension machine, static	0.24	1.30	1.74	0.00	0.13
Restoration & Guard Poles	Backhoe	0.48	2.03	2.25	0.00	0.19
	Motor Grader	1.29	5.85	8.69	0.01	0.64
2013 Total Emission		**5.49**	**23.51**	**39.48**	**0.05**	**2.44**

Alt.6 ANF - AVAQMD/MDAB -Helicopter Emissions

Hughes 500

	Year	HC	CO	NOx	SOx	PM
Segment 6	2011	0.021	0.046	0.094	0.001	0.005
	2012	0.011	0.025	0.051	0.000	0.003
Segment 11	2011	0.000	0.000	0.000	0.000	0.000
	2012	0.011	0.024	0.050	0.000	0.003
	2013	0.001	0.002	0.003	0.000	0.000

Segment 6
Total Emissions (ton)

	Year	HC	CO	NOx	SOx	PM
Total	2010	2.42	7.91	8.67	0.07	0.48
	2011	0.24	1.72	2.21	0.02	0.12
	2012	0.87	3.49	3.76	0.03	0.21

Segment 11
Total Emissions (ton)

	Year	HC	CO	NOx	SOx	PM
Total	2011	0.06	0.20	0.25	0.00	0.01
	2012	3.46	13.56	15.07	0.13	0.83

Total ANF Helicopter Emissions (ton)

Year	HC	CO	NOx	SOx	PM
2010	2.42	7.91	8.67	0.07	0.48
2011	0.33	1.96	2.56	0.02	0.14
2012	4.35	17.10	18.93	0.16	1.05
2013	0.00	0.00	0.00	0.00	0.00

Fugitive Dust Emissions - Segment 6

Emission Categories
1) Earthmoving
2) Road Dust Paved/Unpaved

1) Earthmoving

Emission Types
A) Dozing
B) Grading
C) Material Loading/Handling

A) Dozing (AP-42 Section 11.9 for overburden)

$E = k \times (s)^{1.5} / (M)^{1.4}$ For PM10 and $k \times 5.7 \times (s)^{1.2} / (M)^{1.3}$ for PM2.5
E = lb/hr
k = Scaling Constant (0.75 for PM10 and 0.105 for PM2.5)
s = Silt Content (assumed to be 12% - SCAQMD Handbook for Mountain Roads)
M = Moisture Content = 10% (assumes watering when necessary for mitigation)

PM10 Emission Factor
1.241175323 lb/hr

PM2.5 Emission Factor
0.591672862 lb/hr

Total Dozer Use

	Hrs/year
2009	0.00
2010	4054.30
2011	727.24
2012	452.86
2013	0.00

Dozer Emissions

Tons/year	PM10	PM2.5
2009	0.00	0.00
2010	2.52	1.20
2011	0.45	0.22
2012	0.28	0.13
2013	0.00	0.00

B) Grading

$E = k \times 0.051 \times (S)^{2.0}$ for PM10 and $k \times 0.040 \times (S)^{2.5}$ for PM2.5
E = lb/VMT
k = Scaling Constant (0.60 for PM10 and 0.031 for PM2.5)
S = Mean Vehicle Speed assumed to be 3 mph
Assumes VMT = 3 x hours in use

PM10 Emission Factor
0.2754 lb/VMT

PM2.5 Emission Factor
0.019329687 lb/VMT

Annual Grader VMT

	Hrs/year	VMT/year
2009	0.00	0.00
2010	633.04	1899.11
2011	742.81	2228.43
2012	277.14	831.43
2013	0.00	0.00

Grading Emissions

Tons/year	PM10	PM2.5
2009	0.00	0.00
2010	0.26	0.02
2011	0.31	0.02
2012	0.11	0.01
2013	0.00	0.00

C) Material Loading/Handling (AP-42, p. 13.2.4-3)

$E = (k)(0.0032)[(U/5)^{1.3}]/[(M/2)^{1.4}]$
E = lb/ton
k = Particle Size Constant (0.35 for PM10 and 0.11 for PM2.5)
U = average wind speed = 25 MPH worst day, 8 MPH avg daytime (engineering assumption)
M = moisture content = 10% (mitigated)
Three separate drops are assumed

2009	0	Annual tons
2010	362,689	Annual tons
2011	362,689	Annual tons
2012	0	Annual tons
2013	0	Annual tons
2014		Annual tons

