Appendix A Project Description Information

Appendix A – Project Description Information

List of Figures

Aliso Canyon PEA

Figure A-1
Gas Plant Overview

Southern California Gas Company
A Sempra Energy utility®

AECOM

Project: 06205-134
Date: June 2009

Y:\Projects\Sempra_Energy\Aliso_Project\MXD\PEA\Figure_A1.mxd

Aliso Canyon PEA

Figure A-2
Proposed SCE
Natural Substation
Location

Southern California Gas Company
A Sempra Energy utility

AECOM

Project: 06205-134
Date: August 2009

Y:\Projects\Sempra_Energy\Aliso_Project\MXD\PEA\Figure_A2.mxd

Aliso Canyon PEA

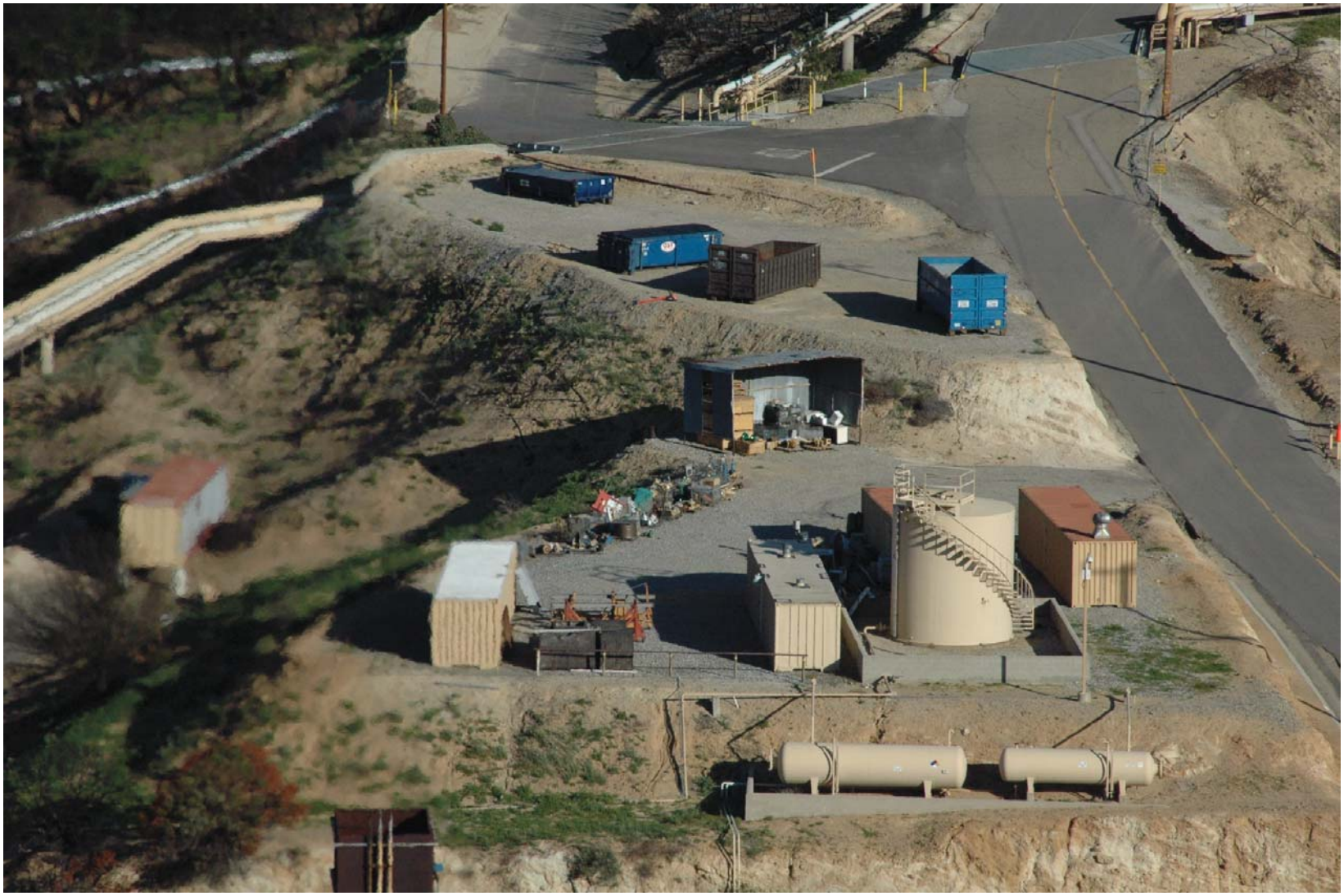
Figure A-3
Proposed SCE Natural Substation Location and Gas Plant-East

Southern California Gas Company A Sempra Energy utility

AECOM

Project: 06205-134
Date: August 2009

Y:\Projects\Sempra_Energy\Aliso_Project\MXD\PEA\Figure_A3.mxd



Aliso Canyon PEA

Figure A-4
Proposed Office
Trailer Relocation Site

Southern California Gas Company A Sempra Energy utility

AECOM

Project: 06205-134
Date: August 2009

Y:\Projects\Sempra_Energy\Aliso_Project\MXD\PEA\Figure_A4.mxd

Appendix B Environmental Resource Information

Appendix B.1 – Air Quality Emission Calculations

Table 1

Peak Daily Construction Emissions						
Scenario[1]	**ROG (lb/day)**	**CO (lb/day)**	**NO_x (lb/day)**	**SO_x (lb/day)**	**PM_{10} (lb/day)**	**$PM_{2.5}$ (lb/day)**
1	43.00	78.35	490.11	10.80	24.88	8.82
2	69.31	129.30	492.42	5.09	46.65	17.03
3	68.42	174.60	425.98	3.62	28.87	12.52
4	70.34	197.48	492.96	4.99	36.97	15.84
5	73.55	226.98	454.30	3.77	30.80	15.47
6	38.59	58.14	192.86	1.98	14.85	4.86
Peak Daily	**73.55**	**226.98**	**492.96**	**10.80**	**46.65**	**17.03**

[1] Emissions were calculated for six scenarios, listed below. Each scenario includes a combination of construction activities that could occur at the same time.

Scenario 1 Daily Emissions

Activity	**ROG (lb/day)**	**CO (lb/day)**	**NO_x (lb/day)**	**SO_x (lb/day)**	**PM_{10} (lb/day)**	**$PM_{2.5}$ (lb/day)**
Guard House and Office Trailer Relocation	20.36	46.57	312.12	8.31	8.11	4.43
Substation Survey	0.15	0.18	0.19	0.15	0.23	0.15
Marshalling Yard	1.73	2.25	0.91	0.00	0.75	0.11
ROW Clearing	8.31	10.21	65.37	0.93	3.02	0.96
Subtransmission Line Survey	0.15	1.36	0.19	0.00	0.10	0.01
Subtransmission Line Roadway	12.13	16.68	110.10	1.41	12.59	3.13
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**43.00**	**78.35**	**490.11**	**10.80**	**24.88**	**8.82**

Scenario 2 Daily Emissions

Activity	**ROG (lb/day)**	**CO (lb/day)**	**NO_x (lb/day)**	**SO_x (lb/day)**	**PM_{10} (lb/day)**	**$PM_{2.5}$ (lb/day)**
Compressor Station Survey	0.09	0.17	0.18	0.07	0.12	0.08
Substation Grading	7.09	24.03	46.11	0.06	15.56	4.48
Subtransmission Line Survey	0.15	1.36	0.19	0.00	0.10	0.01
Subtransmission Line Roadway	12.13	16.68	110.10	1.41	12.59	3.13
Subtransmission Pole Framing and Setting	12.04	21.62	65.64	0.52	4.74	3.10
Subtransmission Line TSP Footing Installation	16.59	32.73	134.05	1.48	5.48	2.95
Subtransmission Line Assembly	13.22	23.86	110.47	1.42	5.06	2.58
Subtransmission Line Restoration	7.99	8.85	25.69	0.13	3.00	0.71
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**69.31**	**129.30**	**492.42**	**5.09**	**46.65**	**17.03**

Table 1
Scenario 3 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Compressor Station Site Clearing	5.69	30.69	32.08	0.05	3.07	0.99
Compressor Station Site Preparation	7.57	39.40	50.28	0.07	5.28	0.99
Substation Civil	3.28	13.13	12.29	0.02	1.39	0.99
Substation Fencing	0.82	3.54	2.60	0.00	0.30	0.19
Subtransmission Guard Structure Installation	9.05	8.28	18.38	0.05	3.45	0.71
Subtransmission Line Survey	0.15	1.36	0.19	0.00	0.10	0.01
Subtransmission Pole Framing and Setting	12.04	21.62	65.64	0.52	4.74	3.10
Subtransmission Line TSP Footing Installation	16.59	32.73	134.05	1.48	5.48	2.95
Subtransmission Line Assembly	13.22	23.86	110.47	1.42	5.06	2.58
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**68.42**	**174.60**	**425.98**	**3.62**	**28.87**	**12.52**

Scenario 4 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Compressor Station Civil	10.51	69.93	47.43	0.11	6.20	2.47
Substation MEER	0.18	1.44	0.53	0.00	0.12	0.02
Substation Electrical	1.69	7.44	5.75	0.01	0.70	0.42
Substation Wiring	0.27	1.88	0.59	0.00	0.15	0.04
Substation Transformer	1.54	6.78	7.45	0.01	0.75	0.52
Substation Testing	0.12	1.03	0.49	0.00	0.07	0.02
Substation Maintenance	0.18	1.37	1.27	0.00	0.10	0.04
Substation Paving	1.33	8.84	7.63	0.01	0.69	0.47
Substation Landscaping	0.38	2.51	1.39	0.00	0.21	0.07
Subtransmission Line Survey	0.15	1.36	0.19	0.00	0.10	0.01
Subtransmission Line Roadway	12.13	16.68	110.10	1.41	12.59	3.13
Subtransmission Pole Framing and Setting	12.04	21.62	65.64	0.52	4.74	3.10
Subtransmission Line TSP Footing Installation	16.59	32.73	134.05	1.48	5.48	2.95
Subtransmission Line Assembly	13.22	23.86	110.47	1.42	5.06	2.58
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**70.34**	**197.48**	**492.96**	**4.99**	**36.97**	**15.84**

Table 1
Scenario 5 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Compressor Station Mechanical	11.76	73.06	57.14	0.12	6.57	2.80
Compressor Station Electrical	5.95	33.10	34.80	0.06	2.99	1.68
Substation MEER	0.18	1.44	0.53	0.00	0.12	0.02
Substation Electrical	1.69	7.44	5.75	0.01	0.70	0.42
Substation Wiring	0.27	1.88	0.59	0.00	0.15	0.04
Substation Transformer	1.54	6.78	7.45	0.01	0.75	0.52
Substation Testing	0.12	1.03	0.49	0.00	0.07	0.02
Substation Maintenance	0.18	1.37	1.27	0.00	0.10	0.04
Substation Paving	1.33	8.84	7.63	0.01	0.69	0.47
Substation Landscaping	0.38	2.51	1.39	0.00	0.21	0.07
Subtransmission Line Survey	0.15	1.36	0.19	0.00	0.10	0.01
Subtransmission Pole Framing and Setting	12.04	21.62	65.64	0.52	4.74	3.10
Subtransmission Line TSP Footing Installation	16.59	32.73	134.05	1.48	5.48	2.95
Subtransmission Line Assembly	13.22	23.86	110.47	1.42	5.06	2.58
Subtransmission Line Restoration	7.99	8.85	25.69	0.13	3.00	0.71
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**73.55**	**226.98**	**454.30**	**3.77**	**30.80**	**15.47**

Scenario 6 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
PPL Installation	14.69	15.67	22.12	0.06	6.53	1.26
Subtransmission Line Conductor Installation	17.68	23.49	108.34	1.41	6.43	2.27
Subtransmission Line Restoration	7.99	8.85	25.69	0.13	3.00	0.71
Fiber Optic Installation	0.32	2.17	2.09	0.00	0.22	0.09
Subtransmission Guard Structure Removal	10.47	12.43	46.93	0.42	4.12	1.17
Compressor Station Paving	0.18	1.44	0.53	0.00	0.12	0.02
Compressor Station Fencing	0.27	1.88	0.59	0.00	0.15	0.04
Compressor Station Landscaping	1.54	6.78	7.45	0.01	0.75	0.52
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**38.59**	**58.14**	**192.86**	**1.98**	**14.85**	**4.86**

Table 2
Compressor Station Survey

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00
Vehicle Exhaust	0.09	0.17	0.18	0.07	0.08	0.08
Vehicle Fugitive	--	--	--	--	0.04	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**0.09**	**0.17**	**0.18**	**0.07**	**0.12**	**0.08**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				0.00	0.00	0.00	0.00	0.00	0.00
Total Equipment Exhaust				**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	5	1	0.01	0.09	0.10	0.00	0.00	0.00
Worker Commuting	40	2	0.07	0.07	0.07	0.07	0.07	0.07
Total Vehicle Exhaust			**0.09**	**0.17**	**0.18**	**0.07**	**0.08**	**0.08**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	Paved	5	1	0.00	0.00
Pickup Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	2	0.04	0.00
Worker Commuting	Unpaved	0	2	0.00	0.00
Total Vehicle Fugitive				**0.04**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

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

Emission factors are in Table 46

Table 3
Compressor Station Site Clearing

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	3.55	12.87	26.32	0.03	1.62	1.49
Vehicle Exhaust	2.15	17.81	5.76	0.03	0.36	0.27
Vehicle Fugitive	--	--	--	--	1.08	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**5.69**	**30.69**	**32.08**	**0.05**	**3.07**	**1.76**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
D6 Dozer		5	1	0.93	3.20	6.93	0.01	0.43	0.39
Grader		5	1	0.86	3.16	7.17	0.01	0.38	0.35
Backhoe/Loader		5	2	1.02	3.93	6.75	0.01	0.52	0.48
Sheep's Foot Vibrator Compactor (10 yards)		5	2	0.05	0.26	0.32	0.00	0.02	0.01
Forklift		5	2	0.69	2.32	5.16	0.01	0.28	0.26
Total Equipment Exhaust				**3.55**	**12.87**	**26.32**	**0.03**	**1.62**	**1.49**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Dump Truck	10	6	0.18	0.72	2.29	0.00	0.11	0.10
6 Ton Truck	10	2	0.06	0.24	0.76	0.00	0.04	0.03
Water Truck	20	1	0.06	0.24	0.76	0.00	0.04	0.03
Pickup Truck	5	1	0.01	0.09	0.10	0.00	0.00	0.00
Worker Commuting	40	50	1.83	16.53	1.84	0.02	0.17	0.11
Total Vehicle Exhaust			**2.15**	**17.81**	**5.76**	**0.03**	**0.36**	**0.27**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Dump Truck	Paved	10	6	0.03	0.00
Dump Truck	Unpaved	0	6	0.00	0.00
6 Ton Truck	Paved	10	2	0.01	0.00
6 Ton Truck	Unpaved	0	2	0.00	0.00
Water Truck	Paved	20	1	0.01	0.00
Water Truck	Unpaved	0	1	0.00	0.00
Pickup Truck	Paved	5	1	0.00	0.00
Pickup Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	50	1.03	0.00
Worker Commuting	Unpaved	0	50	0.00	0.00
Total Vehicle Fugitive				**1.08**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

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

Emission factors are in Table 46

Table 4
Compressor Station Site Preparation

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	4.35	16.14	32.66	0.04	1.98	1.82
Vehicle Exhaust	3.23	23.26	17.62	0.04	0.89	0.74
Vehicle Fugitive	--	--	--	--	1.27	0.00
Earthwork Fugitive	--	--	--	--	1.14	0.24
Total	**7.57**	**39.40**	**50.28**	**0.07**	**5.28**	**2.79**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
D6 Dozer		5	1	0.93	3.20	6.93	0.01	0.43	0.39
Grader		5	1	0.86	3.16	7.17	0.01	0.38	0.35
Excavator		5	2	1.48	5.58	11.50	0.01	0.64	0.59
Backhoe/Loader		5	2	1.02	3.93	6.75	0.01	0.52	0.48
Sheep's Foot Vibrator Compactor (10 yards)		5	2	0.05	0.26	0.32	0.00	0.02	0.01
Total Equipment Exhaust				**4.35**	**16.14**	**32.66**	**0.04**	**1.98**	**1.82**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	10	15	0.39	2.77	3.09	0.00	0.11	0.10
Dump Truck (20 yards)	24	12	0.88	3.44	11.01	0.01	0.53	0.46
Dump Truck (10 yards)	24	1	0.07	0.29	0.92	0.00	0.04	0.04
Water Truck	20	1	0.06	0.24	0.76	0.00	0.04	0.03
Worker Commuting	40	50	1.83	16.53	1.84	0.02	0.17	0.11
Total Vehicle Exhaust			**3.23**	**23.26**	**17.62**	**0.04**	**0.89**	**0.74**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	Paved	10	15	0.08	0.00
Pickup Truck	Unpaved	0	15	0.00	0.00
Water Truck	Paved	20	1	0.01	0.00
Water Truck	Unpaved	0	1	0.00	0.00
Dump Truck (20 yards)	Paved	24	12	0.15	0.00
Dump Truck (10 yards)	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	50	1.03	0.00
Worker Commuting	Unpaved	0	50	0.00	0.00
Total Vehicle Fugitive				**1.27**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Soil Dropping[b]	CY/Day	1,150	1.14	0.24
Bulldozing, Scraping and Grading	Hours/Day	25	8.69	1.81
Storage Pile Wind Erosion[c]	Acres	0.5	11.00	2.29
Total Earthwork Fugitive			**20.84**	**4.33**

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

Emission factors are in Table 46

[b] Peak daily estimated from total of 100,000 CY over 4 months (87 working); i.e., 1150 CY per day

[c] Assumed for 0.5 acre storage pile area

Table 5
Compressor Station Civil

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	4.15	15.68	32.71	0.04	1.93	1.77
Vehicle Exhaust	6.36	54.25	14.72	0.08	0.93	0.68
Vehicle Fugitive	--	--	--	--	3.25	0.00
Earthwork Fugitive	--	--	--	--	0.10	0.02
Total	**10.51**	**69.93**	**47.43**	**0.11**	**6.20**	**2.47**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Drilling Rig		5	1	0.53	2.57	5.67	0.01	0.25	0.23
Backhoe/Loader		5	2	1.02	3.93	6.75	0.01	0.52	0.48
Forklift		5	1	0.34	1.16	2.58	0.00	0.14	0.13
30 Ton Hydraulic Crane		5	1	0.80	2.72	7.26	0.01	0.32	0.30
D6 Dozer		5	1	0.93	3.20	6.93	0.01	0.43	0.39
Front End Loader		5	1	0.51	1.96	3.37	0.00	0.26	0.24
Sheep's Foot Vibrator Compactor (10 yards)		5	1	0.03	0.13	0.16	0.00	0.01	0.01
Total Equipment Exhaust				**4.15**	**15.68**	**32.71**	**0.04**	**1.93**	**1.77**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Water Truck	20	1	0.06	0.24	0.76	0.00	0.04	0.03
Pickup Truck	10	15	0.39	2.77	3.09	0.00	0.11	0.10
6 Ton Truck	20	7	0.43	1.67	5.35	0.01	0.26	0.22
Worker Commuting	40	150	5.48	49.58	5.51	0.06	0.52	0.33
Total Vehicle Exhaust			**6.36**	**54.25**	**14.72**	**0.08**	**0.93**	**0.68**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Water Truck	Paved	20	1	0.01	0.00
Water Truck	Unpaved	0	1	0.00	0.00
Pickup Truck	Paved	10	15	0.08	0.00
Pickup Truck	Unpaved	0	15	0.00	0.00
6 Ton Truck	Paved	20	7	0.07	0.00
6 Ton Truck	Unpaved	0	7	0.00	0.00
Worker Commuting	Paved	40	150	3.09	0.00
Worker Commuting	Unpaved	0	150	0.00	0.00
Total Vehicle Fugitive				**3.25**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Soil Dropping[b]	CY/Day	**100**	0.10	0.02
Total Earthwork Fugitive			**0.10**	**0.02**

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

Emission factors are in Table 46

[b] Estimate

Table 6
Compressor Station Mechanical

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	5.46	19.04	43.19	0.04	2.34	2.15
Vehicle Exhaust	6.30	54.02	13.95	0.07	0.89	0.65
Vehicle Fugitive	--	--	--	--	3.24	0.00
Earthwork Fugitive	--	--	--	--	0.10	0.00
Total	**11.76**	**73.06**	**57.14**	**0.12**	**6.57**	**2.80**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
30 Ton Hydraulic Crane		5	1	0.80	2.72	7.26	0.01	0.32	0.30
50 Ton Hydraulic Crane		5	1	0.80	2.72	7.26	0.01	0.32	0.30
200 Ton Crawler Crane		5	2	1.59	5.43	14.51	0.01	0.64	0.59
Forklift		5	1	0.34	1.16	2.58	0.00	0.14	0.13
Front End Loader		5	3	1.53	5.89	10.12	0.01	0.78	0.72
Welders		5	1	0.40	1.12	1.46	0.00	0.13	0.12
Total Equipment Exhaust				**5.46**	**19.04**	**43.19**	**0.04**	**2.34**	**2.15**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	10	15	0.39	2.77	3.09	0.00	0.11	0.10
6 Ton Truck	20	7	0.43	1.67	5.35	0.01	0.26	0.22
Worker Commuting	40	150	5.48	49.58	5.51	0.06	0.52	0.33
Total Vehicle Exhaust			**6.30**	**54.02**	**13.95**	**0.07**	**0.89**	**0.65**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	Paved	10	15	0.08	0.00
Pickup Truck	Unpaved	0	15	0.00	0.00
6 Ton Truck	Paved	20	7	0.07	0.00
6 Ton Truck	Unpaved	0	7	0.00	0.00
Worker Commuting	Paved	40	150	3.09	0.00
Worker Commuting	Unpaved	0	150	0.00	0.00
Total Vehicle Fugitive				**3.24**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Soil Dropping[b]	CY/Day	**100**	0.10	0.00
Total Earthwork Fugitive			**0.10**	**0.00**

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

Emission factors are in Table 46

[b] Estimate

Table 7
Compressor Station Electrical

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	3.74	13.81	29.87	0.04	1.60	1.47
Vehicle Exhaust	2.22	19.29	4.93	0.03	0.29	0.21
Vehicle Fugitive	--	--	--	--	1.11	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**5.95**	**33.10**	**34.80**	**0.06**	**2.99**	**1.68**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Front End Loader		5	1	0.51	1.96	3.37	0.00	0.26	0.24
Generators		8	2	1.54	5.27	10.30	0.01	0.63	0.58
Other Construction Equipment		8	2	1.69	6.57	16.19	0.02	0.71	0.65
Total Equipment Exhaust				**3.74**	**13.81**	**29.87**	**0.04**	**1.60**	**1.47**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	10	15	0.39	2.77	3.09	0.00	0.11	0.10
Worker Commuting	40	50	1.83	16.53	1.84	0.02	0.17	0.11
Total Vehicle Exhaust			**2.22**	**19.29**	**4.93**	**0.03**	**0.29**	**0.21**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	Paved	10	15	0.08	0.00
Pickup Truck	Unpaved	0	15	0.00	0.00
Worker Commuting	Paved	40	50	1.03	0.00
Worker Commuting	Unpaved	0	50	0.00	0.00
Total Vehicle Fugitive				**1.11**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				
Total Earthwork Fugitive			**0.00**	**0.00**

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

Emission factors are in Table 46

Table 8
Compressor Station Paving

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	3.24	11.24	20.54	0.02	1.48	1.36
Vehicle Exhaust	0.30	2.47	1.02	0.00	0.05	0.04
Vehicle Fugitive	--	--	--	--	0.14	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Asphaltic Paving	--	2.62	--	--	--	--
Total	**3.5**	**16.3**	**21.6**	**0.0**	**1.7**	**1.4**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Paving Roller		5	2	1.18	4.21	7.75	0.01	0.55	0.50
Asphalt Paver		5	1	0.89	2.82	4.93	0.00	0.35	0.33
Asphalt Curb Machine		5	1	0.67	2.24	4.48	0.00	0.31	0.29
Tractor		5	1	0.51	1.96	3.37	0.00	0.26	0.24
Total Equipment Exhaust				**3.24**	**11.24**	**20.54**	**0.02**	**1.48**	**1.36**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	10	2	0.05	0.37	0.41	0.00	0.02	0.01
Dump Truck	10	1	0.03	0.12	0.38	0.00	0.02	0.02
Worker Commuting	40	6	0.22	1.98	0.22	0.00	0.02	0.01
Total Vehicle Exhaust			**0.30**	**2.47**	**1.02**	**0.00**	**0.05**	**0.04**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	Paved	10	2	0.01	0.00
Pickup Truck	Unpaved	0	2	0.00	0.00
Dump Truck	Paved	10	1	0.01	0.00
Dump Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	6	0.12	0.00
Worker Commuting	Unpaved	0	6	0.00	0.00
Total Vehicle Fugitive				**0.14**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				
Total Earthwork Fugitive			**0.00**	**0.00**

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

Emission factors are in Table 46

Asphaltic Paving VOC Emissions

Area Paved (acre/day)[a]	Emission Factor (lb/acre)[b]	ROG (lb/day)[c]
1.0	2.62	2.62

[a] Assumed a maximum of 1 acre paved in a day for worst-case emission estimation

[b] From URBEMISS 2007 User's Guide, Appendix A

[c] Emissions [lb/day] = Emission factor [lb/acre] x Area paved [acre/day]

Table 9
Compressor Station Fencing

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.55	1.99	2.34	0.00	0.20	0.19
Vehicle Exhaust	0.20	1.63	0.74	0.00	0.04	0.03
Vehicle Fugitive	--	--	--	--	0.09	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**0.76**	**3.62**	**3.07**	**0.01**	**0.33**	**0.22**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Skid Steer Loader		8	1	0.55	1.99	2.34	0.00	0.20	0.19
Total Equipment Exhaust				**0.55**	**1.99**	**2.34**	**0.00**	**0.20**	**0.19**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Flatbed Truck	10	1	0.03	0.12	0.38	0.00	0.02	0.02
Pickup Truck	10	1	0.03	0.18	0.21	0.00	0.01	0.01
Worker Commuting	40	4	0.15	1.32	0.15	0.00	0.01	0.01
Total Vehicle Exhaust			**0.20**	**1.63**	**0.74**	**0.00**	**0.04**	**0.03**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Flatbed Truck	Paved	10	1	0.01	0.00
Flatbed Truck	Unpaved	0	1	0.00	0.00
Pickup Truck	Paved	10	1	0.01	0.00
Pickup Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	4	0.08	0.00
Worker Commuting	Unpaved	0	4	0.00	0.00
Total Vehicle Fugitive				**0.09**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

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

Emission factors are in Table 46

Table 10
Compressor Station Landscaping

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.61	2.36	4.05	0.00	0.31	0.29
Vehicle Exhaust	0.40	3.42	0.75	0.00	0.05	10.02
Vehicle Fugitive	--	--	--	--	0.21	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**1.01**	**5.78**	**4.80**	**0.01**	**0.58**	**10.30**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Tractor		6	1	0.61	2.36	4.05	0.00	0.31	0.29
Total Equipment Exhaust				**0.61**	**2.36**	**4.05**	**0.00**	**0.31**	**0.29**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Dump Truck	10	1	0.03	0.12	0.38	0.00	0.02	0.02
Worker Commuting	40	10	0.37	3.31	0.37	0.00	0.03	10.00
Total Vehicle Exhaust			**0.40**	**3.42**	**0.75**	**0.00**	**0.05**	**10.02**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Dump Truck	Paved	10	1	0.01	0.00
Dump Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	10	0.21	0.00
Worker Commuting	Unpaved	0	10	0.00	0.00
Total Vehicle Fugitive				**0.21**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

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

Emission factors are in Table 46

Table 11
Plant Power Line Construction

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	14.14	10.71	21.57	0.05	6.07	1.20
Vehicle Exhaust	0.55	4.96	0.55	0.01	0.05	0.03
Vehicle Fugitive	--	--	--	--	0.31	0.00
Earthwork Fugitive	--	--	--	--	0.10	0.02
Total	**14.69**	**15.67**	**22.12**	**0.06**	**6.53**	**1.26**

Construction Equipment Exhaust Emissions

Equipment	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Backhoe	6	2	1.22	0.96	0.80	0.00	0.62	0.12
Hauler	4	1	0.99	0.74	1.75	0.00	0.35	0.08
Skid Steer Loader	4	2	0.55	0.28	0.04	0.00	0.20	0.03
Water Truck	6	1	1.49	1.11	3.93	0.01	0.53	0.12
Concrete Truck	4	1	0.99	0.74	1.75	0.00	0.35	0.08
Ditch Witch	6	1	1.06	0.59	1.02	0.00	0.43	0.07
Batch Plant	8	1	1.72	1.25	3.10	0.01	0.75	0.15
Drill Rig	6	2	1.26	1.30	1.86	0.00	0.60	0.12
Truck with Trailer	2	2	0.99	1.47	3.49	0.01	0.35	0.16
Compressor	2	1	0.22	0.08	0.01	0.00	0.36	0.04
Construction Fork	6	1	0.76	0.36	0.22	0.00	0.41	0.05
980 Loader	4	1	0.41	0.16	0.04	0.00	0.21	0.02
Boom Truck	4	1	0.99	0.74	1.75	0.00	0.35	0.08
Bucket Truck	4	1	0.99	0.74	1.75	0.00	0.35	0.08
Vibrating Roller	4	1	0.47	0.20	0.07	0.00	0.22	0.02
Total Equipment Exhaust			**14.14**	**10.71**	**21.57**	**0.05**	**6.07**	**1.20**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission estimates calculated using SCAQMD Off-road Emission factors, provided in tab "Offroad 2010"

Emission factors based on equipment composite where BHP unknown.

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	15	0.55	4.96	0.55	0.01	0.05	0.03
Total Vehicle Exhaust			**0.55**	**4.96**	**0.55**	**0.01**	**0.05**	**0.03**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	15	0.31	0.00
Worker Commuting	Unpaved	0	15	0.00	0.00
Total Vehicle Fugitive				**0.31**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Soil Dropping[b]	CY/Day	**100**	0.10	0.02
Total Earthwork Fugitive			**0.10**	**0.02**

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

Emission factors are in Table 46

[b] Estimate

Table 12
Guard House and Office Trailer Relocation

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	19.82	41.61	311.57	8.30	7.64	4.38
Vehicle Exhaust	0.55	4.96	0.55	0.01	0.05	0.03
Vehicle Fugitive	--	--	--	--	0.31	0.00
Earthwork Fugitive	--	--	--	--	0.10	0.02
Total	**20.36**	**46.57**	**312.12**	**8.31**	**8.11**	**4.43**

Construction Equipment Exhaust Emissions

Equipment	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
3/4-Ton Pickup Truck	4	4	3.97	11.79	111.75	3.50	1.40	1.28
10-Ton Hydraulic Crane	4	1	0.64	0.35	0.32	0.00	0.26	0.04
Backhoe/Loader	4	2	1.15	1.17	1.56	0.00	0.52	0.14
Water Truck	4	2	1.98	2.95	13.97	0.11	0.70	0.32
Grader	4	1	0.69	0.44	0.43	0.00	0.30	0.05
D6 Dozer	4	2	2.70	7.64	61.70	1.16	1.03	0.64
Dump Truck	4	4	3.97	11.79	111.75	3.50	1.40	1.28
Sheep's Foot Vibrator Compactor	4	2	1.72	2.50	6.20	0.02	0.75	0.30
Front End Loader	4	2	1.15	1.17	1.56	0.00	0.52	0.14
Drill Rig	4	1	0.42	0.22	0.10	0.00	0.20	0.02
Paver/Sealer	4	2	1.42	1.60	2.24	0.00	0.57	0.19
Total Equipment Exhaust			**19.82**	**41.61**	**311.57**	**8.30**	**7.64**	**4.38**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission estimates calculated using SCAQMD Off-road Emission factors, provided in tab "Offroad 2010"

Emission factors based on equipment composite where BHP unknown.

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	15	0.55	4.96	0.55	0.01	0.05	0.03
Total Vehicle Exhaust			**0.55**	**4.96**	**0.55**	**0.01**	**0.05**	**0.03**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	15	0.31	0.00
Worker Commuting	Unpaved	0	15	0.00	0.00
Total Vehicle Fugitive				**0.31**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Soil Dropping[b]	CY/Day	**100**	0.10	0.02
Total Earthwork Fugitive			**0.10**	**0.02**

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

Emission factors are in Table 46

[b] Estimate

Table 13
Substation Survey

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00
Vehicle Exhaust	0.15	0.18	0.19	0.15	0.15	0.15
Vehicle Fugitive	--	--	--	--	0.08	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**0.15**	**0.18**	**0.19**	**0.15**	**0.23**	**0.15**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				0.00	0.00	0.00	0.00	0.00	0.00
Total Equipment Exhaust				**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	1	2	0.01	0.04	0.04	0.00	0.00	0.00
Worker Commuting	40	4	0.15	0.15	0.15	0.15	0.15	0.15
Total Vehicle Exhaust			**0.15**	**0.18**	**0.19**	**0.15**	**0.15**	**0.15**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	Paved	1	2	0.00	0.00
Pickup Truck	Unpaved	0	2	0.00	0.00
Worker Commuting	Paved	40	4	0.08	0.00
Worker Commuting	Unpaved	0	4	0.00	0.00
Total Vehicle Fugitive				**0.08**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

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

Emission factors are in Table 46

Table 14
Substation Grading

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	5.78	15.86	36.26	0.04	2.63	1.56
Vehicle Exhaust	1.31	8.17	9.86	0.02	0.49	0.42
Vehicle Fugitive	--	--	--	--	0.44	0.00
Earthwork Fugitive	--	--	--	--	12.00	2.50
Total	**7.09**	**24.03**	**46.11**	**0.06**	**15.56**	**4.48**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Off-Highway Truck	300	8	1	1.31	0.56	1.19	0.00	0.46	0.07
Grader	350	1	1	0.17	0.63	1.43	0.00	0.08	0.07
Water Truck	350	8	2	1.87	9.44	15.88	0.02	0.87	0.80
Backhoe	350	6	1	0.85	2.42	9.30	0.01	0.31	0.29
Dozer	350	6	1	0.90	0.38	0.52	0.00	0.64	0.09
Lowboy Truck/Trailer	500	4	1	0.68	2.43	7.93	0.01	0.27	0.25
Total Equipment Exhaust				**5.78**	**15.86**	**36.26**	**0.04**	**2.63**	**1.56**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 42

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Water Truck	10	1	0.03	0.12	0.38	0.00	0.02	0.02
Tool Truck	5	1	0.01	0.09	0.10	0.00	0.00	0.00
Pickup Truck	20	1	0.05	0.37	0.41	0.00	0.02	0.01
Dump Truck	5	44	0.67	2.63	8.41	0.01	0.40	0.35
Worker Commuting	40	15	0.55	4.96	0.55	0.01	0.05	0.03
Total Vehicle Exhaust			**1.31**	**8.17**	**9.86**	**0.02**	**0.49**	**0.42**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

No. dump trucks = 440 CY/day / 10 CY/truck

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Water Truck	Paved	10	1	0.01	0.00
Water Truck	Unpaved	0	1	0.00	0.00
Tool Truck	Paved	5	1	0.00	0.00
Tool Truck	Unpaved	0	1	0.00	0.00
Pickup Truck	Paved	20	1	0.01	0.00
Pickup Truck	Unpaved	0	1	0.00	0.00
Dump Truck	Paved	5	44	0.11	0.00
Dump Truck	Unpaved	0	44	0.00	0.00
Worker Commuting	Paved	40	15	0.31	0.00
Worker Commuting	Unpaved	0	15	0.00	0.00
Total Vehicle Fugitive				**0.44**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Soil Dropping[b]	CY/Day	1,000	0.99	0.21
Storage Pile Wind Erosion[c]	Acres	0.5	11.00	2.29
Total Earthwork Fugitive			**12.00**	**2.50**

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

Emission factors are in Table 46

[b] Peak daily estimated from total of 40,000 CY over 45 days

[c] Assumed for 0.5 acre storage pile area

Table 15
Substation Civil

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	2.84	9.49	11.06	0.01	1.00	0.92
Vehicle Exhaust	0.44	3.64	1.23	0.01	0.08	0.06
Vehicle Fugitive	--	--	--	--	0.22	0.00
Earthwork Fugitive	--	--	--	--	0.10	0.02
Total	**3.28**	**13.13**	**12.29**	**0.02**	**1.39**	**0.99**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Excavator	152	4	1	0.56	2.13	3.36	0.00	0.31	0.29
Foundation Auger	79	6	1	0.33	1.50	1.69	0.00	0.12	0.11
Backhoe	79	3	2	0.75	2.13	1.87	0.00	0.19	0.17
Skip Loader	75	3	1	0.24	0.75	0.74	0.00	0.07	0.06
Skid Steer Loader	75	3	2	0.47	1.50	1.48	0.00	0.13	0.12
Forklift	83	4	1	0.27	0.73	0.61	0.00	0.07	0.06
17 Ton Crane	125	2	1	0.22	0.74	1.31	0.00	0.12	0.11
Total Equipment Exhaust				**2.84**	**9.49**	**11.06**	**0.01**	**1.00**	**0.92**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Water Truck	10	1	0.03	0.12	0.38	0.00	0.02	0.02
Tool Truck	5	1	0.01	0.09	0.10	0.00	0.00	0.00
Dump Truck	10	1	0.03	0.12	0.38	0.00	0.02	0.02
Worker Commuting	40	10	0.37	3.31	0.37	0.00	0.03	0.02
Total Vehicle Exhaust			**0.44**	**3.64**	**1.23**	**0.01**	**0.08**	**0.06**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Water Truck	Paved	10	1	0.01	0.00
Water Truck	Unpaved	0	1	0.00	0.00
Tool Truck	Paved	5	1	0.00	0.00
Tool Truck	Unpaved	0	1	0.00	0.00
Dump Truck	Paved	10	1	0.01	0.00
Dump Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	10	0.21	0.00
Worker Commuting	Unpaved	0	10	0.00	0.00
Total Vehicle Fugitive				**0.22**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Soil Dropping[b]	CY/Day	100	0.10	0.02
Total Earthwork Fugitive			**0.10**	**0.02**

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

Emission factors are in Table 46

[b] Estimate

Table 16
Substation MEER

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.0	0.0	0.0	0.0	0.0	0.0
Vehicle Exhaust	0.2	1.4	0.5	0.0	0.0	0.0
Vehicle Fugitive	--	--	--	--	0.1	0.0
Earthwork Fugitive	--	--	--	--	0.0	0.0
Total	**0.2**	**1.4**	**0.5**	**0.0**	**0.1**	**0.0**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				0.0	0.0	0.0	0.0	0.0	0.0
Total Equipment Exhaust				**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Carry-all Truck	5	1	0.02	0.06	0.19	0.00	0.01	0.01
Stake Truck	5	1	0.02	0.06	0.19	0.00	0.01	0.01
Worker Commuting	40	4	0.15	1.32	0.15	0.00	0.01	0.01
Total Vehicle Exhaust			**0.2**	**1.4**	**0.5**	**0.0**	**0.0**	**0.0**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Carry-all Truck	Paved	5	1	0.0	0.0
Carry-all Truck	Unpaved	0	1	0.0	0.0
Stake Truck	Paved	5	1	0.0	0.0
Stake Truck	Unpaved	0	1	0.0	0.0
Worker Commuting	Paved	40	4	0.1	0.0
Worker Commuting	Unpaved	0	4	0.0	0.0
Total Vehicle Fugitive				**0.1**	**0.0**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.0	0.0
Total Earthwork Fugitive			**0.0**	**0.0**

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

Emission factors are in Table 46

Table 17
Substation Electrical

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	1.22	3.40	4.55	0.01	0.41	0.38
Vehicle Exhaust	0.47	4.04	1.19	0.01	0.06	0.05
Vehicle Fugitive	--	--	--	--	0.23	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**1.69**	**7.44**	**5.75**	**0.01**	**0.70**	**0.42**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Scissor Lift	87	3	2	0.45	1.16	1.19	0.00	0.11	0.10
Manlift	43	3	2	0.13	0.35	0.61	0.00	0.04	0.04
Reach Manlift	87	4	1	0.30	0.77	0.79	0.00	0.08	0.07
15 Ton Crane	125	3	1	0.33	1.12	1.96	0.00	0.18	0.17
Total Equipment Exhaust				**1.22**	**3.40**	**4.55**	**0.01**	**0.41**	**0.38**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Crew Truck	20	2	0.10	0.74	0.82	0.00	0.03	0.03
Worker Commuting	40	10	0.37	3.31	0.37	0.00	0.03	0.02
Total Vehicle Exhaust			**0.47**	**4.04**	**1.19**	**0.01**	**0.06**	**0.05**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Crew Truck	Paved	20	2	0.02	0.00
Crew Truck	Unpaved	0	2	0.00	0.00
Worker Commuting	Paved	40	10	0.21	0.00
Worker Commuting	Unpaved	0	10	0.00	0.00
Total Vehicle Fugitive				**0.23**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				
Total Earthwork Fugitive			**0.00**	**0.00**