Emission Factors and Emissions
Emission Factors

PM10 Annual	PM2.5 Annual
0.00029	0.00009

Emissions tons/year

	PM10	PM2.5
2009	0.00	0.00
2010	0.21	0.07
2011	0.21	0.07
2012	0.00	0.00
2013	0.00	0.00

2) Road Dust

Emission Types
A) Paved Road Dust
B) Unpaved Road Dust

A) Paved Road Dust

E = [k x (sL/2)0.65 x (W/3)1.5 -C] x (1-P/4N)
E = lb/VMT
k = Constant (0.016 for PM10 and 0.0040 for PM2.5)
sL = Silt Loading (assumed to be 0.2 g/m2 - assumes 500 to 5,000 ADT profile of Table 13.2.1-3 average for all traffic)
W = Average weight of vehicles in tons (calculated below)
C = Correction for exhaust, break wear, tire wear (0.00047 lb/VMT for PM10, 0.00036 lb/VMT for PM2.5)
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Passenger Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Paved VMT	Average Weight (Tons)	
2009	25,658	12,829	4,276	42,764	6.6	0
2010	498,034	205,947	179,885	883,866	9.1	0
2011	934,430	295,202	130,950	1,360,582	6.0	-23,611
2012	153,351	62,649	44,173	260,173	8.2	0
2013	0	0	0	0	0.0	0

	PM10 Annual	PM2.5 Annual
2009	0.0112	0.0026
2010	0.0184	0.0044
2011	0.0097	0.0022
2012	0.0157	0.0037
2013	0.0000	0.0000

Emissions tons/year

	PM10	PM2.5
2009	0.24	0.05
2010	8.15	1.93
2011	6.57	1.48
2012	2.04	0.48
2013	0.00	0.00

B) Unpaved Road Dust

$E = (k)[(s/12)^{0.9}][(W/3)^{0.45}][(365-P)/365]$ (for industrial sites)

k = constant = 1.5 lb/VMT for PM10 and 0.23 lb/VMT for PM2.5
s = Silt Content (assumed to be 12% - SCAQMD Handbook for Mountain Roads)
W = avg. vehicle weight = calculated below
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Personal/Professionals/inspection Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Paved VMT	Average Weight (Tons)
2009	43	21	7	71	6.6
2010	830	15,471	15,787	32,088	18.7
2011	1,557	29,192	9,698	40,448	13.0
2012	256	1,835	1,249	3,339	15.8
2013	0	0	0	0	0.0

	PM10 Annual	PM2.5 Annual
2009	2.14	0.33
2010	3.41	0.52
2011	2.91	0.45
2012	3.17	0.49
2013	0.00	0.00

Emissions tons/year

	PM10	PM2.5
2009	0.08	0.01
2010	54.79	8.40
2011	58.77	9.01
2012	5.28	0.81
2013	0.00	0.00

Controlled Emissions (assumes 84% efficiency with use of soil binder)

Emission Control
84%

Emissions tons/year

	PM10	PM2.5
2009	0.01	0.00
2010	8.77	1.34
2011	9.40	1.44
2012	0.85	0.13
2013	0.00	0.00

3) Disturbed Area Windblown Emissions

Assumptions
Emission Factor is 0.38 tons/disturbed acres/year of Total Suspended Particulate (AP-42 Section 11.9)
PM10 and PM2.5 fractions of TSP are 0.489 and 0.102 respectively per CEIDARS factors from SCAQMD CEQA Website
There are permanent and temporary disturbed acres that make up the total acre-years of disturbed area for each Segment
Disturbed areas are controlled by dust suppressants 84% control

	Disturbed Acres (acre-years)	Emissions (tons/year)	
		PM10	PM2.5
2009	21	0.6358464	0.1302336
2010	74	2.2406016	0.4589184
2011	103	3.1186752	0.6387648
2012	26	0.7872384	0.1612416
2013	0	0	0

Fugitive Dust Emission Totals	2009		2010		2011	
	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr
Dozer	0.00	0.00	2.52	1.20	0.45	0.22
Grading	0.00	0.00	0.26	0.02	0.31	0.02
Soil Handling	0.00	0.00	0.21	0.07	0.21	0.07
Paved Road Dust	0.24	0.05	8.15	1.93	6.57	1.48
Unpaved Road Dust	0.01	0.00	8.77	1.34	9.40	1.44
Disturbed Area Dust	0.64	0.13	2.24	0.46	3.12	0.64
Totals	0.89	0.19	22.15	5.02	20.06	3.86

Fugitive Dust Emission Totals	2012		2013	
	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr
Dozer	0.28	0.13	0.00	0.00
Grading	0.11	0.01	0.00	0.00
Soil Handling	0.00	0.00	0.00	0.00
Paved Road Dust	2.04	0.48	0.00	0.00
Unpaved Road Dust	0.85	0.13	0.00	0.00
Disturbed Area Dust	0.79	0.16	0.00	0.00
Totals	4.07	0.91	0.00	0.00

Percent each Jurisdiction	KCAPCD	AVAQMD	SCAQMD
2009	0.00%	75.00%	0.00%
2010	0.00%	31.50%	58.00%
2011	0.00%	21.00%	72.00%
2012	0.00%	52.50%	30.00%
2013	0.00%	0.00%	0.00%