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

Emission factors are in Table 46

Table 18
Substation Wiring

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.08	0.23	0.41	0.00	0.03	0.02
Vehicle Exhaust	0.18	1.65	0.18	0.00	0.02	0.01
Vehicle Fugitive	--	--	--	--	0.10	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**0.27**	**1.88**	**0.59**	**0.00**	**0.15**	**0.04**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Manlift	43	4	1	0.08	0.23	0.41	0.00	0.03	0.02
Total Equipment Exhaust				**0.08**	**0.23**	**0.41**	**0.00**	**0.03**	**0.02**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	5	0.18	1.65	0.18	0.00	0.02	0.01
Total Vehicle Exhaust			**0.18**	**1.65**	**0.18**	**0.00**	**0.02**	**0.01**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	5	0.10	0.00
Worker Commuting	Unpaved	0	5	0.00	0.00
Total Vehicle Fugitive				**0.10**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				
Total Earthwork Fugitive			**0.00**	**0.00**

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

Emission factors are in Table 46

Table 19
Substation Transformer

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	1.07	3.33	4.84	0.00	0.46	0.42
Vehicle Exhaust	0.47	3.45	2.60	0.01	0.12	0.10
Vehicle Fugitive	--	--	--	--	0.17	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**1.54**	**6.78**	**7.45**	**0.01**	**0.75**	**0.52**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Forklift	83	1	6	0.40	1.09	0.92	0.00	0.10	0.09
Crane	125	1	6	0.67	2.23	3.93	0.00	0.36	0.33
Total Equipment Exhaust				**1.07**	**3.33**	**4.84**	**0.00**	**0.46**	**0.42**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Crew Truck	30	2	0.16	1.11	1.24	0.00	0.05	0.04
Low Bed Truck	30	1	0.09	0.36	1.15	0.00	0.05	0.05
Worker Commuting	40	6	0.22	1.98	0.22	0.00	0.02	0.01
Total Vehicle Exhaust			**0.47**	**3.45**	**2.60**	**0.01**	**0.12**	**0.10**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Crew Truck	Paved	30	2	0.03	0.00
Crew Truck	Unpaved	0	2	0.00	0.00
Low Bed Truck	Paved	30	1	0.02	0.00
Low Bed Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	6	0.12	0.00
Worker Commuting	Unpaved	0	6	0.00	0.00
Total Vehicle Fugitive				**0.17**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				
Total Earthwork Fugitive			**0.00**	**0.00**

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

Emission factors are in Table 46

Table 20
Substation Testing

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00
Vehicle Exhaust	0.12	1.03	0.49	0.00	0.02	0.02
Vehicle Fugitive	--	--	--	--	0.05	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**0.12**	**1.03**	**0.49**	**0.00**	**0.07**	**0.02**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				0.00	0.00	0.00	0.00	0.00	0.00
Total Equipment Exhaust				**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Crew Truck	20	1	0.05	0.37	0.41	0.00	0.02	0.01
Worker Commuting	40	2	0.07	0.66	0.07	0.00	0.01	0.00
Total Vehicle Exhaust			**0.12**	**1.03**	**0.49**	**0.00**	**0.02**	**0.02**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Crew Truck	Paved	20	1	0.01	0.00
Crew Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	2	0.04	0.00
Worker Commuting	Unpaved	0	2	0.00	0.00
Total Vehicle Fugitive				**0.05**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

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

Emission factors are in Table 46

Table 21
Substation Maintenance

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00
Vehicle Exhaust	0.18	1.37	1.27	0.00	0.05	0.04
Vehicle Fugitive	--	--	--	--	0.05	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**0.18**	**1.37**	**1.27**	**0.00**	**0.10**	**0.04**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				0.00	0.00	0.00	0.00	0.00	0.00
Total Equipment Exhaust				**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Maintenance Truck	30	2	0.16	1.11	1.24	0.00	0.05	0.04
Worker Commuting	32	1	0.03	0.26	0.03	0.00	0.00	0.00
Total Vehicle Exhaust			**0.18**	**1.37**	**1.27**	**0.00**	**0.05**	**0.04**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Maintenance Truck	Paved	30	2	0.03	0.00
Maintenance Truck	Unpaved	0	2	0.00	0.00
Worker Commuting	Paved	32	1	0.02	0.00
Worker Commuting	Unpaved	0	1	0.00	0.00
Total Vehicle Fugitive				**0.05**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

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

Emission factors are in Table 46

Table 22
Substation Paving

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.90	2.89	5.41	0.01	0.42	0.39
Vehicle Exhaust	0.44	3.33	2.22	0.01	0.10	0.08
Vehicle Fugitive	--	--	--	--	0.16	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Asphaltic Paving	--	2.62	--	--	--	--
Total	**1.3**	**8.8**	**7.6**	**0.0**	**0.7**	**0.5**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Paving Roller	46	4	2	0.13	0.44	0.84	0.00	0.04	0.04
Asphalt Paver	152	4	1	0.66	2.09	3.88	0.00	0.34	0.31
Asphalt Curb Machine	35	3	1	0.05	0.16	0.30	0.00	0.02	0.01
Tractor	45	3	1	0.06	0.20	0.39	0.00	0.02	0.02
Total Equipment Exhaust				**0.90**	**2.89**	**5.41**	**0.01**	**0.42**	**0.39**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Crew Truck	30	2	0.16	1.11	1.24	0.00	0.05	0.04
Stake Truck	10	1	0.03	0.12	0.38	0.00	0.02	0.02
Dump Truck	10	1	0.03	0.12	0.38	0.00	0.02	0.02
Worker Commuting	40	6	0.22	1.98	0.22	0.00	0.02	0.01
Total Vehicle Exhaust			**0.44**	**3.33**	**2.22**	**0.01**	**0.10**	**0.08**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Crew Truck	Paved	30	2	0.03	0.00
Crew Truck	Unpaved	0	2	0.00	0.00
Stake Truck	Paved	10	1	0.01	0.00
Stake Truck	Unpaved	0	1	0.00	0.00
Dump Truck	Paved	10	1	0.01	0.00
Dump Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	6	0.12	0.00
Worker Commuting	Unpaved	0	6	0.00	0.00
Total Vehicle Fugitive				**0.16**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				
Total Earthwork Fugitive			**0.00**	**0.00**

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

Emission factors are in Table 46

Asphaltic Paving VOC Emissions

Area Paved (acre/day)[a]	Emission Factor (lb/acre)[b]	ROG (lb/day)[c]
1.0	2.62	2.6

[a] Assumed one acre to be paved (worst-case)

[b] From URBEMISS 2007 User's Guide, Appendix A,
http://www.urbemis.com/software/download.html

[c] Emissions [lb/day] = Emission factor [lb/acre] x Area paved [acre/day]

Table 23
Substation Fencing

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.63	2.01	1.97	0.00	0.17	0.16
Vehicle Exhaust	0.19	1.53	0.63	0.00	0.04	0.03
Vehicle Fugitive	--	--	--	--	0.09	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**0.82**	**3.54**	**2.60**	**0.00**	**0.30**	**0.19**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Skid Steer Loader	75	8	1	0.63	2.01	1.97	0.00	0.17	0.16
Total Equipment Exhaust				**0.63**	**2.01**	**1.97**	**0.00**	**0.17**	**0.16**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Flatbed Truck	10	1	0.03	0.12	0.38	0.00	0.02	0.02
Pickup Truck	5	1	0.01	0.09	0.10	0.00	0.00	0.00
Worker Commuting	40	4	0.15	1.32	0.15	0.00	0.01	0.01
Total Vehicle Exhaust			**0.19**	**1.53**	**0.63**	**0.00**	**0.04**	**0.03**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Flatbed Truck	Paved	10	1	0.01	0.00
Flatbed Truck	Unpaved	0	1	0.00	0.00
Pickup Truck	Paved	5	1	0.00	0.00
Pickup Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	4	0.08	0.00
Worker Commuting	Unpaved	0	4	0.00	0.00
Total Vehicle Fugitive				**0.09**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

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

Emission factors are in Table 46

Table 24
Substation Landscaping

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.13	0.41	0.79	0.00	0.04	0.04
Vehicle Exhaust	0.25	2.10	0.60	0.00	0.04	0.03
Vehicle Fugitive	--	--	--	--	0.13	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**0.38**	**2.51**	**1.39**	**0.00**	**0.21**	**0.07**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Tractor	45	6	1	0.13	0.41	0.79	0.00	0.04	0.04
Total Equipment Exhaust				**0.13**	**0.41**	**0.79**	**0.00**	**0.04**	**0.04**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Dump Truck	10	1	0.03	0.12	0.38	0.00	0.02	0.02
Worker Commuting	40	6	0.22	1.98	0.22	0.00	0.02	0.01
Total Vehicle Exhaust			**0.25**	**2.10**	**0.60**	**0.00**	**0.04**	**0.03**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Dump Truck	Paved	10	1	0.01	0.00
Dump Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	6	0.12	0.00
Worker Commuting	Unpaved	0	6	0.00	0.00
Total Vehicle Fugitive				**0.13**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

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

Emission factors are in Table 46

Table 25
Subtransmission Guard Structure Installation

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	8.83	6.30	18.16	0.05	3.30	0.69
Vehicle Exhaust	0.22	1.98	0.22	0.00	0.02	0.01
Vehicle Fugitive	--	--	--	--	0.12	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**9.05**	**8.28**	**18.38**	**0.05**	**3.45**	**0.71**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
3/4-Ton Pick-up	300	6	2	1.97	1.69	5.38	0.02	0.69	0.21
1-Ton Crew Cab Flat Bed, 4x4	300	6	1	0.98	0.42	0.67	0.00	0.34	0.05
Compressor Trailer	120	6	1	0.43	0.21	0.06	0.00	0.33	0.02
Auger Truck	500	6	1	1.50	1.13	3.91	0.01	0.52	0.12
Extendable Flat Bed Pole Truck	350	6	1	1.50	1.13	3.91	0.01	0.52	0.12
30-Ton Crane Truck	500	8	1	1.46	0.97	2.49	0.00	0.55	0.09
80ft. Hydraulic Man-lift Bucket Truck	350	4	1	1.00	0.75	1.74	0.00	0.35	0.08
Total Equipment Exhaust				**8.83**	**6.30**	**18.16**	**0.05**	**3.30**	**0.69**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 42

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	6	0.22	1.98	0.22	0.00	0.02	0.01
Total Vehicle Exhaust			**0.22**	**1.98**	**0.22**	**0.00**	**0.02**	**0.01**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	6	0.12	0.00
Worker Commuting	Unpaved	0	6	0.00	0.00
Total Vehicle Fugitive				**0.12**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

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

Emission factors are in Table 46

Table 26
Subtransmission Line Survey

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00
Vehicle Exhaust	0.15	1.36	0.19	0.00	0.02	0.01
Vehicle Fugitive	--	--	--	--	0.08	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**0.15**	**1.36**	**0.19**	**0.00**	**0.10**	**0.01**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				0.00	0.00	0.00	0.00	0.00	0.00
Total Equipment Exhaust				**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 42

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	1	2	0.01	0.04	0.04	0.00	0.00	0.00
Worker Commuting	40	4	0.15	1.32	0.15	0.00	0.01	0.01
Total Vehicle Exhaust			**0.15**	**1.36**	**0.19**	**0.00**	**0.02**	**0.01**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	Paved	1	2	0.00	0.00
Pickup Truck	Unpaved	0	2	0.00	0.00
Worker Commuting	Paved	40	4	0.08	0.00
Worker Commuting	Unpaved	0	4	0.00	0.00
Total Vehicle Fugitive				**0.08**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

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

Emission factors are in Table 46

Table 27
Subtransmission Marshalling Yard

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	1.58	0.93	0.77	0.00	0.66	0.10
Vehicle Exhaust	0.15	1.32	0.15	0.00	0.01	0.01
Vehicle Fugitive	--	--	--	--	0.08	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**1.73**	**2.25**	**0.91**	**0.00**	**0.75**	**0.11**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
1-Ton Crew Cab, 4x4	300	2	1	0.328	0.141	0.075	0.000	0.115	0.017
30-Ton Crane Truck	300	2	1	0.249	0.086	0.026	0.000	0.094	0.011
10,000 lb Rough Terrain	200	5	1	0.820	0.599	0.632	0.001	0.374	0.056
Truck, Semi, Tractor	350	1	1	0.19	0.10	0.03	0.00	0.07	0.01
Total Equipment Exhaust				**1.58**	**0.93**	**0.77**	**0.00**	**0.66**	**0.10**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 42

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	4	0.15	1.32	0.15	0.00	0.01	0.01
Total Vehicle Exhaust			**0.15**	**1.32**	**0.15**	**0.00**	**0.01**	**0.01**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	4	0.08	0.00
Worker Commuting	Unpaved	0	4	0.00	0.00
Total Vehicle Fugitive				**0.08**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

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

Emission factors are in Table 46

Table 28
Subtransmission ROW Clearing

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	8.17	8.89	65.23	0.93	2.93	0.95
Vehicle Exhaust	0.15	1.32	0.15	0.00	0.01	0.01
Vehicle Fugitive	--	--	--	--	0.08	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**8.31**	**10.21**	**65.37**	**0.93**	**3.02**	**0.96**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
1-Ton Crew Cab, 4x4	300	8	1	1.311	0.564	1.195	0.001	0.460	0.069
Road Grader	350	6	1	1.290	0.970	2.652	0.006	0.484	0.096
Water Truck	350	8	2	3.988	6.015	55.618	0.894	1.395	0.640
Backhoe/Front Loader	350	6	1	1.58	1.34	5.76	0.03	0.59	0.14
Track Type Dozer	350	6	1	2.17	3.78	26.36	0.26	0.82	0.27
Lowboy Truck/Trailer	500	4	1	1.00	0.75	1.74	0.00	0.35	0.08
Total Equipment Exhaust				**8.17**	**8.89**	**65.23**	**0.93**	**2.93**	**0.95**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 42

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	4	0.15	1.32	0.15	0.00	0.01	0.01
Total Vehicle Exhaust			**0.15**	**1.32**	**0.15**	**0.00**	**0.01**	**0.01**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	4	0.08	0.00
Worker Commuting	Unpaved	0	4	0.00	0.00
Total Vehicle Fugitive				**0.08**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

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

Emission factors are in Table 46

Table 29
Subtransmission Line Roadway

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	12.02	15.69	109.99	1.41	4.18	1.38
Vehicle Exhaust	0.11	0.99	0.11	0.00	0.01	0.01
Vehicle Fugitive	--	--	--	--	0.06	0.00
Earthwork Fugitive	--	--	--	--	8.34	1.74
Total	**12.13**	**16.68**	**110.10**	**1.41**	**12.59**	**3.13**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
1-Ton Crew Cab, 4x4	300	2	2	0.66	0.56	0.60	0.00	0.23	0.07
Road Grader	350	4	1	0.86	0.65	1.18	0.00	0.32	0.06
Water Truck	350	8	2	3.99	6.01	55.62	0.89	1.39	0.64
Backhoe/Front Loader	350	6	1	2.08	3.40	24.08	0.25	0.59	0.19
Drum Type Compactor	250	4	1	0.90	0.56	1.28	0.00	0.34	0.07
Track Type Dozer	350	6	1	2.17	3.78	26.36	0.26	0.82	0.27
Excavator	300	6	1	0.87	0.34	0.45	0.00	0.31	0.04
Lowboy Truck/Trailer	500	2	1	0.50	0.38	0.43	0.00	0.17	0.04
Total Equipment Exhaust				**12.02**	**15.69**	**109.99**	**1.41**	**4.18**	**1.38**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 42

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	3	0.11	0.99	0.11	0.00	0.01	0.01
Total Vehicle Exhaust			**0.11**	**0.99**	**0.11**	**0.00**	**0.01**	**0.01**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	3	0.06	0.00
Worker Commuting	Unpaved	0	3	0.00	0.00
Total Vehicle Fugitive				**0.06**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Bulldozing, Scraping and Grading	Hours/Day	24	8.34	1.74
Total Earthwork Fugitive			**8.34**	**1.74**

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

Emission factors are in Table 46

Table 30
Subtransmission Pole Framing and Setting

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	11.82	19.64	65.42	0.52	4.59	3.09
Vehicle Exhaust	0.22	1.98	0.22	0.00	0.02	0.01
Vehicle Fugitive	--	--	--	--	0.12	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**12.04**	**21.62**	**65.64**	**0.52**	**4.74**	**3.10**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
1-Ton Crew Cab, 4x4	300	5	3	2.46	3.17	12.60	0.07	0.86	0.39
10,000 lb/ Rough Terrain Forklift	200	4	1	0.66	0.48	0.40	0.00	0.30	0.05
30-Ton Crane	300	6	2	1.49	1.03	1.91	0.00	0.56	0.39
Compressor Trailer	120	6	3	3.12	7.13	28.43	0.29	1.39	1.91
Flat Bed Truck/Trailer	350	4	1	1.00	3.02	6.97	0.06	0.35	0.08
10-cu yd. Dump Truck	350	4	1	1.00	3.02	4.86	0.03	0.35	0.08
Backhoe/Front Loader	350	8	1	2.10	1.79	10.24	0.07	0.78	0.19
Total Equipment Exhaust				**11.82**	**19.64**	**65.42**	**0.52**	**4.59**	**3.09**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 42

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	6	0.22	1.98	0.22	0.00	0.02	0.01
Total Vehicle Exhaust			**0.22**	**1.98**	**0.22**	**0.00**	**0.02**	**0.01**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	6	0.12	0.00
Worker Commuting	Unpaved	0	6	0.00	0.00
Total Vehicle Fugitive				**0.12**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

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

Emission factors are in Table 46

Table 31
Subtransmission Line TSP Footing Installation

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	15.80	26.65	130.41	1.47	4.93	2.79
Vehicle Exhaust	0.80	6.08	3.63	0.01	0.19	0.15
Vehicle Fugitive	--	--	--	--	0.34	0.00
Earthwork Fugitive	--	--	--	--	0.02	0.00
Total	**16.59**	**32.73**	**134.05**	**1.48**	**5.48**	**2.95**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
1-Ton Crew Cab Flat Bed, 4x4	300	2	4	1.99	6.01	27.81	0.45	0.70	0.64
30-Ton Crane Truck	300	5	2	1.82	2.41	7.79	0.03	0.68	0.23
Backhoe	200	8	2	1.95	2.29	4.30	0.01	0.90	0.20
Auger Truck	500	6	2	2.99	4.51	31.28	0.38	1.05	0.48
4000 Gallon Water Truck	350	4	2	1.99	3.01	13.90	0.11	0.70	0.32
10-cu. yd. Dump Truck	350	5	2	2.49	3.76	21.73	0.22	0.87	0.40
10-cu. yd. Concrete Mixer Truck	425	5	3	2.56	4.66	23.60	0.27	0.04	0.52
Total Equipment Exhaust				**15.80**	**26.65**	**130.41**	**1.47**	**4.93**	**2.79**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 42

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Water Truck	20	2	0.12	0.48	1.53	0.00	0.07	0.06
Crew Truck	20	2	0.10	0.74	0.82	0.00	0.03	0.03
Concrete Truck	20	1	0.06	0.24	0.76	0.00	0.04	0.03
Worker Commuting	40	14	0.51	4.63	0.51	0.01	0.05	0.03
Total Vehicle Exhaust			**0.80**	**6.08**	**3.63**	**0.01**	**0.19**	**0.15**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Water Truck	Paved	20	2	0.02	0.00
Water Truck	Unpaved	0	2	0.00	0.00
Crew Truck	Paved	20	2	0.02	0.00
Crew Truck	Unpaved	0	2	0.00	0.00
Concrete Truck	Paved	20	1	0.01	0.00
Concrete Truck	Unpaved	0	1	0.00	0.00
Worker Commuting	Paved	40	14	0.29	0.00
Worker Commuting	Unpaved	0	14	0.00	0.00
Total Vehicle Fugitive				**0.34**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Soil Dropping[b]	CY/Day	22	0.02	0.00
Total Earthwork Fugitive			**0.02**	**0.00**