Emissions per Jurisdiction in the ANF

PM10				
	2009	0.00	0.67	0.00
	2010	0.00	6.98	12.84
	2011	0.00	4.21	14.44
	2012	0.00	2.14	1.22
	2013	0.00	0.00	0.00

PM2.5				
	2009	0.00	0.14	0.00
	2010	0.00	1.58	2.91
	2011	0.00	0.81	2.78
	2012	0.00	0.48	0.27
	2013	0.00	0.00	0.00

Fugitive Dust Emissions - Segment 11

Emission Categories
1) Earthmoving
2) Road Dust Paved/Unpaved

1) Earthmoving

Emission Types
A) Dozing
B) Grading
C) Material Loading/Handling

A) Dozing (AP-42 Section 11.9 for overburden)

$E = k \times (s)^{1.5} / (M)^{1.4}$ For PM10 and $k \times 5.7 \times (s)^{1.2} / (M)^{1.3}$ for PM2.5
E = lb/hr
k = Scaling Constant (0.75 for PM10 and 0.105 for PM2.5)
s = Silt Content (assumed to be 12% - SCAQMD Handbook for Mountain Roads)
M = Moisture Content = 10% (assumes watering when necessary for mitigation)

PM10 Emission Factor
1.241175323 lb/hr

PM2.5 Emission Factor
0.591672862 lb/hr

Total Dozer Use

	Hrs/year
2009	0.00
2010	0.00
2011	1133.38
2012	2010.23
2013	2.39

Dozer Emissions

Tons/year	PM10	PM2.5
2009	0.00	0.00
2010	0.00	0.00
2011	0.70	0.34
2012	1.25	0.59
2013	0.00	0.00

B) Grading

$E = k \times 0.051 \times (S)^{2.0}$ for PM10 and $k \times 0.040 \times (S)^{2.5}$ for PM2.5
E = lb/VMT
k = Scaling Constant (0.60 for PM10 and 0.031 for PM2.5)
S = Mean Vehicle Speed assumed to be 3 mph
Assumes VMT = 3 x hours in use

PM10 Emission Factor
0.2754 lb/VMT

PM2.5 Emission Factor
0.019329687 lb/VMT

Annual Grader VMT

	Hrs/year	VMT/year
2009	0.00	0.00
2010	0.00	0.00
2011	235.54	706.62
2012	746.33	2239.00
2013	61.85	185.55

Grading Emissions

Tons/year	PM10	PM2.5
2009	0.00	0.00
2010	0.00	0.00
2011	0.10	0.01
2012	0.31	0.02
2013	0.03	0.00

C) Material Loading/Handling (AP-42, p. 13.2.4-3)

$E = (k)(0.0032)[(U/5)^{1.3}]/[(M/2)^{1.4}]$
E = lb/ton
k = Particle Size Constant (0.35 for PM10 and 0.11 for PM2.5)
U = average wind speed = 25 MPH worst day, 8 MPH avg daytime (engineering assumption)
M = moisture content = 10% (mitigated)
Three separate drops are assumed

2009	0	Annual tons
2010	0	Annual tons
2011	31,750	Annual tons
2012	284,134	Annual tons
2013	0	Annual tons
2014		Annual tons

Emission Factors and Emissions
Emission Factors

PM10 Annual	PM2.5 Annual
0.00029	0.00009

Emissions tons/year

	PM10	PM2.5
2009	0.00	0.00
2010	0.00	0.00
2011	0.02	0.01
2012	0.16	0.05
2013	0.00	0.00

2) Road Dust

Emission Types
A) Paved Road Dust
B) Unpaved Road Dust

A) Paved Road Dust

E = [k x (sL/2)0.65 x (W/3)1.5 -C] x (1-P/4N)
E = lb/VMT
k = Constant (0.016 for PM10 and 0.0040 for PM2.5)
sL = Silt Loading (assumed to be 0.2 g/m2 - assumes 500 to 5,000 ADT profile of Table 13.2.1-3 average for all traffic)
W = Average weight of vehicles in tons (calculated below)
C = Correction for exhaust, break wear, tire wear (0.00047 lb/VMT for PM10, 0.00036 lb/VMT for PM2.5)
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Passenger Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Paved VMT	Average Weight (Tons)
2009	56,880	28,440	9,480	94,800	6.6
2010	11,160	5,580	1,860	18,600	6.6
2011	70,062	22,694	37,529	130,285	11.1
2012	679,334	222,924	139,751	1,042,009	7.0
2013	5,281	2,800	2,155	10,235	9.5

	PM10 Annual	PM2.5 Annual
2009	0.0112	0.0026
2010	0.0112	0.0026
2011	0.0251	0.0060
2012	0.0124	0.0029
2013	0.0198	0.0047