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

Emission factors are in Table 46

Table 32
Subtransmission Line Conductor Installation

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	17.08	18.10	107.64	1.41	6.03	2.23
Vehicle Exhaust	0.60	5.39	0.70	0.01	0.06	0.04
Vehicle Fugitive	--	--	--	--	0.33	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**17.68**	**23.49**	**108.34**	**1.41**	**6.43**	**2.27**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
3/4-Ton Pick-up	300	8	2	2.62	2.26	9.56	0.04	0.92	0.28
1-Ton Crew Cab Flat Bed, 4x4	300	8	4	5.25	9.03	76.46	1.29	1.84	1.11
Wire Truck/Trailer	350	2	2	0.66	0.56	0.60	0.00	0.23	0.07
Dump Truck	350	2	1	0.33	0.14	0.07	0.00	0.11	0.02
Bucket Truck	350	8	2	2.62	2.26	9.56	0.04	0.92	0.28
22-Ton Manitex	350	8	2	2.24	1.65	5.54	0.01	0.81	0.21
Splicing Rig	350	2	1	0.28	0.10	0.04	0.00	0.10	0.01
Splicing Lab	300	2	1	0.28	0.10	0.04	0.00	0.10	0.01
3 Drum Straw line Puller	300	6	1	0.84	0.31	0.39	0.00	0.31	0.04
Static Truck/Tensioner	350	6	2	1.97	1.69	5.38	0.02	0.69	0.21
Total Equipment Exhaust				**17.08**	**18.10**	**107.64**	**1.41**	**6.03**	**2.23**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 42

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Crew Truck	0.35	16	0.01	0.10	0.12	0.00	0.00	0.00
Worker Commuting	40	16	0.58	5.29	0.59	0.01	0.06	0.04
Total Vehicle Exhaust			**0.60**	**5.39**	**0.70**	**0.01**	**0.06**	**0.04**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Crew Truck	Paved	0.35	16	0.00	0.00
Crew Truck	Unpaved	0	16	0.00	0.00
Worker Commuting	Paved	40	16	0.33	0.00
Worker Commuting	Unpaved	0	16	0.00	0.00
Total Vehicle Fugitive				**0.33**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

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

Emission factors are in Table 46

Table 33
Subtransmission Line Assembly

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	12.93	21.22	110.18	1.41	4.87	2.57
Vehicle Exhaust	0.29	2.64	0.29	0.00	0.03	0.02
Vehicle Fugitive	--	--	--	--	0.16	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**13.22**	**23.86**	**110.47**	**1.42**	**5.06**	**2.58**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
3/4-Ton Pick-up Truck, 4x4	300	5	5	4.10	8.81	58.34	0.96	1.44	1.08
1-Ton Crew Cab Flat Bed, 4x4	300	5	4	3.28	5.64	29.87	0.32	1.15	0.69
Compressor Trailer	120	5	2	1.32	1.43	1.63	0.00	0.74	0.18
80-Ton Rough Terrain Crane	350	6	3	2.24	2.32	6.43	0.02	0.85	0.29
40' Flat Bed Truck/Trailer	350	4	2	1.99	3.01	13.90	0.11	0.70	0.32
Total Equipment Exhaust				**12.93**	**21.22**	**110.18**	**1.41**	**4.87**	**2.57**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 42

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	8	0.29	2.64	0.29	0.00	0.03	0.02
Total Vehicle Exhaust			**0.29**	**2.64**	**0.29**	**0.00**	**0.03**	**0.02**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	8	0.16	0.00
Worker Commuting	Unpaved	0	8	0.00	0.00
Total Vehicle Fugitive				**0.16**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

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

Emission factors are in Table 46

Table 34
Subtransmission Line Restoration

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	7.81	7.20	25.50	0.12	2.88	0.70
Vehicle Exhaust	0.18	1.65	0.18	0.00	0.02	0.01
Vehicle Fugitive	--	--	--	--	0.10	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**7.99**	**8.85**	**25.69**	**0.13**	**3.00**	**0.71**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
1-Ton Crew Cab, 4x4	300	2	2	0.66	0.56	0.60	0.00	0.23	0.07
Road Grader	350	6	1	1.29	0.97	2.65	0.01	0.48	0.10
Water Truck	350	4	1	1.00	0.75	1.74	0.00	0.35	0.08
Backhoe/Front Loader	350	6	1	1.58	1.34	5.76	0.03	0.59	0.14
Drum Type Compactor	250	6	1	1.35	0.84	2.87	0.01	0.50	0.10
Track Type Dozer	350	4	1	1.45	2.52	11.71	0.08	0.55	0.18
Lowboy Truck/Trailer	300	3	1	0.49	0.21	0.17	0.00	0.17	0.03
Total Equipment Exhaust				**7.81**	**7.20**	**25.50**	**0.12**	**2.88**	**0.70**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 42

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	5	0.18	1.65	0.18	0.00	0.02	0.01
Total Vehicle Exhaust			**0.18**	**1.65**	**0.18**	**0.00**	**0.02**	**0.01**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	5	0.10	0.00
Worker Commuting	Unpaved	0	5	0.00	0.00
Total Vehicle Fugitive				**0.10**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

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

Emission factors are in Table 46

Table 35
Fiber Optic Installation

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	0.00	0.00	0.00	0.00	0.00	0.00
Vehicle Exhaust	0.32	2.17	2.09	0.00	0.10	0.09
Vehicle Fugitive	--	--	--	--	0.11	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**0.32**	**2.17**	**2.09**	**0.00**	**0.22**	**0.09**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None				0.00	0.00	0.00	0.00	0.00	0.00
Total Equipment Exhaust				**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 43

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	20	1	0.05	0.37	0.41	0.00	0.02	0.01
Heavy Duty Truck	20	2	0.12	0.48	1.53	0.00	0.07	0.06
Worker Commuting	40	4	0.15	1.32	0.15	0.00	0.01	0.01
Total Vehicle Exhaust			**0.32**	**2.17**	**2.09**	**0.00**	**0.10**	**0.09**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Pickup Truck	Paved	20	1	0.01	0.00
Pickup Truck	Unpaved	0	1	0.00	0.00
Heavy Duty Truck	Paved	20	2	0.02	0.00
Heavy Duty Truck	Unpaved	0	2	0.00	0.00
Worker Commuting	Paved	40	4	0.08	0.00
Worker Commuting	Unpaved	0	4	0.00	0.00
Total Vehicle Fugitive				**0.11**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

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

Emission factors are in Table 46

Table 36
Subtransmission Guard Structure Removal

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Equipment Exhaust	10.25	10.45	46.71	0.42	3.98	1.15
Vehicle Exhaust	0.22	1.98	0.22	0.00	0.02	0.01
Vehicle Fugitive	--	--	--	--	0.12	0.00
Earthwork Fugitive	--	--	--	--	0.00	0.00
Total	**10.47**	**12.43**	**46.93**	**0.42**	**4.12**	**1.17**

Construction Equipment Exhaust Emissions

Equipment	Horse-Power	Hours/ Day Used	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
3/4-Ton Pick-up	300	6	2	1.97	1.69	5.38	0.02	0.69	0.21
1-Ton Crew Cab Flat Bed	300	6	2	1.97	1.69	5.38	0.02	0.69	0.21
Compressor Trailer	120	6	2	0.87	0.83	0.45	0.00	0.65	0.09
Extendable Flat Bed Pole	350	6	2	2.99	4.51	31.28	0.38	1.05	0.48
30-Ton Crane Truck	500	8	1	1.46	0.97	2.49	0.00	0.55	0.09
80ft. Hydraulic Man-lift Bu	350	4	1	1.00	0.75	1.74	0.00	0.35	0.08
Total Equipment Exhaust				**10.25**	**10.45**	**46.71**	**0.42**	**3.98**	**1.15**

[a] Emissions [lb/day] = Emission factor [lb/hr] x Operating time [hr/day] x Number

Emission factors are in Table 42

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	40	6	0.22	1.98	0.22	0.00	0.02	0.01
Total Vehicle Exhaust			**0.22**	**1.98**	**0.22**	**0.00**	**0.02**	**0.01**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	40	6	0.12	0.00
Worker Commuting	Unpaved	0	6	0.00	0.00
Total Vehicle Fugitive				**0.12**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Fugitive Particulate Matter Emissions

Activity	Activity Units	Activity Level	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
None			0.00	0.00
Total Earthwork Fugitive			**0.00**	**0.00**

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

Emission factors are in Table 46

Table 37
Worker Shuttle

Emissions Summary

Source	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Vehicle Exhaust	0.16	1.11	1.24	0.00	0.05	0.04
Vehicle Fugitive	--	--	--	--	0.03	0.00
Total	**0.16**	**1.11**	**1.24**	**0.00**	**0.08**	**0.04**

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Shuttle	60	1	0.16	1.11	1.24	0.00	0.05	0.04
Total Vehicle Exhaust			**0.16**	**1.11**	**1.24**	**0.00**	**0.05**	**0.04**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Shuttle	Paved	60	1	0.03	0.00
Worker Shuttle	Unpaved	0	1	0.00	0.00
Total Vehicle Fugitive				**0.03**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Table 38
Construction Greenhouse Gas Emissions

Emissions Summary

Source	CO_2e (MT)[a]
Equipment Exhaust	4,518
Motor Vehicle Exhaust	1,663
Project Total	***6,181***

Construction Equipment Exhaust - Substation Site

Equipment	Horse-Power	Hours/ Day Used	Number	Days Used	CO_2 (MT)[a]	CH4 (MT)[a]	CO_2e (MT)[a]
Substation Grading							
Off-Highway Truck	300	8	1	90	54.4	0.005	54.5
Grader	350	1	1	90	9.4	0.007	9.5
Water Truck	350	8	2	90	69.6	0.007	69.7
Backhoe	350	6	1	90	42.1	0.002	42.1
Dozer	350	6	1	90	64.9	0.087	66.7
Lowboy Truck/Trailer	500	4	1	90	44.5	0.041	45.3
Substation Civil							
Excavator	152	4	1	60	8.0	0.001	8.043747
Foundation Auger	79	6	1	15	1.3	0.000	1.271261
Foundation Auger	79	3	1	15	0.6	0.000	0.635631
Backhoe	79	3	2	60	5.0	0.002	4.994448
Skip Loader	75	3	1	60	2.1	0.001	2.095733
Skid Steer Loader	75	3	2	60	4.2	0.001	4.191465
Forklift	83	4	1	60	1.6	0.001	1.610987
17 Ton Crane	125	2	1	45	2.0	0.000	2.055878
Substation Electrical							
Scissor Lift	87	3	2	70	3.7	0.001	3.763764
Manlift	43	3	2	70	2.1	0.000	2.095592
Reach Manlift	87	4	1	70	2.5	0.001	2.509176
15 Ton Crane	125	3	1	35	2.4	0.000	2.398524
Substation Wiring							
Manlift	43	4	1	25	0.5	0.000	0.49895
Substation Transformer							
Forklift	83	1	6	30	1.2	0.000	1.20824
Crane	125	1	6	10	1.4	0.000	1.370585
Substation Paving							
Paving Roller	46	4	2	15	0.7	0.000	0.72796
Asphalt Paver	152	4	1	15	1.9	0.000	1.891696
Asphalt Curb Machine	35	3	1	15	0.3	0.000	0.258361
Tractor	45	3	1	15	0.3	0.000	0.324627
Substation Fencing							
Skid Steer Loader	75	8	1	10	0.9	0.000	0.931437
Substation Landscaping							
Tractor	45	6	1	15	0.6	0.000	0.649254
Subtransmission Marshalling Yard							
1-Ton Crew Cab, 4x4	300	2	1	660	99.7	0.4	109.0
30-Ton Crane Truck	300	2	1	660	67.2	0.2	71.9
10,000 lb Rough Terrain Fork Lift	200	5	1	660	187.0	0.8	204.4
Truck, Semi, Tractor	350	1	1	660	39.0	0.2	43.2
Subtransmission ROW Clearing							
1-Ton Crew Cab, 4x4	300	8	1	1	0.6	0.0	0.6
Road Grader	350	6	1	1	0.6	0.0	0.6
Water Truck	350	8	2	1	2.0	0.0	2.0
Backhoe/Front Loader	350	6	1	1	0.9	0.0	0.9
Track Type Dozer	350	6	1	1	0.7	0.0	0.7
Lowboy Truck/Trailer	500	4	1	1	0.5	0.0	0.5
Subtransmission Line Roadway							
1-Ton Crew Cab, 4x4	300	2	2	35	10.576	0.005	10.681
Road Grader	350	4	1	35	14.573	0.004	14.667
Water Truck	350	8	2	35	69.177	0.049	70.214
Backhoe/Front Loader	350	6	1	35	29.654	0.015	29.963
Drum Type Compactor	250	4	1	35	15.529	0.001	15.556
Track Type Dozer	350	6	1	35	25.231	0.013	25.506
Excavator	300	6	1	18	11.450	0.002	11.486
Lowboy Truck/Trailer	500	2	1	18	4.447	0.001	4.464
Subtransmission Guard House Installation							
3/4-Ton Pick-up	300	6	2	6	5.439	0.000	5.448
1-Ton Crew Cab Flat Bed, 4x4	300	6	1	6	2.720	0.000	2.722
Compressor Trailer	120	6	1	6	0.767	0.000	0.767
Auger Truck	500	6	1	6	4.447	0.000	4.453
Extendable Flat Bed Pole Truck	350	6	1	6	2.720	0.000	2.722
30-Ton Crane Truck	500	8	1	6	3.921	0.000	3.925
80ft. Hydraulic Man-lift Bucket Truc	350	4	1	6	2.965	0.000	2.969
Subtransmission Pole Framing and Setting							
1-Ton Crew Cab, 4x4	300	5	3	19	21.530	0.008	21.703
10,000 lb/ Rough Terrain Forklift	200	4	1	2	0.453	0.000	0.453
30-Ton Crane	300	6	2	2	1.221	0.000	1.222
Compressor Trailer	120	6	3	19	7.283	0.002	7.320
Flat Bed Truck/Trailer	350	4	1	2	0.988	0.000	0.989
10-cu yd. Dump Truck	350	4	1	17	8.400	0.001	8.431
Backhoe/Front Loader	350	8	1	17	21.274	0.004	21.356
Subtransmission Line TSP Footing Installation							
1-Ton Crew Cab Flat Bed, 4x4	300	2	4	111	67.084	0.200	71.281
30-Ton Crane Truck	300	5	2	111	56.472	0.064	57.811
Backhoe	200	8	2	111	81.677	0.090	83.572
Auger Truck	500	6	2	75	111.178	0.170	114.750
4000 Gallon Water Truck	350	4	2	111	109.695	0.248	114.912
10-cu. yd. Dump Truck	350	5	2	111	137.119	0.311	143.640
10-cu. yd. Concrete Mixer Truck	425	5	3	75	129.738	0.204	134.016
Subtransmission Line Conductor Installation							
3/4-Ton Pick-up	300	8	2	38.000	45.931	0.023	46.423
1-Ton Crew Cab Flat Bed, 4x4	300	8	4	38.000	91.863	0.094	93.830

Table 38
Construction Greenhouse Gas Emissions

Wire Truck/Trailer	350	2	2	26.000	12.847	0.007	12.990
Dump Truck	350	2	1	38.000	9.388	0.004	9.465
Bucket Truck	350	8	2	38.000	75.107	0.058	76.329
22-Ton Manitex	350	8	2	38.000	73.198	0.057	74.393
Splicing Rig	350	2	1	10.000	2.471	0.000	2.476
Splicing Lab	300	2	1	10.000	2.306	0.000	2.310
3 Drum Straw line Puller	300	6	1	20.000	5.798	0.001	5.810
Static Truck/Tensioner	350	6	2	20.000	29.647	0.012	29.901
Subtransmission Assembly							
3/4-Ton Pick-up Truck, 4x4	300	5	5	37	69.9	0.1	71.701
1-Ton Crew Cab Flat Bed, 4x4	300	5	4	37	55.9	0.1	57.069
Compressor Trailer	120	5	2	37	7.9	0.0	7.931
80-Ton Rough Terrain Crane	350	6	3	37	54.4	0.0	55.354
40' Flat Bed Truck/Trailer	350	4	2	25	24.7	0.0	24.971
Subtransmission Guard House Removal							
3/4-Ton Pick-up	300	6	2	4	3.6	0.0	3.630
1-Ton Crew Cab Flat Bed, 4x4	300	6	2	4	3.6	0.0	3.630
Compressor Trailer	120	6	2	4	1.0	0.0	1.023
Extendable Flat Bed Pole Truck	350	6	2	4	5.9	0.0	5.940
30-Ton Crane Truck	500	8	1	4	2.6	0.0	2.616
80ft. Hydraulic Man-lift Bucket Truc	350	4	1	4	2.0	0.0	1.978
TOTAL							**2,342.0**

[a] Emissions [metric tons, MT] = Emission factor [lb/hr] x Operating time [hr/day] x Number x Days used [days] x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 43

Table 38
Construction Greenhouse Gas Emissions

Motor Vehicle Exhaust - Substation Site

Vehicle Type	Miles/ Day per Vehicle	Number	Days Used	CO_2 (MT)[a]	CH4 (MT)[a]	CO_2e (MT)[a]
Substation Survey						
Pickup Truck	1	2	10	0.02	0.00	0.024811
Worker Commuting	40	4	10	0.80	0.00	0.796444
Substation Grading						
Water Truck	10	1	90	1.72	0.00	1.7204
Tool Truck	5	1	90	0.56	0.00	0.55824
Pickup Truck	20	1	90	2.23	0.00	2.232961
Dump Truck	5	44	90	37.82	0.00	37.8488
Worker Commuting	40	15	90	26.84	0.00	26.87998
Substation Civil						
Water Truck	10	1	60	1.15	0.00	1.146933
Tool Truck	5	1	60	0.37	0.00	0.37216
Dump Truck	10	1	60	1.15	0.00	1.146933
Worker Commuting	40	10	60	11.93	0.00	11.94666
Substation MEER						
Carry-all Truck	5	1	20	0.19	0.00	0.191156
Stake Truck	5	1	20	0.19	0.00	0.191156
Worker Commuting	40	4	20	1.59	0.00	1.592888
Substation Electrical						
Crew Truck	20	2	70	3.47	0.00	3.473495
Worker Commuting	40	10	70	13.92	0.00	13.93777
Substation Wiring						
Worker Commuting	40	5	25	2.49	0.00	2.488887
Substation Transformer						
Crew Truck	30	2	30	2.23	0.00	2.232961
Low Bed Truck	30	1	30	1.72	0.00	1.7204
Worker Commuting	40	6	30	3.58	0.00	3.583998
Substation Testing						
Crew Truck	20	1	80	1.98	0.00	1.984854
Worker Commuting	40	2	80	3.18	0.00	3.185776
Substation Maintenance						
Maintenance Truck	30	2	30	2.23	0.00	2.232961
Worker Commuting	32	1	31	0.49	0.00	0.493795
Substation Paving						
Crew Truck	30	2	15	1.12	0.00	1.11648
Stake Truck	10	1	15	0.29	0.00	0.286733
Dump Truck	10	1	15	0.29	0.00	0.286733
Worker Commuting	40	6	15	1.79	0.00	1.791999
Substation Fencing						
Flatbed Truck	10	1	10	0.19	0.00	0.191156
Pickup Truck	5	1	10	0.06	0.00	0.062027
Worker Commuting	40	4	10	0.80	0.00	0.796444
Substation Landscaping						
Dump Truck	10	1	15	0.29	0.00	0.286733
Worker Commuting	40	6	15	1.79	0.00	1.791999
Subtransmission Marshalling Yards						
Worker Commuting	40	4	660	52.48	0.00	52.57
Subtransmission ROW Clearing						
Worker Commuting	40	4	1	0.08	0.00	0.079644
Subtransmission Guard House Installation						
Worker Commuting	40	6	6	0.72	0.00	0.7168
Subtransmission Line Survey						
Pickup Truck	1	2	10	0.02	0.00	0.024811
Worker Commuting	40	4	10	0.80	0.00	0.796444
Subtransmission Line Roadway						
Worker Commuting	40	3	5	0.30	0.00	0.298666
Subtransmission Pole Framing and Setting						
Worker Commuting	40	6	113	13.48	0.00	13.49973
Subtransmission Line TSP Footing Installation						
Water Truck	20	2	33	2.52	0.00	2.523253
Crew Truck	20	2	33	1.64	0.00	1.637505
Concrete Truck	20	1	33	1.26	0.00	1.261627
Worker Commuting	40	14	33	9.18	0.00	9.198928
Subtransmission Line Conductor Installation						
Crew Truck	0.35	16	7	0.05	0.00	0.048629
Worker Commuting	40	16	7	2.23	0.00	2.230043
Subtransmission Line Assembly						
Worker Commuting	40	8	6	0.95	0.00	0.955733
Subtransmission Line Restoration						
Worker Commuting	40	5	4	0.40	0.00	0.398222
Fiber Optic Installation						
Pickup Truck	20	1	10	0.25	0.00	0.248107
Heavy Duty Truck	20	2	10	0.76	0.00	0.764622
Worker Commuting	40	4	10	0.80	0.00	0.796444
Subtransmission Guard House Removal						
Worker Commuting	40	6	4	0.48	0.00	0.477866
TOTAL						**217.1**