Emissions tons/year

	PM10	PM2.5
2009	0.53	0.12
2010	0.10	0.02
2011	1.63	0.39
2012	6.46	1.49
2013	0.10	0.02

B) Unpaved Road Dust

$E = (k)[(s/12)^{0.9}][(W/3)^{0.45}][(365-P)/365]$ (for industrial sites)

k = constant = 1.5 lb/VMT for PM10 and 0.23 lb/VMT for PM2.5
s = Silt Content (assumed to be 12% - SCAQMD Handbook for Mountain Roads)
W = avg. vehicle weight = calculated below
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Personal/Professionals/inspection Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Paved VMT	Average Weight (Tons)
2009	95	888	296	1,279	12.6
2010	19	174	58	251	12.6
2011	117	513	736	1,366	19.3
2012	1,132	6,565	3,483	11,181	14.2
2013	9	87	67	163	16.7

	PM10 Annual	PM2.5 Annual
2009	2.87	0.44
2010	2.87	0.44
2011	3.47	0.53
2012	3.02	0.46
2013	3.25	0.50

Emissions tons/year

	PM10	PM2.5
2009	1.83	0.28
2010	0.36	0.06
2011	2.37	0.36
2012	16.90	2.59
2013	0.27	0.04

Controlled Emissions (assumes 84% efficiency with use of soil binder)

Emission Control
84%

Emissions tons/year

	PM10	PM2.5
2009	0.29	0.04
2010	0.06	0.01
2011	0.38	0.06
2012	2.70	0.41
2013	0.04	0.01

3) Disturbed Area Windblown Emissions

Assumptions
Emission Factor is 0.38 tons/disturbed acres/year of Total Suspended Particulate (AP-42 Section 11.9)
PM10 and PM2.5 fractions of TSP are 0.489 and 0.102 respectively per CEIDARS factors from SCAQMD CEQA Website
There are permanent and temporary disturbed acres that make up the total acre-years of disturbed area for each Segment
Disturbed areas are controlled by dust suppressants 84% control

Disturbed Acres (acre-years)	
2009	20
2010	41
2011	44
2012	136
2013	20

Emissions (tons/year)	
PM10	PM2.5
0.605568	0.124032
1.2414144	0.2542656
1.3322496	0.2728704
4.1178624	0.8434176
0.605568	0.124032

Fugitive Dust Emission Totals	2009		2010		2011	
	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr
Dozer	0.00	0.00	0.00	0.00	0.70	0.34
Grading	0.00	0.00	0.00	0.00	0.10	0.01
Soil Handling	0.00	0.00	0.00	0.00	0.02	0.01
Paved Road Dust	0.53	0.12	0.10	0.02	1.63	0.39
Unpaved Road Dust	0.29	0.04	0.06	0.01	0.38	0.06
Disturbed Area Dust	0.61	0.12	1.24	0.25	1.33	0.27
Totals	1.43	0.29	1.40	0.29	4.16	1.07

Fugitive Dust Emission Totals	2012		2013	
	PM10 t/yr	PM2.5 t/yr	PM10 t/yr	PM2.5 t/yr
Dozer	1.25	0.59	0.00	0.00
Grading	0.31	0.02	0.03	0.00
Soil Handling	0.16	0.05	0.00	0.00
Paved Road Dust	6.46	1.49	0.10	0.02
Unpaved Road Dust	2.70	0.41	0.04	0.01
Disturbed Area Dust	4.12	0.84	0.61	0.12
Totals	15.01	3.42	0.78	0.16

Percent each Jurisdiction	KCAPCD	AVAQMD	SCAQMD
2009	0.00%	0.00%	98.00%
2010	0.00%	57.60%	27.44%
2011	0.00%	0.00%	98.00%
2012	0.00%	32.00%	58.80%
2013	0.00%	0.00%	0.00%

Emissions per Jurisdiction in the ANF

PM10				
	2009	0.00	0.00	1.40
	2010	0.00	0.81	0.39
	2011	0.00	0.00	4.08
	2012	0.00	4.80	8.82
	2013	0.00	0.00	0.00

PM2.5				
	2009	0.00	0.00	0.28
	2010	0.00	0.17	0.08
	2011	0.00	0.00	1.05
	2012	0.00	1.09	2.01
	2013	0.00	0.00	0.00

Total Emissions per Jurisdiction in the ANF (Segment 6 + Segment 11)

		KCAPCD	AVAQMD	SCAQMD
PM10	2009	0.00	0.67	1.40
	2010	0.00	7.78	13.23
	2011	0.00	4.21	18.52
	2012	0.00	6.94	10.04
	2013	0.00	0.00	0.00
PM2.5	2009	0.00	0.14	0.28
	2010	0.00	1.75	2.99
	2011	0.00	0.81	3.83
	2012	0.00	1.57	2.28
	2013	0.00	0.00	0.00

Alternative 7 Underground Construction Emission Calculation Assumptions

Proposed Project General Assumptions

1) Work occurs 6 days a week, 8 hours a day, excepting major holidays
2) Project schedule mirrors existing 66kV schedules.