[a] Emissions [metric tons, MT] = Emission factor [lb/mi] x Distance per vehicle [mi/day] x Number vehicles x Days used *453.6 [g/lb] / 1,000,000 [g/MT]

Emission factors are in Table 44

Table 38
Construction Greenhouse Gas Emissions

Construction Equipment Exhaust - Compressor Station Site

Equipment	Horse-Power	Hours/ Day Used	Number	Days Used	CO_2 (MT)[a]	CH4 (MT)[a]	CO_2e (MT)[a]
Compressor Station Site Clearing							
D6 Dozer		5	1	21	5.4	0.0	5.447385
Grader		5	1	21	6.3	0.0	6.33784
Backhoe/Loader		5	2	21	6.4	0.0	6.382003
Sheep's Foot Vibrator Compactor (10 yards)		5	2	21	0.4	0.0	0.411827
Forklift		5	2	21	5.2	0.0	5.193898
Compressor Station Site Preparation							
D6 Dozer		5	1	87	22.5	0.0	22.56774
Grader		5	1	87	26.2	0.0	26.25677
Excavator		5	2	87	47.2	0.0	47.30152
Backhoe/Loader		5	2	87	26.4	0.0	26.43973
Sheep's Foot Vibrator Compactor (10 yards)		5	2	87	1.7	0.0	1.706139
Compressor Station Civil							
Drilling Rig		5	1	30	11.2	0.0	11.23018
Backhoe/Loader		5	2	129	39.1	0.0	39.20373
Forklift		5	1	129	15.9	0.0	15.95269
30 Ton Hydraulic Crane		4	1	129	30.1	0.0	30.18349
D6 Dozer		5	1	129	33.4	0.0	33.46251
Front End Loader		5	1	129	19.5	0.0	19.60187
Sheep's Foot Vibrator Compactor (10 yards)		5	1	129	1.3	0.0	1.264896
Compressor Station Mechanical							
30 Ton Hydraulic Crane		5	1	198	57.8	0.0	57.91018
50 Ton Hydraulic Crane		5	1	198	57.8	0.0	57.91018
200 Ton Crawler Crane		5	2	198	115.5	0.0	115.8204
Forklift		5	1	198	24.4	0.0	24.48552
Front End Loader		5	3	198	90.0	0.0	90.25976
Welders		5	1	198	11.5	0.0	11.56575
Compressor Station Electrical							
Front End Loader		5	1	152	23.0	0.0	23.09677
Generators		5	2	152	42.1	0.0	42.17834
Other Construction Equipment		5	2	152	84.6	0.0	84.7795
Compressor Station Paving							
Paving Roller		5	2	15	4.6	0.0	4.577418
Asphalt Paver		5	1	15	2.7	0.0	2.662787
Asphalt Curb Machine		5	1	15	2.3	0.0	2.354168
Tractor		5	1	15	2.3	0.0	2.279287
Compressor Station Fencing							
Skid Steer Loader		5	1	10	0.7	0.0	0.689758
Compressor Station Landscaping							
Tractor		5	1	15	2.3	0.0	2.279287
TOTAL							**821.8**

[a] Emissions [metric tons, MT] = Emission factor [lb/hr] x Operating time [hr/day] x Number x Days used [days] x 453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 43

Motor Vehicle Exhaust - Compressor Station Site

Vehicle Type	Miles/ Day per Vehicle	Number	Days Used	CO_2 (MT)[a]	CH4 (MT)[a]	CO_2e (MT)[a]
Compressor Station Survey						
Pickup Truck	5	1	20	0.12	0.00	0.124053
Worker Commuting	40	2	20	0.80	0.00	0.796444
Compressor Station Site Clearing						
Dump Truck	10	6	21	2.41	0.00	2.40856
6 Ton Truck	10	2	21	0.80	0.00	0.802853
Water Truck	20	1	21	0.80	0.00	0.802853
Pickup Truck	5	1	21	0.13	0.00	0.130256
Worker Commuting	40	50	21	20.87	0.00	20.90665
Compressor Station Site Preparation						
Dump Truck	10	6	87	9.97	0.00	9.978321
6 Ton Truck	10	2	87	3.32	0.00	3.326107
Water Truck	20	1	87	3.32	0.00	3.326107
Pickup Truck	5	1	87	0.54	0.00	0.539632
Worker Commuting	40	50	87	86.48	0.01	86.61328
Compressor Station Civil						
Water Truck	20	1	129	4.93	0.00	4.931814
Pickup Truck	10	15	129	23.98	0.00	24.00433
6 Ton Truck	20	7	129	34.50	0.00	34.5227
Worker Commuting	40	150	129	384.68	0.03	385.2798
Compressor Station Mechanical						
Pickup Truck	10	15	198	36.81	0.00	36.84386
6 Ton Truck	20	7	198	52.95	0.00	52.98832
Worker Commuting	40	150	198	590.44	0.04	591.3596
Compressor Station Electrical						
Pickup Truck	10	15	152	28.26	0.00	28.28417
Worker Commuting	40	50	152	151.09	0.01	151.3244
Compressor Station Paving						
Pickup Truck	10	2	15	0.37	0.00	0.37216
Dump Truck	10	1	15	0.29	0.00	0.286733
Worker Commuting	40	6	15	1.79	0.00	1.791999
Compressor Station Fencing						
Flatbed Truck	10	1	10	0.19	0.00	0.191156
Pickup Truck	10	1	10	0.12	0.00	0.124053
Worker Commuting	40	4	10	0.80	0.00	0.796444
Compressor Station Landscaping						
Dump Truck	10	1	15	0.29	0.00	0.286733
Worker Commuting	40	10	15	2.98	0.00	2.986665
TOTAL						**1,446.1**

[a] Emissions [metric tons, MT] = Emission factor [lb/mi] x Distance per vehicle [mi/day] x Number vehicles x Days used *453.6 [g/lb] / 1,000,000 [g/MT]
Emission factors are in Table 44

Table 38
Construction Greenhouse Gas Emissions

Worker Shuttle Exhaust

Vehicle Type	Miles/day	Number	Days Used	CO_2 (MT)	CH4 (MT)	CO_2e (MT)
Worker Shuttle	60.00	1.00	492	36.59	0.00	36.62056

[a] Emissions [metric tons, MT] = Emission factor [lb/mi] x Distance per vehicle [mi/day] x Number vehicles x Days used *453.6 [g/lb] 1,000,000 [g/MT]

Emission factors are in Table 44

Table 39
Operational Emissions

Net Overall Change in Daily Operational Mass Emissions

Source	Daily Mass Emissions (lbs/day)					
	ROG	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Vehicle Emissions	0.22	1.98	0.22	0.00	0.33	0.01
Decrease from removal of Jet Turbines	(27.32)	(417.19)	(1069.61)	(2.98)	(37.75)	(37.75)
Net Total	**(27.10)**	**(415.20)**	**(1069.39)**	**(2.98)**	**(37.42)**	**(37.73)**
Significance Threshold	*55*	*550*	*55*	*150*	*150*	*55*
Significant? (Yes/No)	***No***	***No***	***No***	***No***	***No***	***No***

Current Project Emissions Summary

Source	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Vehicle Exhaust	0.22	1.98	0.22	0.00	0.02	0.01
Vehicle Fugitive	--	--	--	--	0.31	0.00
Total	**0.22**	**1.98**	**0.22**	**0.00**	**0.33**	**0.01**

Motor Vehicle Exhaust Emissions

Vehicle Type	Miles/ Day per Vehicle	Number	ROG (lb/day)[a]	CO (lb/day)[a]	NO_x (lb/day)[a]	SO_x (lb/day)[a]	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	60	4	0.22	1.98	0.22	0.00	0.02	0.01
Total Vehicle Exhaust			**0.22**	**1.98**	**0.22**	**0.00**	**0.02**	**0.01**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 44

Motor Vehicle Entrained Particulate Matter Emissions

Vehicle Type	Road Type	Miles/ Day per Vehicle	Number	PM_{10} (lb/day)[a]	$PM_{2.5}$ (lb/day)[a]
Worker Commuting	Paved	60	10	0.31	0.00
Worker Commuting	Unpaved	0	10	0.00	0.00
Total Vehicle Fugitive				**0.31**	**0.00**

[a] Emissions [lb/day] = Emission factor [lb/mi] x Distance per vehicle [lb/day] x Number

Emission factors are in Table 45

Emissions Decrease from Decommissioning of the Existing Jet Turbines

Source	Average Daily Fuel Use (MMscf/day)[1]	Daily Mass Emissions (lbs/day)				
		ROG	CO	NOx	SO_x	PM_{10}
Emission Factor (lb/MMscf)[2]		**5.50**	**84.00**	**--**	**0.60**	**7.60**
D-14	1.38	7.59	115.98	358.56	0.83	10.49
D-15	1.26	6.94	106.04	348.08	0.76	9.59
D-16	1.32	7.28	111.16	362.97	0.79	10.06
Decrease due to shutdown of Turbines[4]		**(27.32)**	**(417.19)**	**(1069.61)**	**(2.98)**	**(37.75)**

[1] Average Daily Fuel Use calculated from Annual Acutal Fuel Use from the CEMS data for years 2007 and 2008. Average Annual Fuel Use for the two years was divided by 365 for daily fuel use.

[2] Emission factors in lb/MMscf from AP42 - Table 1.4-1 and Table 1.4-2 for all pollutants except NOx. NOx emissions are calculated from Annual Nox emissions 2007 and 2008 (CEMS data)

Turbine Fuel Data

Equipment	Acutal Fuel Use (MMscf/year)		Actual Nox Emissions (lbs/year)		Average Annual		Average Daily		Peak Daily
	2007	2008	2007	2008	MMscf/year	lbs/year	MMscf/day	lbs/day	MMscf/day
D-14	500.34	507.60	130478.72	131269.05	503.97	130873.89	1.38	358.56	3.5053554
D-15	440.54	481.00	113772.60	140325.03	460.77	127048.82	1.26	348.08	3.5053554
D-16	502.37	463.70	139429.80	125539.50	483.04	132484.65	1.32	362.97	3.5053554

Source: Actuals from CEMS data provided by SCG. Peak daily from SCAQMD permit limit of 150 MMBtu/hour

Emissions Decrease from Decommissioning of the Existing Jet Turbines

Source	Peak Daily Fuel Use (MMscf/day)[1]	Daily Mass Emissions (lbs/day)				
		ROG	CO	NOx	PM_{10}	SO_x
Emission Factor (lb/MMscf)[2]		**5.50**	**84.00**	**--**	**7.60**	**0.60**
D-14	3.51	19.28	294.45	358.56	176.67	26.64
D-15	3.51	19.28	294.45	348.08	176.67	26.64
D-16	3.51	19.28	294.45	362.97	176.67	26.64
Decrease due to shutdown of Turbines[4]		**(63.34)**	**(967.35)**	**(1069.61)**	**(537.61)**	**(80.52)**

[1] Peak Daily Fuel Use is based on SCAQMD permit limit of 150 MMBtu/hour. Fuel use is calculated for natural gas heating value of 1027 btu/scf per SCG recommendation.

[2] Emission factors in lb/MMscf from AP42 - Table 1.4-1 and Table 1.4-2 for all pollutants except Nox. Nox emissions are calculated from Annual Nox emissions 2007 and 2008 (CEMS data)

Table 40
Operational Greenhouse Gas Emissions

Net GHG Emissions Summary

Source	CO2 Equivalents, metric tons/year
SF_6 Leakage	54
Motor Vehicle Exhaust	4
Compressor Electricity Use	138,709
Potential GHG Emissions from Current Project	**138,766**
Jet Turbine D14	(28,105)
Jet Turbine D15	(25,696)
Jet Turbine D16	(26,938)
Decrease in GHG due to Removal of Turbines	***(80,739)***
Net Total GHG Emissions	**58,027**

GHG emissions from the new electric driven compressors and exisitng jet turbines are based on maximum potential to emit for 8760 hours per year.

Current Project GHG Emissions Summary

Source	CO_2e (MT/year)
SF_6 Leakage	54
Motor Vehicle Exhaust	4
Compressor Electricity Use	138,709
TOTAL	**138,766**

SF_6 Leakage

Item	Value	Units
SF_6 per Breaker	30	pounds
No. Breakers	17	
Total SF_6	510	pounds
Annual Leakage Rate	1	percent
Annual Emissions	5.1	pounds
Global Warming Potential[a]	23,200	
CO_2e Emissions[b]	**54**	**MT/year**

[a] Table C.7, California Climate Action Registry General Reporting Protocol, Version 3.1, January 2009
[b] CO_2e emissions [metric tons] per year = SF_6 emissions [lb] x Global warming potential [lb CO2e/lb SF6] x 453.6 [g/lb] /1,000,000 [g/MT]

Motor Vehicle Exhaust

Vehicle Type	Miles/ Day per Vehicle	Number	Annual Use (days)	CO_2 (MT)[a]	CH_4 (MT)[a]	CO_2e (MT)[b]
Worker Commuting	40	4	48	3.82	0.00	3.82
TOTAL						3.82

[a] Emissions [metric tons, MT] = Emission factor [lb/mi] x Distance per vehicle [mi/day] x Number vehicles x Annual Use x 453.6 [g/lb] / 1,000,000 [g/MT]
[b] CO2e = CO2 + (21*CH4); where 21 is the GWP of methane.
Emission factors are in Table 44

GHG Emissions from New Electric VFD Motors - PTE (8760 hours)

		Emission Factor (lb/MWh)[b]			Emissions (MT/yr)			
Source	Annual Electricity Usage, MWh/yr[a]	CO_2	CH_4	N_2O	CO_2	CH_4	N_2O	CO_2e
VFD motor 1	140,160	724.12	0.0302	0.0081	46,036	2	1	46,236
VFD motor 2	140,160	724.12	0.0302	0.0081	46,036	2	1	46,236
VFD motor 3	140,160	724.12	0.0302	0.0081	46,036	2	1	46,236
							Total	**138,709**

[a] Annual electricity usage for each of the 16 MW VFD motors for a 24 hour operation for 365 days per year.
[b] Table C.2, California Climate Action Registry General Reporting Protocol, Version 3.1, January 2009

Global warming potential of CH_4, Table C.1, California Climate Action Registry General Reporting Protocol, Version 3.1, January 2009	21
Global warming potential of N_2O, Table C.1, California Climate Action Registry General Reporting Protocol, Version 3.1, January 2009	310

GHG Emissions Decrease from Removal of Exisitng Jet Turbines - AER

		Emission Factor (kg/MMBtu)			Emissions (MT/yr)			
Source	Annual Usage, MMBTU/yr[1]	CO_2[b]	CH_4[c]	N_2O[c]	CO_2	CH_4	N_2O	CO_2e
Jet Turbine D14	529,169	53.06	0.001	0.0001	28,077.68	0.53	0.05	(28,105)
Jet Turbine D15	483,809	53.06	0.001	0.0001	25,670.88	0.48	0.05	(25,696)
Jet Turbine D16	507,187	53.06	0.001	0.0001	26,911.33	0.51	0.05	(26,938)
							Total Emission Decrease	**80,739**

[a] Annual Fuel suage per year was calculated from annual acutal fuel use from the CEMS data for years 2007 and 2008 and using a natural gas heating value 1027.
[b] Table C.7, California Climate Action Registry General Reporting Protocol, Version 3.1, January 2009
[c] Table C.8, Industrial Sector, California Climate Action Registry General Reporting Protocol, Version 3.1, January 2009

Global warming potential of CH_4, Table C.1, California Climate Action Registry General Reporting Protocol, Version 3.1, January 2009	21
Global warming potential of N_2O, Table C.1, California Climate Action Registry General Reporting Protocol, Version 3.1, January 2009	310

Table 41
Project Total GHG Emissions Summary

Source	CO_2e
Construction	
Equipment Exhaust (MT)	4,518
Motor Vehicle Exhaust (MT)	1,663
Total Construction Emissions (MT)	***6,181***
Total Construction Emissions Amortized over 30 years (MT/year)	***206***
Operation	
SF6 Leakage (MT/year)	54
Motor Vehicle Exhaust (MT/year)	4
Compressor Electricity Use (MT/year)	138,709
Potential GHG Emissions from Current Project (MT/year)	***138,766***
Jet Turbine D14 Operation (MT/year)	(69,789)
Jet Turbine D15 Operation (MT/year)	(69,789)
Jet Turbine D16 Operation (MT/year)	(69,789)
Decrease in GHG due to Removal of Turbines (MT/year)	***(209,368)***
Net Operational GHG Emissions (MT/year)	***(70,395)***
Total Project GHG Emissions (MT/year)	**(70,189)**
SCAQMD Interim Threshold (MT/year)	10,000
Significant (Yes/No)?	**No**

maximum potential to emit for 8760 hours per year.

Table 42 - Offroad Emission Factors

SCAB Fleet Average Emission Factors (Diesel)

OffRoad 2010

Air Basin	SC

		(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)		(lb/hr)	(lb/hr)
Equipment	**MaxHP**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**PM2.5**	**CO2**	**CH4**
Aerial Lifts	15	0.0104	0.0529	0.0662	0.0001	0.0037	0.0034	8.7	0.0009
	25	0.0210	0.0577	0.1013	0.0001	0.0065	0.0060	11.0	0.0019
	50	0.0756	0.1937	0.1984	0.0003	0.0189	0.0174	19.6	0.0068
	120	0.0702	0.2501	0.4502	0.0004	0.0361	0.0332	38.1	0.0063
	500	0.1506	0.5801	1.9198	0.0021	0.0598	0.0550	213	0.0136
	750	0.2803	1.0486	3.5605	0.0039	0.1096	0.1008	385	0.0253
Aerial Lifts Composite		0.0670	0.2093	0.3600	0.0004	0.0248	0.0228	34.7	0.0060
Air Compressors	15	0.0144	0.0513	0.0838	0.0001	0.0061	0.0056	7.2	0.0013
	25	0.0325	0.0847	0.1397	0.0002	0.0098	0.0091	14.4	0.0029
	50	0.1163	0.2813	0.2386	0.0003	0.0265	0.0243	22.3	0.0105
	120	0.1014	0.3351	0.5977	0.0006	0.0545	0.0501	47.0	0.0091
	175	0.1274	0.5113	1.0082	0.0010	0.0568	0.0523	88.5	0.0115
	250	0.1225	0.3413	1.3983	0.0015	0.0462	0.0425	131	0.0111
	500	0.1943	0.6778	2.2062	0.0023	0.0752	0.0692	232	0.0175
	750	0.3054	1.0476	3.5002	0.0036	0.1179	0.1085	358	0.0276
	1000	0.5203	1.8591	6.0195	0.0049	0.1809	0.1664	486	0.0469
Air Compressors Composite		0.1120	0.3613	0.7320	0.0007	0.0526	0.0484	63.6	0.0101
Bore/Drill Rigs	15	0.0120	0.0632	0.0754	0.0002	0.0031	0.0028	10.3	0.0011
	25	0.0196	0.0660	0.1257	0.0002	0.0065	0.0059	16.0	0.0018
	50	0.0545	0.2505	0.2820	0.0004	0.0194	0.0178	31.0	0.0049
	120	0.0722	0.4812	0.6155	0.0009	0.0456	0.0419	77.1	0.0065
	175	0.0930	0.7543	0.9148	0.0016	0.0481	0.0443	141	0.0084
	250	0.0957	0.3460	1.1847	0.0021	0.0384	0.0353	188	0.0086
	500	0.1488	0.5566	1.7054	0.0031	0.0614	0.0565	311	0.0134
	750	0.2996	1.0997	3.4821	0.0062	0.1231	0.1132	615	0.0270
	1000	0.5360	1.7074	8.3092	0.0093	0.2078	0.1912	928	0.0484
Bore/Drill Rigs Composite		0.1052	0.5146	1.1331	0.0017	0.0498	0.0458	165	0.0095
Cement and Mortar Mixers	15	0.0079	0.0388	0.0505	0.0001	0.0029	0.0027	6.3	0.0007
	25	0.0346	0.0942	0.1633	0.0002	0.0107	0.0099	17.6	0.0031
Cement and Mortar Mixers Composite		0.0101	0.0434	0.0599	0.0001	0.0035	0.0033	7.2	0.0009
Concrete/Industrial Saws	25	0.0200	0.0678	0.1279	0.0002	0.0063	0.0058	16.5	0.0018
	50	0.1231	0.3210	0.3070	0.0004	0.0301	0.0277	30.2	0.0111
	120	0.1342	0.4976	0.8601	0.0009	0.0719	0.0662	74.1	0.0121

	175	0.1927	0.8786	1.6459	0.0018	0.0864	0.0794	160	0.0174
Concrete/Industrial Saws Composite		0.1270	0.4273	0.6566	0.0007	0.0552	0.0508	58.5	0.0115
Cranes	50	0.1284	0.3166	0.2547	0.0003	0.0289	0.0266	23.2	0.0116
	120	0.1117	0.3723	0.6542	0.0006	0.0602	0.0554	50.1	0.0101
	175	0.1211	0.4880	0.9302	0.0009	0.0538	0.0495	80.3	0.0109
	250	0.1243	0.3464	1.2372	0.0013	0.0470	0.0432	112	0.0112
	500	0.1821	0.6625	1.7722	0.0018	0.0685	0.0630	180	0.0164
	750	0.3082	1.1113	3.0564	0.0030	0.1166	0.1072	303	0.0278
	9999	1.0894	4.1317	12.1879	0.0098	0.3792	0.3489	971	0.0983
Cranes Composite		0.1594	0.5431	1.4515	0.0014	0.0642	0.0591	129	0.0144
Crawler Tractors	50	0.1446	0.3520	0.2780	0.0003	0.0320	0.0295	24.9	0.0131
	120	0.1551	0.5018	0.9038	0.0008	0.0819	0.0753	65.8	0.0140
	175	0.1941	0.7597	1.4788	0.0014	0.0856	0.0787	121	0.0175
	250	0.2051	0.5743	1.9440	0.0019	0.0784	0.0722	166	0.0185
	500	0.2913	1.1931	2.7255	0.0025	0.1101	0.1013	259	0.0263
	750	0.5240	2.1290	4.9881	0.0047	0.1989	0.1829	465	0.0473
	1000	0.7980	3.3726	8.5998	0.0066	0.2810	0.2585	658	0.0720
Crawler Tractors Composite		0.1861	0.6409	1.3854	0.0013	0.0854	0.0786	114	0.0168
Crushing/Proc. Equipment	50	0.2271	0.5592	0.4700	0.0006	0.0520	0.0478	44.0	0.0205
	120	0.1760	0.5956	1.0382	0.0010	0.0960	0.0883	83.1	0.0159
	175	0.2367	0.9736	1.8607	0.0019	0.1068	0.0982	167	0.0214
	250	0.2243	0.6225	2.5465	0.0028	0.0841	0.0773	245	0.0202
	500	0.3091	1.0542	3.4510	0.0037	0.1187	0.1092	374	0.0279
	750	0.4956	1.6226	5.6506	0.0059	0.1900	0.1748	589	0.0447
	9999	1.3820	4.8014	16.0752	0.0131	0.4812	0.4427	1,308	0.1247
Crushing/Proc. Equipment Composite		0.2152	0.7260	1.4394	0.0015	0.0935	0.0861	132	0.0194
Dumpers/Tenders	25	0.0108	0.0336	0.0645	0.0001	0.0036	0.0034	7.6	0.0010
Dumpers/Tenders Composite		0.0108	0.0336	0.0645	0.0001	0.0036	0.0034	7.6	0.0010
Excavators	25	0.0199	0.0677	0.1261	0.0002	0.0057	0.0052	16.4	0.0018
	50	0.1131	0.3145	0.2638	0.0003	0.0276	0.0254	25.0	0.0102
	120	0.1398	0.5318	0.8402	0.0009	0.0781	0.0718	73.6	0.0126
	175	0.1465	0.6701	1.1143	0.0013	0.0663	0.0610	112	0.0132
	250	0.1451	0.3934	1.4935	0.0018	0.0519	0.0478	159	0.0131
	500	0.1984	0.6161	1.9285	0.0023	0.0711	0.0654	234	0.0179
	750	0.3313	1.0196	3.3023	0.0039	0.1198	0.1102	387	0.0299
Excavators Composite		0.1483	0.5581	1.1502	0.0013	0.0638	0.0587	120	0.0134
Forklifts	50	0.0666	0.1824	0.1530	0.0002	0.0163	0.0150	14.7	0.0060
	120	0.0601	0.2243	0.3497	0.0004	0.0342	0.0315	31.2	0.0054
	175	0.0738	0.3306	0.5540	0.0006	0.0337	0.0310	56.1	0.0067
	250	0.0652	0.1707	0.7163	0.0009	0.0227	0.0209	77.1	0.0059
	500	0.0868	0.2343	0.8909	0.0011	0.0307	0.0282	111	0.0078
Forklifts Composite		0.0686	0.2319	0.5161	0.0006	0.0281	0.0258	54.4	0.0062

Generator Sets	15	0.0172	0.0726	0.1154	0.0002	0.0069	0.0063	10.2	0.0016
	25	0.0300	0.1033	0.1705	0.0002	0.0107	0.0098	17.6	0.0027
	50	0.1117	0.2904	0.3070	0.0004	0.0284	0.0261	30.6	0.0101
	120	0.1395	0.5054	0.9075	0.0009	0.0714	0.0657	77.9	0.0126
	175	0.1672	0.7471	1.4780	0.0016	0.0721	0.0663	142	0.0151
	250	0.1618	0.5018	2.0720	0.0024	0.0618	0.0569	213	0.0146
	500	0.2305	0.8858	2.9974	0.0033	0.0917	0.0844	337	0.0208
	750	0.3838	1.4300	4.9646	0.0055	0.1502	0.1381	544	0.0346
	9999	1.0080	3.6008	12.1384	0.0105	0.3600	0.3312	1,049	0.0909
Generator Sets Composite		0.0961	0.3293	0.6440	0.0007	0.0396	0.0365	61.0	0.0087
Graders	50	0.1400	0.3584	0.2961	0.0004	0.0323	0.0297	27.5	0.0126
	120	0.1553	0.5459	0.9268	0.0009	0.0849	0.0781	75.0	0.0140
	175	0.1743	0.7409	1.3532	0.0014	0.0783	0.0720	124	0.0157
	250	0.1761	0.4934	1.7904	0.0019	0.0662	0.0609	172	0.0159
	500	0.2149	0.7523	2.1198	0.0023	0.0807	0.0742	229	0.0194
	750	0.4580	1.5877	4.6098	0.0049	0.1729	0.1591	486	0.0413
Graders Composite		0.1723	0.6314	1.4338	0.0015	0.0753	0.0693	133	0.0155
Off-Highway Tractors	120	0.2457	0.7439	1.4200	0.0011	0.1255	0.1155	93.7	0.0222
	175	0.2326	0.8561	1.7665	0.0015	0.1014	0.0933	130	0.0210
	250	0.1881	0.5347	1.7050	0.0015	0.0735	0.0677	130	0.0170
	750	0.7400	3.5496	6.8440	0.0057	0.2854	0.2625	568	0.0668
	1000	1.1197	5.5155	11.4633	0.0082	0.4009	0.3688	814	0.1010
Off-Highway Tractors Composite		0.2368	0.8385	1.9897	0.0017	0.0974	0.0896	151	0.0214
Off-Highway Trucks	175	0.1732	0.7625	1.2796	0.0014	0.0771	0.0710	125	0.0156
	250	0.1639	0.4301	1.6150	0.0019	0.0574	0.0528	167	0.0148
	500	0.2492	0.7542	2.3188	0.0027	0.0872	0.0802	272	0.0225
	750	0.4069	1.2210	3.8814	0.0044	0.1436	0.1321	442	0.0367
	1000	0.6440	2.0615	7.3260	0.0063	0.2219	0.2041	625	0.0581
Off-Highway Trucks Composite		0.2480	0.7429	2.3885	0.0027	0.0875	0.0805	260	0.0224
Other Construction Equipme	15	0.0118	0.0617	0.0737	0.0002	0.0030	0.0028	10.1	0.0011
	25	0.0162	0.0545	0.1039	0.0002	0.0053	0.0049	13.2	0.0015
	50	0.1033	0.2930	0.2787	0.0004	0.0263	0.0242	28.0	0.0093
	120	0.1320	0.5419	0.8649	0.0009	0.0740	0.0681	80.9	0.0119
	175	0.1168	0.5901	0.9927	0.0012	0.0543	0.0499	107	0.0105
	500	0.1705	0.6068	1.9821	0.0025	0.0678	0.0624	254	0.0154
Other Construction Equipment Composite		0.1056	0.4108	1.0117	0.0013	0.0442	0.0406	123	0.0095
Other General Industrial Equ	15	0.0066	0.0391	0.0466	0.0001	0.0017	0.0016	6.4	0.0006
	25	0.0186	0.0632	0.1177	0.0002	0.0054	0.0049	15.3	0.0017
	50	0.1281	0.3073	0.2413	0.0003	0.0285	0.0263	21.7	0.0116
	120	0.1459	0.4647	0.8218	0.0007	0.0795	0.0731	62.0	0.0132
	175	0.1516	0.5816	1.1364	0.0011	0.0676	0.0622	95.9	0.0137
	250	0.1400	0.3676	1.5016	0.0015	0.0509	0.0469	136	0.0126

	500	0.2500	0.8031	2.6018	0.0026	0.0919	0.0845	265	0.0226
	750	0.4153	1.3236	4.4083	0.0044	0.1538	0.1415	437	0.0375
	1000	0.6374	2.2063	7.1530	0.0056	0.2212	0.2035	560	0.0575
Other General Industrial Equipmen Compo		0.1847	0.5948	1.6649	0.0016	0.0740	0.0681	152	0.0167
Other Material Handling Equ	50	0.1773	0.4246	0.3355	0.0004	0.0395	0.0363	30.3	0.0160
	120	0.1417	0.4524	0.8014	0.0007	0.0772	0.0710	60.7	0.0128
	175	0.1914	0.7367	1.4429	0.0014	0.0856	0.0787	122	0.0173
	250	0.1481	0.3917	1.6024	0.0016	0.0542	0.0499	145	0.0134
	500	0.1782	0.5784	1.8750	0.0019	0.0660	0.0607	192	0.0161
	9999	0.8390	2.9174	9.4509	0.0073	0.2912	0.2679	741	0.0757
Other Material Handling Equipment Compo		0.1773	0.5556	1.6150	0.0015	0.0715	0.0658	141	0.0160
Pavers	25	0.0278	0.0845	0.1603	0.0002	0.0092	0.0085	18.7	0.0025
	50	0.1624	0.3860	0.3110	0.0004	0.0356	0.0328	28.0	0.0147
	120	0.1638	0.5223	0.9693	0.0008	0.0853	0.0785	69.2	0.0148
	175	0.2049	0.7959	1.6028	0.0014	0.0903	0.0831	128	0.0185
	250	0.2426	0.7011	2.3337	0.0022	0.0953	0.0877	194	0.0219
	500	0.2622	1.1661	2.5319	0.0023	0.1023	0.0941	233	0.0237
Pavers Composite		0.1774	0.5644	0.9868	0.0009	0.0709	0.0652	77.9	0.0160
Paving Equipment	25	0.0155	0.0521	0.0993	0.0002	0.0051	0.0047	12.6	0.0014
	50	0.1384	0.3277	0.2654	0.0003	0.0303	0.0279	23.9	0.0125
	120	0.1282	0.4084	0.7600	0.0006	0.0668	0.0615	54.5	0.0116
	175	0.1599	0.6208	1.2577	0.0011	0.0704	0.0648	101	0.0144
	250	0.1506	0.4363	1.4619	0.0014	0.0592	0.0545	122	0.0136
Paving Equipment Composite		0.1336	0.4478	0.8963	0.0008	0.0629	0.0579	68.9	0.0121
Plate Compactors	15	0.0050	0.0263	0.0317	0.0001	0.0015	0.0014	4.3	0.0005
Plate Compactors Composite		0.0050	0.0263	0.0317	0.0001	0.0015	0.0014	4.3	0.0005
Pressure Washers	15	0.0083	0.0348	0.0553	0.0001	0.0033	0.0030	4.9	0.0007
	25	0.0122	0.0419	0.0691	0.0001	0.0043	0.0040	7.1	0.0011
	50	0.0413	0.1143	0.1388	0.0002	0.0115	0.0106	14.3	0.0037
	120	0.0388	0.1487	0.2674	0.0003	0.0193	0.0177	24.1	0.0035
Pressure Washers Composite		0.0199	0.0666	0.0989	0.0001	0.0070	0.0065	9.4	0.0018
Pumps	15	0.0148	0.0528	0.0862	0.0001	0.0062	0.0057	7.4	0.0013
	25	0.0439	0.1142	0.1884	0.0002	0.0133	0.0122	19.5	0.0040
	50	0.1339	0.3428	0.3479	0.0004	0.0333	0.0306	34.3	0.0121
	120	0.1441	0.5136	0.9216	0.0009	0.0744	0.0685	77.9	0.0130
	175	0.1709	0.7489	1.4815	0.0016	0.0742	0.0683	140	0.0154
	250	0.1593	0.4846	1.9941	0.0023	0.0609	0.0560	201	0.0144
	500	0.2450	0.9411	3.1080	0.0034	0.0973	0.0895	345	0.0221
	750	0.4167	1.5559	5.2721	0.0057	0.1631	0.1500	571	0.0376
	9999	1.3269	4.8008	15.8590	0.0136	0.4723	0.4345	1,355	0.1197
Pumps Composite		0.0936	0.3096	0.5545	0.0006	0.0393	0.0362	49.6	0.0084
Rollers	15	0.0074	0.0386	0.0461	0.0001	0.0019	0.0017	6.3	0.0007

	25	0.0164	0.0551	0.1049	0.0002	0.0054	0.0050	13.3	0.0015
	50	0.1270	0.3169	0.2753	0.0003	0.0292	0.0269	26.0	0.0115
	120	0.1201	0.4177	0.7383	0.0007	0.0641	0.0590	59.0	0.0108
	175	0.1478	0.6270	1.2022	0.0012	0.0659	0.0606	108	0.0133
	250	0.1542	0.4540	1.6232	0.0017	0.0603	0.0555	153	0.0139
	500	0.1987	0.7785	2.0882	0.0022	0.0783	0.0721	219	0.0179
Rollers Composite		0.1176	0.4212	0.7749	0.0008	0.0547	0.0503	67.1	0.0106
Rough Terrain Forklifts	50	0.1590	0.4186	0.3558	0.0004	0.0377	0.0347	33.9	0.0143
	120	0.1213	0.4447	0.7326	0.0007	0.0676	0.0621	62.4	0.0109
	175	0.1640	0.7302	1.2875	0.0014	0.0749	0.0689	125	0.0148
	250	0.1523	0.4270	1.6632	0.0019	0.0567	0.0521	171	0.0137
	500	0.2097	0.6871	2.1987	0.0025	0.0788	0.0725	257	0.0189
Rough Terrain Forklifts Composite		0.1272	0.4766	0.7988	0.0008	0.0678	0.0624	70.3	0.0115
Rubber Tired Dozers	175	0.2398	0.8686	1.7881	0.0015	0.1036	0.0953	129	0.0216
	250	0.2776	0.7758	2.4482	0.0021	0.1071	0.0986	183	0.0250
	500	0.3621	1.7411	3.2071	0.0026	0.1370	0.1260	265	0.0327
	750	0.5457	2.6075	4.9024	0.0040	0.2071	0.1906	399	0.0492
	1000	0.8464	4.1786	8.4813	0.0060	0.3018	0.2776	592	0.0764
Rubber Tired Dozers Composite		0.3379	1.4127	2.9891	0.0025	0.1288	0.1185	239	0.0305
Rubber Tired Loaders	25	0.0206	0.0697	0.1314	0.0002	0.0064	0.0059	16.9	0.0019
	50	0.1560	0.4005	0.3333	0.0004	0.0361	0.0332	31.1	0.0141
	120	0.1206	0.4268	0.7227	0.0007	0.0660	0.0608	58.9	0.0109
	175	0.1476	0.6326	1.1513	0.0012	0.0664	0.0611	106	0.0133
	250	0.1493	0.4210	1.5357	0.0017	0.0563	0.0518	149	0.0135
	500	0.2172	0.7648	2.1684	0.0023	0.0819	0.0754	237	0.0196
	750	0.4484	1.5625	4.5660	0.0049	0.1700	0.1564	486	0.0405
	1000	0.6154	2.2308	7.1368	0.0060	0.2156	0.1983	594	0.0555
Rubber Tired Loaders Composite		0.1440	0.5078	1.1537	0.0012	0.0651	0.0599	109	0.0130
Scrapers	120	0.2236	0.7169	1.3034	0.0011	0.1177	0.1083	93.9	0.0202
	175	0.2391	0.9290	1.8284	0.0017	0.1053	0.0969	148	0.0216
	250	0.2618	0.7368	2.4818	0.0024	0.1006	0.0926	209	0.0236
	500	0.3650	1.5182	3.4250	0.0032	0.1386	0.1275	321	0.0329
	750	0.6328	2.6115	6.0373	0.0056	0.2413	0.2220	555	0.0571
Scrapers Composite		0.3202	1.2424	2.9078	0.0027	0.1256	0.1155	262	0.0289
Signal Boards	15	0.0072	0.0377	0.0450	0.0001	0.0017	0.0016	6.2	0.0006
	50	0.1492	0.3827	0.3689	0.0005	0.0364	0.0335	36.2	0.0135
	120	0.1495	0.5380	0.9446	0.0009	0.0792	0.0728	80.2	0.0135
	175	0.1907	0.8437	1.6203	0.0017	0.0846	0.0778	155	0.0172
	250	0.2049	0.6138	2.5094	0.0029	0.0789	0.0726	255	0.0185
Signal Boards Composite		0.0224	0.0953	0.1615	0.0002	0.0091	0.0084	16.7	0.0020
Skid Steer Loaders	25	0.0249	0.0700	0.1252	0.0002	0.0079	0.0073	13.8	0.0022
	50	0.0785	0.2507	0.2463	0.0003	0.0217	0.0199	25.5	0.0071