Offroad Equipment Emission Calculation Assumptions

1) Emission factors are the latest available from the SCAQMD website, where the nearest horsepower sized equipment given in the SCAQMD emission factor database are used with a ratio of actual assumed equipment horsepower to derive hourly emission factors.
2) Construction subtasks, durations, equipment type, number, and usage estimates are used are engineering estimates by Aspen Environment Group using very limited equipment information provided by SCE.
3) The following vehicle types, which could be offroad vehicles are assumed to be onroad vehicles considering the project description, needs and location: water trucks and dump trucks.

Onroad Equipment Emission Calculations Assumptions

1) Emission factors are the latest available from the SCAQMD website, where the vehicles have been assigned three classes, passenger (i.e. employee vehicles and pickups), delivery (all nonpassenger vehicles smaller than Heavy-Heavy Duty), and heavy-heavy duty vehicles.
2) Emission factors from each year assumed in the project schedule are used to calculate the annual emissions.
3) Trip estimates are based on engineering estimates of import/export quantities, equipment and worker trips.
4) All onroad traffic for the project is assumed to occur within SCAQMD jurisdiction.
6) Soil waste truck are assumed to be single trailers with 10 cubic yard capacity. Concrete loads are 10 cubic yards.
7) A ten percent contingency is added to the concrete and soil waste trips. This contingency considers excavated soil expansion and concrete wastage.

Fugitive Dust Emission Calculations Assumptions

1) Unpaved road travel is minimized to the extent feasible and shall be no more than one-half mile per round trip.
2) Unpaved road emission factors are calculated using the most current version of USEPA AP-42 Section 13.2.1 and use the following assumptions: 1) Silt content is assumed to be 6% on average (SCAQMD level for sand and gravel plant roads);
and 2) average vehicle weight based on VMT estimate for unpaved roads
3) Paved road emission factors are calculated using the most current version of USEPA AP-42 Section 13.2.1 and use the following assumptions: 1) Silt loading is average for 5000-10000 ADT road; 2) average vehicle weight is calculated on VMT average basis.

4) Earthmoving emission factors are calculated, as necessary, using the recent version of USEPA AP-42 Section 11.9 for Dozing and Grading, and Section 13.2.4 for soil handling (drop emissions).
5) Due to SCAQMD fugitive dust measure requirements, limited overall disturbed acreage, and short construction duration the wind erosion potential is considered negligible.

TRTP Alternative 7 Project Construction Emission Totals
Incremental Underground Construction Emission Totals
SCAQMD Juridiction

Worst-Case Day 2011	Emissions (lbs/day)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	2.50	12.00	26.98	0.03	1.31	1.13
Offroad Vehicles/Equipment	2.69	10.65	15.85	0.02	1.29	1.19
Helicopter	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Dust	---	---	---	---	39.02	8.95
Totals	**5.19**	**22.65**	**42.83**	**0.05**	**41.61**	**11.26**

Incremental Annual Emissions

2011 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.04	0.18	0.38	0.00	0.02	0.02
Offroad Vehicles/Equipment	0.04	0.16	0.25	0.00	0.02	0.02
Helicopter	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Dust	---	---	---	---	0.53	0.12
Totals	**0.08**	**0.34**	**0.63**	**0.00**	**0.57**	**0.15**

Note: This alternative does not significantly impact the AVAQMD, KCAPCD, or the ANF.

Construction Schedule - Alternative 7 66kV Underground					Daily VMT								
					Employee Vehicle			Delivery Truck			Heavy Heavy Duty Truck		
					Paved	Unpaved	Total	Paved	Unpaved	Total	Paved	Unpaved	Total
Segment 7	**Crew Size**	**Total Days**	**Date**		**VMT/day**	**VMT/day**	**VMT/day**	**VMT/day**	**VMT/day**	**VMT/day**	**VMT/day**	**VMT/day**	**VMT/day**
66kV Undergrounding at Duck Farm													
Construction	12	20	Mar 2011		354	6.00	360.00	39	1.00	40.00	737.5	12.50	750.00
66kV Undergrounding at Whittier Narrows													
Construction	12	13	Apr 2011		354	6.00	360.00	39	1.00	40.00	737.5	12.50	750.00
					Totals - Max Day								
					354	6	360	39	1	40	738	13	750
					Annual VMT								
					PAVED			**UNPAVED**			**TOTAL**		
					2011			**2011**			**2011**		
					Employee	**Delivery**	**HHDT**	**Employee**	**Delivery**	**HHDT**	**Employee**	**Delivery**	**HHDT**
Segment 7					**Vehicle**	**Truck**	**HHDT**	**Vehicle**	**Truck**	**HHDT**	**Vehicle**	**Truck**	**HHDT**
66kV Undergrounding at Duck Farm													
Construction					7080	780	12537.5	120.00	20.00	212.50	7200.00	800.00	12750.00
66kV Undergrounding at Whittier Narrows													
Construction					4602	507	7994.5	78.00	13.00	135.50	4680.00	520.00	8130.00
					Totals - Annual								
					11,682	1,287	20,532	198	33	348	11,880	1,320	20,880

Construction Schedule - Alternative 7 66kV Underground			
Delivery Size Vehicles	**Trips**	**Mi/Trip**	**Miles**
Duck Farm	40	20	800
Whitter Narrows	26	20	520
HHDT Vehicles			
Duck Farm	**Total Days**	**Max Veh/day**	**Total Veh**
Trench	14	25	350
Vault	3	21	63
Boring	1	4	4
End Structure	2	4	8
			425
Whittier Narrows			
Trench	8	25	200
Vault	3	21	63
Boring	0	4	0
End Structure	2	4	8
			271

Alternative 7 - Segment 7

Onroad Equipment Maximum Daily Emissions

			Emissions lbs/day-2011					
2011	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	360	0.31	2.97	0.30	0.00	0.03	0.02
	Delivery	40	0.10	0.68	0.76	0.00	0.03	0.02
	Heavy-Heavy Duty	750	2.10	8.34	25.92	0.03	1.25	1.08
		Totals	2.50	12.00	26.98	0.03	1.31	1.13

Annual Emissions

			Emissions lbs/year					
2011	Vehicle Type	Total	VOC	CO	NOx	SOx	PM10	PM2.5
	Passenger	11,880	10.13	98.16	10.03	0.13	1.05	0.67
	Delivery	1,320	3.19	22.35	24.99	0.04	0.93	0.79
	Heavy-Heavy Duty	20,880	58.37	232.28	721.57	0.83	34.68	30.17
		Totals	71.69	352.79	756.60	0.99	36.66	31.63

Offroad Equipment Emission Calculations - Alternative 7 66 kV Underground

SCAQMD Offroad Emission Factors

Equipment Item	HP	2011 SCAQMD Emission Factor lbs/hour				
		ROG	CO	NOX	SOX	PM
Backhoe	85	0.097992	0.35051	0.417886	0.0005	0.038348
Boring Machine/Drill Rig	250	0.089241	0.344486	1.012856	0.002116	0.032285
Excavator Cat 320	138	0.131576	0.573202	0.86731	0.000994	0.069265
Forklift - 10 ton	85	0.056618	0.198383	0.238449	0.000278	0.02308
Loader - 928	143	0.123605	0.509538	0.848985	0.000902	0.062686
Water Pump - 100 hp	100	0.132263	0.458792	0.722904	0.00078	0.060041

SCAQMD emission factors are linearly interpolated as necessary for the specific hp size of the assumed equipment

2011 Emission Calculations

Trenching

			SCAQMD Emission Factor lbs/hour						Daily Emissions lbs						Annual Emissions lbs				
	HP	Number	ROG	CO	NOX	SOX	PM	Hours/day	ROG	CO	NOX	SOX	PM	Days	ROG	CO	NOX	SOX	PM
Excavator Cat 320	138	1	0.131576	0.573202	0.86731	0.000994	0.069265	8	1.05	4.59	6.94	0.01	0.55	25	26.32	114.64	173.46	0.20	13.85
Forklift - 10 ton	85	1	0.056618	0.198383	0.238449	0.000278	0.02308	4	0.23	0.79	0.95	0.00	0.09	25	5.66	19.84	23.84	0.03	2.31
Backhoe	85	1	0.097992	0.35051	0.417886	0.0005	0.038348	4	0.39	1.40	1.67	0.00	0.15	25	9.80	35.05	41.79	0.05	3.83
Water Pumps - 100 hp	100	1	0.132263	0.458792	0.722904	0.00078	0.060041	4	0.53	1.84	2.89	0.00	0.24	25	13.23	45.88	72.29	0.08	6.00
Loader - 928	143	1	0.123605	0.509538	0.848985	0.000902	0.062686	4	0.49	2.04	3.40	0.00	0.25	25	12.36	50.95	84.90	0.09	6.27
									2.69	10.65	15.85	0.02	1.29		67.36	266.36	396.28	0.44	32.27