	120	0.0607	0.2822	0.4131	0.0005	0.0355	0.0327	42.8	0.0055
Skid Steer Loaders Composite		0.0692	0.2489	0.2919	0.0004	0.0252	0.0232	30.3	0.0062
Surfacing Equipment	50	0.0589	0.1520	0.1451	0.0002	0.0142	0.0131	14.1	0.0053
	120	0.1192	0.4334	0.7683	0.0007	0.0624	0.0574	63.8	0.0108
	175	0.1071	0.4787	0.9169	0.0010	0.0472	0.0435	85.8	0.0097
	250	0.1254	0.3883	1.3783	0.0015	0.0494	0.0455	135	0.0113
	500	0.1854	0.7785	2.0517	0.0022	0.0741	0.0682	221	0.0167
	750	0.2960	1.2171	3.2929	0.0035	0.1173	0.1079	347	0.0267
Surfacing Equipment Composite		0.1550	0.6164	1.5685	0.0017	0.0606	0.0557	166	0.0140
Sweepers/Scrubbers	15	0.0124	0.0729	0.0870	0.0002	0.0033	0.0030	11.9	0.0011
	25	0.0239	0.0808	0.1524	0.0002	0.0075	0.0069	19.6	0.0022
	50	0.1508	0.3893	0.3297	0.0004	0.0355	0.0327	31.6	0.0136
	120	0.1490	0.5329	0.8645	0.0009	0.0843	0.0776	75.0	0.0134
	175	0.1856	0.8049	1.4276	0.0016	0.0854	0.0786	139	0.0167
	250	0.1344	0.3643	1.5598	0.0018	0.0489	0.0450	162	0.0121
Sweepers/Scrubbers Composite		0.1548	0.5380	0.8473	0.0009	0.0686	0.0631	78.5	0.0140
Tractors/Loaders/Backhoes	25	0.0214	0.0681	0.1317	0.0002	0.0072	0.0066	15.9	0.0019
	50	0.1257	0.3548	0.3114	0.0004	0.0312	0.0287	30.3	0.0113
	120	0.0910	0.3623	0.5664	0.0006	0.0515	0.0474	51.7	0.0082
	175	0.1216	0.5881	0.9646	0.0011	0.0562	0.0517	101	0.0110
	250	0.1418	0.4037	1.5493	0.0019	0.0523	0.0482	172	0.0128
	500	0.2630	0.8495	2.7242	0.0039	0.0980	0.0901	345	0.0237
	750	0.3986	1.2725	4.2276	0.0058	0.1496	0.1376	517	0.0360
Tractors/Loaders/Backhoes Composite		0.1021	0.3930	0.6747	0.0008	0.0521	0.0479	66.8	0.0092
Trenchers	15	0.0099	0.0517	0.0617	0.0001	0.0023	0.0021	8.5	0.0009
	25	0.0400	0.1355	0.2555	0.0004	0.0125	0.0115	32.9	0.0036
	50	0.1837	0.4365	0.3620	0.0004	0.0405	0.0373	32.9	0.0166
	120	0.1509	0.4840	0.9082	0.0008	0.0776	0.0714	64.9	0.0136
	175	0.2254	0.8843	1.7973	0.0016	0.0990	0.0911	144	0.0203
	250	0.2770	0.8161	2.6802	0.0025	0.1103	0.1015	223	0.0250
	500	0.3468	1.6352	3.4013	0.0031	0.1373	0.1264	311	0.0313
	750	0.6586	3.0677	6.5218	0.0059	0.2602	0.2394	587	0.0594
Trenchers Composite		0.1675	0.4907	0.7598	0.0007	0.0637	0.0586	58.7	0.0151
Welders	15	0.0124	0.0441	0.0720	0.0001	0.0052	0.0048	6.2	0.0011
	25	0.0254	0.0661	0.1091	0.0001	0.0077	0.0071	11.3	0.0023
	50	0.1231	0.3025	0.2724	0.0003	0.0287	0.0264	26.0	0.0111
	120	0.0807	0.2738	0.4899	0.0005	0.0428	0.0394	39.5	0.0073
	175	0.1333	0.5515	1.0896	0.0011	0.0590	0.0542	98.2	0.0120
	250	0.1052	0.3022	1.2367	0.0013	0.0400	0.0368	119	0.0095
	500	0.1327	0.4823	1.5648	0.0016	0.0520	0.0479	168	0.0120
Welders Composite		0.0805	0.2246	0.2920	0.0003	0.0270	0.0248	25.6	0.0073

Table 43
Off-road Exhaust Emission Factors - Year 2010

Equipment Type	Fuel	Horse-power	SCAQMD Off-Road Model Category		ROG (lb/hr)[a]	CO (lb/hr)[a]	NO_X (lb/hr)[a]	SO_X (lb/hr)[a]	PM_{10} (lb/hr)[a]	$PM_{2.5}$ (lb/hr)[b]	CO_2 (lb/hr)[a]	CH_4 (lb/hr)[a]
Dozer	Diesel	305	Rubber Tired Dozers	Dozer 0305	0.278	0.776	2.448	0.002	0.107	0.099	183.487	0.025
Loader	Diesel	147	Tractors/Loaders/Backhoes	Loader 0147	0.091	0.362	0.566	0.001	0.052	0.047	51.728	0.008
Scraper	Diesel	267	Scrapers	Scraper 0267	0.262	0.737	2.482	0.002	0.101	0.093	209.470	0.024
Grader	Diesel	110	Graders	Grader 0110	0.172	0.631	1.434	0.001	0.075	0.069	132.743	0.016
Grader	Diesel	350	Graders	Grader 0350	0.1723	0.6314	1.4338	0.0015	0.0753	0.069	132.743	0.0155
Backhoe	Diesel	79	Tractors/Loaders/Backhoes	Backhoe 0079	0.126	0.355	0.311	0.000	0.031	0.029	30.347	0.011
Backhoe	Diesel	350	Tractors/Loaders/Backhoes	Backhoe 0350	0.142	0.404	1.549	0.002	0.052	0.048	171.737	0.0092
Tamper	Diesel	174	Rollers	Tamper 0174	0.120	0.418	0.738	0.001	0.064	0.059	58.989	0.011
Excavator	Diesel	152	Excavators	Excavator 0152	0.140	0.532	0.840	0.001	0.078	0.072	73.623	0.013
Foundation Auger	Diesel	79	Bore/Drill Rigs	Foundation Auger 0079	0.054	0.250	0.282	0.000	0.019	0.018	31.037	0.005
Skip Loader	Diesel	75	Skid Steer Loaders	Skip Loader 0075	0.078	0.251	0.246	0.000	0.022	0.020	25.519	0.007
Skid Steer Loader	Diesel	75	Skid Steer Loaders	Skid Steer Loader 0075	0.078	0.251	0.246	0.000	0.022	0.020	25.519	0.007
Forklift	Diesel	83	Forklifts	Forklift 0083	0.067	0.182	0.153	0.000	0.016	0.015	14.672	0.006
17 Ton Crane	Diesel	125	Cranes	17 Ton Crane 0125	0.112	0.372	0.654	0.001	0.060	0.055	50.148	0.010
Scissor Lift	Diesel	87	Aerial Lifts	Scissor Lift 0087	0.076	0.194	0.198	0.000	0.019	0.017	19.613	0.007
Manlift	Diesel	43	Aerial Lifts	Manlift 0043	0.021	0.058	0.101	0.000	0.007	0.006	10.960	0.002
Reach Manlift	Diesel	87	Aerial Lifts	Reach Manlift 0087	0.076	0.194	0.198	0.000	0.019	0.017	19.613	0.007
15 Ton Crane	Diesel	125	Cranes	15 Ton Crane 0125	0.112	0.372	0.654	0.001	0.060	0.055	50.148	0.010
Crane	Diesel	125	Cranes	Crane 0125	0.112	0.372	0.654	0.001	0.060	0.055	50.148	0.010
Paving Roller	Diesel	46	Rollers	Paving Roller 0046	0.016	0.055	0.105	0.000	0.005	0.005	13.343	0.001
Asphalt Paver	Diesel	152	Pavers	Asphalt Paver 0152	0.164	0.522	0.969	0.001	0.085	0.079	69.196	0.015
Asphalt Curb Machine	Diesel	35	Paving Equipment	Asphalt Curb Machine 0035	0.016	0.052	0.099	0.000	0.005	0.005	12.628	0.001
Tractor	Diesel	45	Tractors/Loaders/Backhoes	Tractor 0045	0.021	0.068	0.132	0.000	0.007	0.007	15.863	0.002
Dozer, D6	Diesel	165	Crawler Tractors	Dozer, D6 0165	0.155	0.502	0.904	0.001	0.082	0.075	65.811	0.014
Dozer, D8	Diesel	305	Crawler Tractors	Dozer, D8 0305	0.205	0.574	1.944	0.002	0.078	0.072	166.132	0.019
Truck Mounted Crane	Diesel	235	Cranes	Truck Mounted Crane 0235	0.121	0.488	0.930	0.001	0.054	0.050	80.345	0.011
Conductor Pulling Machine	Diesel	120	Other Construction Equipment	Conductor Pulling Machine 0120	0.132	0.542	0.865	0.001	0.074	0.068	80.859	0.012
Conductor Tensioner	Diesel	120	Other Construction Equipment	Conductor Tensioner 0120	0.132	0.542	0.865	0.001	0.074	0.068	80.859	0.012
30 Ton Crane	Diesel	125	Cranes	30 Ton Crane 0125	0.112	0.372	0.654	0.001	0.060	0.055	50.148	0.010
31 Ton Crane	Diesel	300	Cranes	31 Ton Crane 0300	0.124	0.346	1.237	0.001	0.047	0.043	112.159	0.011
Drilling Rig	Diesel	190	Bore/Drill Rigs	Drilling Rig 0190	0.093	0.754	0.915	0.002	0.048	0.044	141.076	0.008
Water Truck	Diesel	350	Other Construction Equipment	Water Truck 0350	0.117	0.590	0.993	0.001	0.054	0.050	106.516	0.011
50 Ton Hydraulic Crane	Diesel		Cranes	50 Ton Hydraulic Crane 0000	0.159	0.543	1.451	0.001	0.064	0.059	128.655	0.014
30 Ton Hydraulic Crane	Diesel		Cranes	30 Ton Hydraulic Crane 0000	0.159	0.543	1.451	0.001	0.064	0.059	128.655	0.014
200 Ton Crawler Crane	Diesel		Cranes	200 Ton Crawler Crane 0000	0.159	0.543	1.451	0.001	0.064	0.059	128.655	0.014
Forklift	Diesel		Forklifts	Forklift 0000	0.069	0.232	0.516	0.001	0.028	0.026	54.396	0.006
Backhoe/Loader	Diesel		Tractors/Loaders/Backhoes	Backhoe/Loader 0000	0.102	0.393	0.675	0.001	0.052	0.048	66.805	0.009
Grader	Diesel		Graders	Grader 0000	0.172	0.631	1.434	0.001	0.075	0.069	132.743	0.016
D6 Dozer	Diesel		Crawler Tractors	D6 Dozer 0000	0.186	0.641	1.385	0.001	0.085	0.079	114.021	0.017
Sheep's Foot Vibrator Compactor (10 yards)	Diesel		Plate Compactors	ep's Foot Vibrator Compactor (10 yards)	0.005	0.026	0.032	0.000	0.002	0.001	4.314	0.000
Excavators	Diesel		Excavators	Excavators 0000	0.148	0.558	1.150	0.001	0.064	0.059	119.581	0.013
Front End Loader	Diesel		Tractors/Loaders/Backhoes	Front End Loader 0000	0.102	0.393	0.675	0.001	0.052	0.048	66.805	0.009
Drilling Rig	Diesel		Bore/Drill Rigs	Drilling Rig 0000	0.105	0.515	1.133	0.002	0.050	0.046	164.853	0.009
Paver/Sealer	Diesel		Pavers	Paver/Sealer 0000	0.177	0.564	0.987	0.001	0.071	0.065	77.935	0.016
Welders	Diesel		Welders	Welders 0000	0.081	0.225	0.292	0.000	0.027	0.025	25.603	0.007
Generators	Diesel		Generator Sets	Generators 0000	0.096	0.329	0.644	0.001	0.040	0.036	60.993	0.009
Other Construction Equipment	Diesel		Other Construction Equipment	Other Construction Equipment 0000	0.106	0.411	1.012	0.001	0.044	0.041	122.763	0.010
Off-Highway Trucks	Diesel		Other Construction Equipment	Off-Highway Trucks 0000	0.106	0.411	1.012	0.001	0.044	0.041	122.763	0.010
Lowboy Truck/Trailer	Diesel	500	Other Construction Equipment	Lowboy Truck/Trailer 0500	0.171	0.607	1.982	0.002	0.068	0.062	254.238	0.015
Forklift	Diesel		Other Construction Equipment	Forklift 0000	0.106	0.411	1.012	0.001	0.044	0.041	122.763	0.010
Compressor Trailer	Diesel	120	Other Construction Equipment	Compressor Trailer 0120	0.132	0.542	0.865	0.001	0.074	0.068	80.859	0.012
Off-Highway Trucks	Diesel		Off-Highway Trucks	Off-Highway Trucks 0000	0.248	0.743	2.388	0.003	0.088	0.081	260.104	0.022
Dozer	Diesel		Rubber Tired Dozers	Dozer 0000	0.2776	1.413	2.989	0.002	0.129	0.118	239.101	0.030
Loader	Diesel		Tractors/Loaders/Backhoes	Loader 0000	0.102	0.393	0.675	0.001	0.052	0.048	66.805	0.009
Scraper	Diesel		Scrapers	Scraper 0000	0.320	1.242	2.908	0.003	0.126	0.116	262.499	0.029
Grader	Diesel		Graders	Grader 0000	0.172	0.631	1.434	0.001	0.075	0.069	132.743	0.016
Backhoe	Diesel		Tractors/Loaders/Backhoes	Backhoe 0000	0.102	0.393	0.675	0.001	0.052	0.048	66.805	0.009
Tamper	Diesel		Rollers	Tamper 0000	0.118	0.421	0.775	0.001	0.055	0.050	67.052	0.011
Excavator	Diesel		Excavators	Excavator 0000	0.148	0.558	1.150	0.001	0.064	0.059	119.581	0.013
Foundation Auger	Diesel		Bore/Drill Rigs	Foundation Auger 0000	0.105	0.515	1.133	0.002	0.050	0.046	164.853	0.009
Skip Loader	Diesel		Skid Steer Loaders	Skip Loader 0000	0.069	0.249	0.292	0.000	0.025	0.023	30.281	0.006
Skid Steer Loader	Diesel		Skid Steer Loaders	Skid Steer Loader 0000	0.069	0.249	0.292	0.000	0.025	0.023	30.281	0.006
Forklift	Diesel		Forklifts	Forklift 0000	0.069	0.232	0.516	0.001	0.028	0.026	54.396	0.006
17 Ton Crane	Diesel		Cranes	17 Ton Crane 0000	0.159	0.543	1.451	0.001	0.064	0.059	128.655	0.014
Scissor Lift	Diesel		Aerial Lifts	Scissor Lift 0000	0.067	0.209	0.360	0.000	0.025	0.023	34.722	0.006
Manlift	Diesel		Aerial Lifts	Manlift 0000	0.067	0.209	0.360	0.000	0.025	0.023	34.722	0.006
Reach Manlift	Diesel		Aerial Lifts	Reach Manlift 0000	0.067	0.209	0.360	0.000	0.025	0.023	34.722	0.006
15 Ton Crane	Diesel		Cranes	15 Ton Crane 0000	0.159	0.543	1.451	0.001	0.064	0.059	128.655	0.014
Crane	Diesel		Cranes	Crane 0000	0.159	0.543	1.451	0.001	0.064	0.059	128.655	0.014
Paving Roller	Diesel		Rollers	Paving Roller 0000	0.118	0.421	0.775	0.001	0.055	0.050	67.052	0.011
Asphalt Paver	Diesel		Pavers	Asphalt Paver 0000	0.177	0.564	0.987	0.001	0.071	0.065	77.935	0.016
Asphalt Curb Machine	Diesel		Paving Equipment	Asphalt Curb Machine 0000	0.134	0.448	0.896	0.001	0.063	0.058	68.946	0.012
Tractor	Diesel		Tractors/Loaders/Backhoes	Tractor 0000	0.102	0.393	0.675	0.001	0.052	0.048	66.805	0.009
Dozer, D6	Diesel		Crawler Tractors	Dozer, D6 0000	0.186	0.641	1.385	0.001	0.085	0.079	114.021	0.017
Dozer, D8	Diesel		Crawler Tractors	Dozer, D8 0000	0.186	0.641	1.385	0.001	0.085	0.079	114.021	0.017
Truck Mounted Crane	Diesel		Cranes	Truck Mounted Crane 0000	0.159	0.543	1.451	0.001	0.064	0.059	128.655	0.014
Conductor Pulling Machine	Diesel		Other Construction Equipment	Conductor Pulling Machine 0000	0.106	0.411	1.012	0.001	0.044	0.041	122.763	0.010
Conductor Tensioner	Diesel		Other Construction Equipment	Conductor Tensioner 0000	0.106	0.411	1.012	0.001	0.044	0.041	122.763	0.010
30 Ton Crane	Diesel		Cranes	30 Ton Crane 0000	0.159	0.543	1.451	0.001	0.064	0.059	128.655	0.014
Drilling Rig	Diesel		Bore/Drill Rigs	Drilling Rig 0000	0.105	0.515	1.133	0.002	0.050	0.046	164.853	0.009
Air Compressors	Diesel		Air Compressors	Air Compressors 0000	0.112	0.361	0.732	0.001	0.053	0.048	63.607	0.010

[a] SCAQMD CEQA Air Quality Guidance Handbook Off-road Model Mobile Source Emission Factors; where bhp not available, SCAQMD composite emission factors were used 0000
CEQA Air Quality Guidance Handbook

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

PM2.5 Fraction of PM10 in Diesel Engine **0.920**

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

Table 44

Onroad Emission Factor Summary

Vechile Type	SCAQMD EF Classification	ROG	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$	CO_2	CH_4
		2010							
Water Truck	HHDT	0.00304	0.01195	0.03822	0.00004	0.00183	0.00160	4.21121	0.00014
Dump Truck	HHDT	0.00304	0.01195	0.03822	0.00004	0.00183	0.00160	4.21121	0.00014
Carry-all Truck	HHDT	0.00304	0.01195	0.03822	0.00004	0.00183	0.00160	4.21121	0.00014
Stake Truck	HHDT	0.00304	0.01195	0.03822	0.00004	0.00183	0.00160	4.21121	0.00014
Low Bed Truck	HHDT	0.00304	0.01195	0.03822	0.00004	0.00183	0.00160	4.21121	0.00014
Flatbed Truck	HHDT	0.00304	0.01195	0.03822	0.00004	0.00183	0.00160	4.21121	0.00014
Line Truck	HHDT	0.00304	0.01195	0.03822	0.00004	0.00183	0.00160	4.21121	0.00014
Concrete Truck	HHDT	0.00304	0.01195	0.03822	0.00004	0.00183	0.00160	4.21121	0.00014
Heavy Duty Truck	HHDT	0.00304	0.01195	0.03822	0.00004	0.00183	0.00160	4.21121	0.00014
6 Ton Truck	HHDT	0.00304	0.01195	0.03822	0.00004	0.00183	0.00160	4.21121	0.00014
Dump Truck (10 yards)	HHDT	0.00304	0.01195	0.03822	0.00004	0.00183	0.00160	4.21121	0.00014
Dump Truck (20 yards)	HHDT	0.00304	0.01195	0.03822	0.00004	0.00183	0.00160	4.21121	0.00014
Water Truck (2000 gallons)	HHDT	0.00304	0.01195	0.03822	0.00004	0.00183	0.00160	4.21121	0.00014
Worker Shuttle	MHDT	0.00259	0.01844	0.02062	0.00003	0.00075	0.00064	2.73222	0.00013
Pickup Truck	MHDT	0.00259	0.01844	0.02062	0.00003	0.00075	0.00064	2.73222	0.00013
Crew Truck	MHDT	0.00259	0.01844	0.02062	0.00003	0.00075	0.00064	2.73222	0.00013
Maintenance Truck	MHDT	0.00259	0.01844	0.02062	0.00003	0.00075	0.00064	2.73222	0.00013
Tool Truck	MHDT	0.00259	0.01844	0.02062	0.00003	0.00075	0.00064	2.73222	0.00013
Light Truck	MHDT	0.00259	0.01844	0.02062	0.00003	0.00075	0.00064	2.73222	0.00013
Bucket Truck	MHDT	0.00259	0.01844	0.02062	0.00003	0.00075	0.00064	2.73222	0.00013
Framing Truck	MHDT	0.00259	0.01844	0.02062	0.00003	0.00075	0.00064	2.73222	0.00013
3/4-Ton Pickup	MHDT	0.00259	0.01844	0.02062	0.00003	0.00075	0.00064	2.73222	0.00013
Worker Commuting	Passenger	0.00091	0.00826	0.00092	0.00001	0.00009	0.00005	1.09568	0.00008

[a] SCAQMD CEQA Air Quality Guidance Handbook - Onroad - EMFAC 2007 Emission Factors