Vault Construction

			SCAQMD Emission Factor lbs/hour						Daily Emissions lbs						Annual Emissions lbs				
	HP	Number	ROG	CO	NOX	SOX	PM	Hours/day	ROG	CO	NOX	SOX	PM	Days	ROG	CO	NOX	SOX	PM
Excavator Cat 320	138	1	0.131576	0.573202	0.86731	0.000994	0.069265	6	0.79	3.44	5.20	0.01	0.42	6	4.74	20.64	31.22	0.04	2.49
Water Pumps - 100 hp	100	1	0.132263	0.458792	0.722904	0.00078	0.060041	6	0.79	2.75	4.34	0.00	0.36	6	4.76	16.52	26.02	0.03	2.16
Forklift, 10 ton	85	1	0.056618	0.198383	0.238449	0.000278	0.02308	2	0.11	0.40	0.48	0.00	0.05	6	0.68	2.38	2.86	0.00	0.28
Loader - 928	143	1	0.123605	0.509538	0.848985	0.000902	0.062686	1	0.12	0.51	0.85	0.00	0.06	6	0.74	3.06	5.09	0.01	0.38
									1.82	7.10	10.87	0.01	0.88		10.92	42.59	65.20	0.07	5.31

Boring

			SCAQMD Emission Factor lbs/hour						Daily Emissions lbs						Annual Emissions lbs				
	HP	Number	ROG	CO	NOX	SOX	PM	Hours/day	ROG	CO	NOX	SOX	PM	Days	ROG	CO	NOX	SOX	PM
Boring Machine	250	1	0.089241	0.344486	1.012856	0.002116	0.032285	6	0.54	2.07	6.08	0.01	0.19	1	0.54	2.07	6.08	0.01	0.19
Water Pumps - 100 hp	100	1	0.132263	0.458792	0.722904	0.00078	0.060041	4	0.53	1.84	2.89	0.00	0.24	1	0.53	1.84	2.89	0.00	0.24
Forklift, 10 ton	85	1	0.056618	0.198383	0.238449	0.000278	0.02308	2	0.11	0.40	0.48	0.00	0.05	1	0.11	0.40	0.48	0.00	0.05
Loader - 928	143	1	0.123605	0.509538	0.848985	0.000902	0.062686	2	0.25	1.02	1.70	0.00	0.13	1	0.25	1.02	1.70	0.00	0.13
									1.42	5.32	11.14	0.02	0.61		1.42	5.32	11.14	0.02	0.61

End Structures

			SCAQMD Emission Factor lbs/hour						Daily Emissions lbs						Annual Emissions lbs				
	HP	Number	ROG	CO	NOX	SOX	PM	Hours/day	ROG	CO	NOX	SOX	PM	Days	ROG	CO	NOX	SOX	PM
Drill Rig	250	1	0.089241	0.344486	1.012856	0.002116	0.032285	4	0.36	1.38	4.05	0.01	0.13	4	1.43	5.51	16.21	0.03	0.52
Loader - 928	143	1	0.123605	0.509538	0.848985	0.000902	0.062686	2	0.25	1.02	1.70	0.00	0.13	4	0.99	4.08	6.79	0.01	0.50
Backhoe	85	1	0.097992	0.35051	0.417886	0.0005	0.038348	2	0.20	0.70	0.84	0.00	0.08	4	0.78	2.80	3.34	0.00	0.31
									0.80	3.10	6.59	0.01	0.33		3.20	12.39	26.34	0.05	1.32

	Maximum Day - Lbs/Day						Annual - Tons/Year					
Year	ROG	CO	NOX	SOX	PM	Year	ROG	CO	NOX	SOX	PM
2011	2.69	10.65	15.85	0.02	1.29	2011	0.04	0.16	0.25	0.00	0.02

Fugitive Dust Emissions - Alternative 7 66kV Underground

Emission Categories

1) Earthmoving
2) Road Dust Paved/Unpaved

1) Earthmoving

Material Loading/Handling (AP-42, p. 13.2.4-3)

$E = (k)(0.0032)[(U/5)^{1.3}]/[(M/2)^{1.4}]$
E = lb/ton
k = Particle Size Constant (0.35 for PM10 and 0.11 for PM2.5)
U = average wind speed = 26.5 MPH worst day, 6.4 MPH avg from Norco Met File
M = moisture content = 10% (mitigated)
Max daily productivity is assume to be two times average
Three separate drops are assumed

2011	200	Maximum daily tons
2011	5800	Annual tons

Emission Factors and Emissions
Emission Factors

PM10 Daily	PM2.5 Daily	PM10 Annual	PM2.5 Annual
0.00103	0.00032	0.00016	0.00005

Emissions lbs/day

	PM10	PM2.5
2011	0.62	0.19

Emissions tons/year

	PM10	PM2.5
2011	0.00	0.00

2) Road Dust

Emission Types
A) Paved Road Dust
B) Unpaved Road Dust

A) Paved Road Dust

E = [k x (sL/2)0.65 x (W/3)1.5 -C] x (1-P/4N)
E = lb/VMT
k = Constant (0.016 for PM10 and 0.0040 for PM2.5)
sL = Silt Loading (assumed to be 0.06 g/m2 - assumes 5,000 to 10,000 ADT profile of Table 13.2.1-3 average for all traffic)
W = Average weight of vehicles in tons (calculated below)
C = Correction for exhaust, break wear, tire wear (0.00047 lb/VMT for PM10, 0.00036 lb/VMT for PM2.5)
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Passenger Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Paved VMT	Average Weight (Tons)
2011	354	39	738	1131	20.5

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Paved VMT	Average Weight (Tons)
2011	11,682	1,287	20,532	33501	19.4

Emission Factors and Emissions
Emission Factors

Daily Efs	PM10 Daily	PM2.5 Daily
2011	0.0287	0.0069

Emissions lbs/day

	PM10	PM2.5
2011	32.48	7.84

Annual Efs	PM10 Annual	PM2.5 Annual
2011	0.0264	0.0064

Emissions tons/year

	PM10	PM2.5
2011	0.44	0.11

B) Unpaved Road Dust

$E = (k)[(s/12)^{0.9}][(W/3)^{0.45}][(365-P)/365]$ (for industrial sites)

k = constant = 1.5 lb/VMT for PM10 and 0.23 lb/VMT for PM2.5
s = Silt Content (assumed to be 6% - SCAQMD Handbook for Sand and Gravel Plant Road)
W = avg. vehicle weight = calculated below
No correction for number of wet days due to assumption of working in dry season

Average Vehicle Weight Calculation

Assumptions
Personal/Professionals/inspection Vehicles = 2 tons average
Midsize "Delivery" Vehicles = 8 ton average
Heavy-Heavy Duty Trucks = 30 tons average (loaded 40 tons, unloaded 20 tons)

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Unpaved VMT	Average Weight (Tons)
2011	6	1	13	20	20.3

Annual Case VMT	Passenger Vehicles	Delivery/Work Vehicles	Heavy-Heavy Duty Vehicles	Total Unpaved VMT	Average Weight (Tons)
2011	198	33	348	579	19.2

Uncontrolled Emission Factors and Emissions
Emission Factors (lb/VMT)

Annual Efs	PM10 Daily	PM2.5 Daily
2011	1.90	0.29

Emissions lbs/day

	PM10	PM2.5
2011	37.02	5.68

Annual Efs	PM10 Annual	PM2.5 Annual
2011	1.85	0.20

Emissions tons/year

	PM10	PM2.5
2011	0.54	0.06

Controlled Emissions (assumes 84% efficiency with use of soil binder)

Emissions lbs/day

	PM10	PM2.5
2011	5.92	0.91

Emission Control
84%

Emissions tons/year

	PM10	PM2.5
2011	0.09	0.01

Fugitive Dust Emission Totals

Maximum Daily Emissions	2011	
	PM10 lb/day	PM2.5 lb/day
Soil Handling	0.62	0.19
Paved Road Dust	32.48	7.84
Unpaved Road Dust	5.92	0.91
Totals	39.02	8.95

Annual Emissions	2011	
	PM10 t/yr	PM2.5 t/yr
Soil Handling	0.00	0.00
Paved Road Dust	0.44	0.11
Unpaved Road Dust	0.09	0.01
Totals	0.53	0.12

TRTP Alternative 7 Project Construction Emission Totals
USACE Land Total - All SCAQMD Jurisdiction

2009 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles						
Offroad Vehicles/Equipment						
Helicopter						
Fugitive Dust	---	---	---	---		
Totals	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2010 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.204	1.378	1.446	0.002	0.066	0.056
Offroad Vehicles/Equipment	0.361	1.246	2.323	0.003	0.148	0.136
Helicopter	0.000	0.000	0.000	0.000	0.000	0.000
Fugitive Dust	---	---	---	---	2.244	0.526
Totals	**0.57**	**2.62**	**3.77**	**0.00**	**2.46**	**0.72**

2011 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.274	2.044	1.631	0.003	0.076	0.063
Offroad Vehicles/Equipment	0.521	1.790	3.121	0.003	0.207	0.191
Helicopter	0.000	0.000	0.000	0.000	0.000	0.000
Fugitive Dust	---	---	---	---	2.431	0.488
Totals	**0.80**	**3.83**	**4.75**	**0.01**	**2.71**	**0.74**

2012 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles	0.142	1.065	0.809	0.002	0.038	0.031
Offroad Vehicles/Equipment	0.216	0.806	1.379	0.002	0.089	0.082
Helicopter	0.000	0.000	0.000	0.000	0.000	0.000
Fugitive Dust	---	---	---	---	1.090	0.213
Totals	**0.36**	**1.87**	**2.19**	**0.00**	**1.22**	**0.33**

2013 Emissions	Emissions (tons/year)					
	VOC	CO	NOx	SOx	PM10	PM2.5
Onroad Vehicles						
Offroad Vehicles/Equipment						
Helicopter						
Fugitive Dust	---	---	---	---		
Totals	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**