PM10 and PM2.5 includes exhaust + tire and brake wear emissions

Table 45
Motor Vehicle Entrained Road Dust Emission Factors

Vehicle Type	Surface		Silt Loading (sL, g/m2) or Silt Content (s, %)[a]	Average Weight (W) (tons)[b]	PM10 Emission Factor (lb/VMT)[c]	PM2.5 Emission Factor (lb/VMT)[c]
Water Truck	Paved	Water TruckPaved	0.035	2.7	5.15E-04	0.00E+00
Water Truck	Unpaved	Water TruckUnpaved	7.5	17	2.14E+00	2.14E-01
Tool Truck	Paved	Tool TruckPaved	0.035	2.7	5.15E-04	0.00E+00
Tool Truck	Unpaved	Tool TruckUnpaved	7.5	17	2.14E+00	2.14E-01
Pickup Truck	Paved	Pickup TruckPaved	0.035	2.7	5.15E-04	0.00E+00
Pickup Truck	Unpaved	Pickup TruckUnpaved	7.5	17	2.14E+00	2.14E-01
Dump Truck	Paved	Dump TruckPaved	0.035	2.7	5.15E-04	0.00E+00
Dump Truck	Unpaved	Dump TruckUnpaved	7.5	17	2.14E+00	2.14E-01
Dump Truck (10 yards)	Paved	ump Truck (10 yards)Pave	0.035	2.7	5.15E-04	0.00E+00
Dump Truck (10 yards)	Unpaved	mp Truck (10 yards)Unpav	7.5	17	2.14E+00	2.14E-01
Dump Truck (20 yards)	Paved	ump Truck (20 yards)Pave	0.035	2.7	5.15E-04	0.00E+00
Dump Truck (20 yards)	Unpaved	mp Truck (20 yards)Unpav	7.5	17	2.14E+00	2.14E-01
6 Ton Truck	Paved	6 Ton TruckPaved	0.035	2.7	5.15E-04	0.00E+00
6 Ton Truck	Unpaved	6 Ton TruckUnpaved	7.5	17	2.14E+00	2.14E-01
Carry-all Truck	Paved	Carry-all TruckPaved	0.035	2.7	5.15E-04	0.00E+00
Carry-all Truck	Unpaved	Carry-all TruckUnpaved	7.5	17	2.14E+00	2.14E-01
Stake Truck	Paved	Stake TruckPaved	0.035	2.7	5.15E-04	0.00E+00
Stake Truck	Unpaved	Stake TruckUnpaved	7.5	17	2.14E+00	2.14E-01
Crew Truck	Paved	Crew TruckPaved	0.035	2.7	5.15E-04	0.00E+00
Crew Truck	Unpaved	Crew TruckUnpaved	7.5	17	2.14E+00	2.14E-01
Low Bed Truck	Paved	Low Bed TruckPaved	0.035	2.7	5.15E-04	0.00E+00
Low Bed Truck	Unpaved	Low Bed TruckUnpaved	7.5	17	2.14E+00	2.14E-01
Maintenance Truck	Paved	Maintenance TruckPaved	0.035	2.7	5.15E-04	0.00E+00
Maintenance Truck	Unpaved	Maintenance TruckUnpave	7.5	17	2.14E+00	2.14E-01
Tractor	Paved	TractorPaved	0.035	2.7	5.15E-04	0.00E+00
Tractor	Unpaved	TractorUnpaved	7.5	17	2.14E+00	2.14E-01
Flatbed Truck	Paved	Flatbed TruckPaved	0.035	2.7	5.15E-04	0.00E+00
Flatbed Truck	Unpaved	Flatbed TruckUnpaved	7.5	17	2.14E+00	2.14E-01
Light Truck	Paved	Light TruckPaved	0.035	2.7	5.15E-04	0.00E+00
Light Truck	Unpaved	Light TruckUnpaved	7.5	17	2.14E+00	2.14E-01
Line Truck	Paved	Line TruckPaved	0.035	2.7	5.15E-04	0.00E+00
Line Truck	Unpaved	Line TruckUnpaved	7.5	17	2.14E+00	2.14E-01
Bucket Truck	Paved	Bucket TruckPaved	0.035	2.7	5.15E-04	0.00E+00
Bucket Truck	Unpaved	Bucket TruckUnpaved	7.5	17	2.14E+00	2.14E-01
Concrete Truck	Paved	Concrete TruckPaved	0.035	2.7	5.15E-04	0.00E+00
Concrete Truck	Unpaved	Concrete TruckUnpaved	7.5	17	2.14E+00	2.14E-01
Heavy Duty Truck	Paved	Heavy Duty TruckPaved	0.035	2.7	5.15E-04	0.00E+00
Heavy Duty Truck	Unpaved	Heavy Duty TruckUnpaved	7.5	17	2.14E+00	2.14E-01
Worker Commuting	Paved	Worker CommutingPaved	0.035	2.7	5.15E-04	0.00E+00
Worker Commuting	Unpaved	Worker CommutingUnpave	7.5	2.7	9.37E-01	9.37E-02
Worker Shuttle	Paved	Worker ShuttlePaved	0.035	2.7	5.15E-04	0.00E+00
Worker Shuttle	Unpaved	Worker ShuttleUnpaved	7.5	2.7	9.37E-01	9.37E-02
Framing Truck	Paved	Framing TruckPaved	0.035	2.7	5.15E-04	0.00E+00
Framing Truck	Unpaved	Framing TruckUnpaved	7.5	2.7	9.37E-01	9.37E-02

[a] Paved road silt loading from ARB Emission Inventory Methodology 7.9, Entrained Paved Road Dust (1997) for collector roads, http://www.arb.ca.gov/ei/areasrc/fullpdf/full7-9.pdf

Unpaved road silt content from SCAQMD CEQA Handbook, (1993) Table A9-9-E-1 for overburden

[b] Average paved on-road vehicle weight in Ventura County from ARB Emission Inventory Methodology 7.9, Entrained Paved Road Dust (1997)

Unpaved worker commuting weight on access road assumed to be same as paved road weight

Unpaved weight for other trucks is based on upper limit of 33,000 lbs (16.5 tons) for heavy-duty trucks (SCAQMD CEQA Handbook, (1993) Ta

[c] Equations:

$EF(paved) = k_p (sL/2)^{0.65} (W/3)^{1.5} - C$ Ref: AP-42, Section 13.2.1, "Paved Rods," November 2006

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

Constants:

k_p =	0.016	(Particle size multiplier for PM10)
	0.0024	(Particle size multiplier for PM2.5)
C =	0.00047	(Exhaust, brake wear and tire wear adjustme
	0.00036	(Exhaust, brake wear and tire wear adjustme
k_u =	1.5	(Particle size multiplier for PM)
	0.15	(Particle size multiplier for PM2.5)
a =	0.9	for PM10
	0.9	for PM2.5
b =	0.45	for PM10
	0.45	for PM2.5

Table 46
Fugitive Dust Emission Factors

Soil Dropping During Excavation

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

Parameter	Value	Basis
Mean Wind Speed	12	SCAQMD CEQA Air Quality Handbook (1993), Table 9-9-G, default
Moisture	15	SCAQMD CEQA Air Quality Handbook (1993), Table 9-9-G-1, moist soil
Number Drops	4	Assumption
Soil Density	1.215	Table 2.46, Handbook of Solid Waste Management

PM10 Emission Factor (Uncontrolled)	9.94E-04	lb/cu. yd
Reduction from Watering Twice/Day[b]	0%	
Controlled PM10 Emission Factor	9.94E-04	lb/cu. yd
Controlled PM2.5 Emission Factor[a]	2.07E-04	lb/cu. yd

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

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

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

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

Table 46
Fugitive Dust Emission Factors

Storage Pile Wind Erosion

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

Parameter	Value	Basis
Silt Content	7.5	SCAQMD CEQA Handbook, (1993) Table A9-9-E-1 for overburden
Pct. time wind > 12 mph	100	Worst-case assumption

PM10 Emission Factor (Uncontrolled)	44.0	lb/day-acre
Reduction from Watering Twice/Day	50%	
Controlled PM10 Emission Factor	22.0	lb/day-acre
Controlled PM2.5 Emission Factor[a]	4.6	lb/day-acre

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

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

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

Table 46
Fugitive Dust Emission Factors

Bulldozing, Scraping and Grading

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

Parameter	Value	Basis
Silt Content	7.5	SCAQMD CEQA Handbook, (1993) Table A9-9-E-1 for overburden
Moisture	15	SCAQMD CEQA Air Quality Handbook (1993), Table 9-9-G-1, moist soil

PM10 Emission Factor (Uncontrolled)	0.348	lb/hr
Reduction from Watering Twice/Day	0%	
Controlled PM10 Emission Factor	0.348	lb/hr
Controlled PM2.5 Emission Factor[a]	0.072	lb/hr

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

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

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

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

Table 47
Localized Significance Threshold Analysis

LST Analysis for the Compressor Station Site
(2 acre site; Nearest Receptor at over 1,000 meters)

	CO	NOx	PM10	PM2.5
Peak Daily Construction Emissions	107.26	93.18	9.64	4.52
Peak Daily Operational Emissions	1.98	0.22	0.00	0.33
NOx and CO LST	***8933***	***271***	**--**	**--**
PM10 and PM2.5 Operational LST	**--**	**--**	***139***	***80***
PM10 and PM2.5 Construction LST	**--**	**--**	***34***	***20***
Significant (Yes/No)?	**NO**	**NO**	**NO**	**NO**

LST Analysis for the Substation Site
(2 acre site; Nearest Receptor at over 900 meters)

	CO	NOx	PM10	PM2.5
Peak Daily Construction Emissions	32.40	47.35	15.64	4.52
Peak Daily Operational Emissions	0.00	0.00	0.00	0.00
NOx and CO LST	***8933***	***271***	***139***	***80***
PM10 and PM2.5 Operational LST	**--**	**--**	***139***	***80***
PM10 and PM2.5 Construction LST	**--**	**--**	***34***	***20***
Significant (Yes/No)?	**NO**	**NO**	**NO**	**NO**

SCAQMD Localized Significance Threshold (LST) Values

	Allowable emissions (lb/day) as a function of receptor distance from Site Boundary														
Pollutant	**1 Acre**					**2 Acre**					**5 Acre**				
Receptor Distance (meters)	**25**	**50**	**100**	**200**	**500**	**25**	**50**	**100**	**200**	**500**	**25**	**50**	**100**	**200**	**500**
CO	590	879	1294	2500	8174	877	1256	1787	3108	8933	1644	2095	2922	4608	11049
NOx	106	107	124	161	254	152	148	160	190	271	228	219	233	256	321
PM_{10} Construction	4	12	25	51	131	6	19	32	59	139	12	38	52	79	161
PM_{10} Operation	1	3	6	13	32	2	5	8	15	34	3	10	13	19	39
$PM_{2.5}$ Construction	3	4	7	18	74	4	5	9	20	80	6	8	13	26	95
$PM_{2.5}$ Operation	1	1	2	5	18	1	2	2	5	20	2	2	3	7	23

Table 48-A

Peak Daily Compressor Site Construction Emissions						
Scenario[1]	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
1	0.24	1.27	1.41	0.07	0.20	0.11
2	13.42	71.19	83.60	0.13	8.42	2.03
3	10.67	71.04	48.67	0.11	6.28	2.51
4	17.87	107.26	93.18	0.18	9.64	4.52
5	2.13	11.21	9.80	0.02	1.09	0.62
Peak Daily	**17.87**	**107.26**	**93.18**	**0.18**	**9.64**	**4.52**

[1] Emissions were calculated for six scenarios, listed below. Each scenario includes a combination of construction activities that could occur at the same time.

Scenario 1 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Compressor Station Survey	0.09	0.17	0.18	0.07	0.12	0.08
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**0.24**	**1.27**	**1.41**	**0.07**	**0.20**	**0.11**

Scenario 2 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Compressor Station Site Clearing	5.69	30.69	32.08	0.05	3.07	0.99
Compressor Station Site Preparation	7.57	39.40	50.28	0.07	5.28	0.99
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**13.42**	**71.19**	**83.60**	**0.13**	**8.42**	**2.03**

Scenario 3 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Compressor Station Civil	10.51	69.93	47.43	0.11	6.20	2.47
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**10.67**	**71.04**	**48.67**	**0.11**	**6.28**	**2.51**

Scenario 4 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Compressor Station Mechanical	11.76	73.06	57.14	0.12	6.57	2.80
Compressor Station Electrical	5.95	33.10	34.80	0.06	2.99	1.68
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**17.87**	**107.26**	**93.18**	**0.18**	**9.64**	**4.52**

Scenario 5 Daily Emissions

Activity	ROG (lb/day)	CO (lb/day)	NO_x (lb/day)	SO_x (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Compressor Station Paving	0.18	1.44	0.53	0.00	0.12	0.02
Compressor Station Fencing	0.27	1.88	0.59	0.00	0.15	0.04
Compressor Station Landscaping	1.54	6.78	7.45	0.01	0.75	0.52
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**2.13**	**11.21**	**9.80**	**0.02**	**1.09**	**0.62**

Table 48-B

Peak Daily Substation Site Construction Emissions						
Scenario[1]	**ROG (lb/day)**	**CO (lb/day)**	**NO_x (lb/day)**	**SO_x (lb/day)**	**PM_{10} (lb/day)**	**$PM_{2.5}$ (lb/day)**
1	0.31	1.29	1.42	0.15	0.31	0.19
2	7.25	25.14	47.35	0.06	15.64	4.52
3	4.25	17.77	16.13	0.02	1.77	1.22
4	5.84	32.40	26.33	0.05	2.86	1.64
5	5.84	32.40	26.33	0.05	2.86	1.64
Peak Daily	**7.25**	**32.40**	**47.35**	**0.15**	**15.64**	**4.52**

[1] Emissions were calculated for six scenarios, listed below. Each scenario includes a combination of construction activities that could occur at the same time.

Scenario 1 Daily Emissions

Activity	**ROG (lb/day)**	**CO (lb/day)**	**NO_x (lb/day)**	**SO_x (lb/day)**	**PM_{10} (lb/day)**	**$PM_{2.5}$ (lb/day)**
Substation Survey	0.15	0.18	0.19	0.15	0.23	0.15
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**0.31**	**1.29**	**1.42**	**0.15**	**0.31**	**0.19**

Scenario 2 Daily Emissions

Activity	**ROG (lb/day)**	**CO (lb/day)**	**NO_x (lb/day)**	**SO_x (lb/day)**	**PM_{10} (lb/day)**	**$PM_{2.5}$ (lb/day)**
Substation Grading	7.09	24.03	46.11	0.06	15.56	4.48
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**7.25**	**25.14**	**47.35**	**0.06**	**15.64**	**4.52**

Scenario 3 Daily Emissions

Activity	**ROG (lb/day)**	**CO (lb/day)**	**NO_x (lb/day)**	**SO_x (lb/day)**	**PM_{10} (lb/day)**	**$PM_{2.5}$ (lb/day)**
Substation Civil	3.28	13.13	12.29	0.02	1.39	0.99
Substation Fencing	0.82	3.54	2.60	0.00	0.30	0.19
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**4.25**	**17.77**	**16.13**	**0.02**	**1.77**	**1.22**

Scenario 4 Daily Emissions

Activity	**ROG (lb/day)**	**CO (lb/day)**	**NO_x (lb/day)**	**SO_x (lb/day)**	**PM_{10} (lb/day)**	**$PM_{2.5}$ (lb/day)**
Substation MEER	0.18	1.44	0.53	0.00	0.12	0.02
Substation Electrical	1.69	7.44	5.75	0.01	0.70	0.42
Substation Wiring	0.27	1.88	0.59	0.00	0.15	0.04
Substation Transformer	1.54	6.78	7.45	0.01	0.75	0.52
Substation Testing	0.12	1.03	0.49	0.00	0.07	0.02
Substation Maintenance	0.18	1.37	1.27	0.00	0.10	0.04
Substation Paving	1.33	8.84	7.63	0.01	0.69	0.47
Substation Landscaping	0.38	2.51	1.39	0.00	0.21	0.07
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**5.84**	**32.40**	**26.33**	**0.05**	**2.86**	**1.64**

Scenario 5 Daily Emissions

Activity	**ROG (lb/day)**	**CO (lb/day)**	**NO_x (lb/day)**	**SO_x (lb/day)**	**PM_{10} (lb/day)**	**$PM_{2.5}$ (lb/day)**
Substation MEER	0.18	1.44	0.53	0.00	0.12	0.02
Substation Electrical	1.69	7.44	5.75	0.01	0.70	0.42
Substation Wiring	0.27	1.88	0.59	0.00	0.15	0.04
Substation Transformer	1.54	6.78	7.45	0.01	0.75	0.52
Substation Testing	0.12	1.03	0.49	0.00	0.07	0.02
Substation Maintenance	0.18	1.37	1.27	0.00	0.10	0.04
Substation Paving	1.33	8.84	7.63	0.01	0.69	0.47
Substation Landscaping	0.38	2.51	1.39	0.00	0.21	0.07
Worker Shuttle	0.16	1.11	1.24	0.00	0.08	0.04
Total	**5.84**	**32.40**	**26.33**	**0.05**	**2.86**	**1.64**

Appendix B.2 – Biological Resources

Special Status Plant Species Report

Draft

Special-status Plant Species Report

Aliso Canyon Turbine Replacement Project

Los Angeles County, California

Prepared for:

Southern California Gas Company

Prepared by:

AECOM

9675 Businesspark Avenue

San Diego, California 92131

858.536.5610

Contact: Frank Landis, Senior Botanist

June 2009

TABLE OF CONTENTS

TABLES

FIGURES

1.0 INTRODUCTION

A focused special-status plant survey was conducted to support the Aliso Canyon Turbine Replacement (ACTR) project proposed by the Southern California Gas Company (SCGC), a Sempra Energy utility company, for their Aliso Canyon Storage Field in Los Angeles County, California. This project would upgrade power lines to the Aliso Canyon Storage Field in Porter Ranch, California and includes an alignment which traverses adjacent property and concludes in the City of Santa Clarita. A portion of the alignment falls within the Santa Susana Mountains Significant Ecological Area, a designation specific to Los Angeles County. This document provides a floristic inventory of the study area and the potentially sensitive botanical resources both on the site and in the surrounding area in accordance with the Los Angeles County Guidelines for Significant Ecological Areas (2004). This report also presents incidental sightings of sensitive wildlife species detected during the surveys.

1.1 Project Description

The Aliso Canyon Storage Field is located in the City of Porter Ranch. The survey included the storage field as well as the electrical alignment in the City of Santa Clarita and Los Angeles County, California.

The proposed project would upgrade power lines and replace existing power poles to the Aliso Canyon Storage Field. The power lines traverse rights-of-way held by Southern California Edison on adjacent properties before connecting to the power poles on the Aliso Canyon Storage Field. Initially, the project considered two routes, the 16kV route, and the 66 kV route. Both routes were surveyed. Subsequent to the field work, SCGC determined that the 66kV route was preferred. Hence, this report only discusses information relevant to the 66kV route. However, the methods section discusses all relevant work performed during this survey.

2.0 Existing Conditions

A summary of the existing conditions for the general vicinity and the study area is presented in the Biological Resources Section of the Proponent's Environmental Assessment prepared for this project. Please refer to that document for descriptions of the existing vegetation communities and specific site characteristics.

3.0 METHODS

The following sections describe the study methods used during the special-status plant surveys.

3.1 Literature Review

For purposes of this report, a plant species is considered sensitive if it is: (1) listed or proposed for listing as threatened or endangered by state or federal agencies; (2) on List 1A (presumed extinct in California), List 1B (considered endangered throughout its range), or List 2 (considered endangered in California but more common elsewhere) of the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2009); or (3) considered rare, endangered, or threatened by the State of California (California Department of Fish and Game (CDFG) 2009a) or other local conservation organizations or specialists. Noteworthy plant species are considered to be those that are classified as CNPS List 3 (more information about the plant's distribution and rarity needed) and List 4 (plants of limited distribution) (CNPS 2009).

Prior to conducting the field survey, sensitive plant species that would potentially be present on the site and surrounding areas were identified using the California Natural Diversity Data Base (CNDDB) (CDFG 2009b), and the Inventory of Rare and Endangered Plants on the CNPS website (CNPS 2009). A CNDDB database search was conducted, encompassing a 10-mile radius around the proposed study area and a nine-quadrangle search was conducted in the CNPS database around the U.S. Geological Survey quadrangle in which the proposed project site is located. This search included the Newhall, Whitaker Peak, Warm Springs Mountain, Mint Canyon, San Fernando, Green Valley, Val Verde, Santa Susana, and Oat Mountain quadrangles. A briefing was prepared that contained photos and information of all plant species that could potentially be found on the project site and was distributed to field biologists conducting the surveys. A list of special-status species potentially occurring on the project site and surrounding areas is presented in Appendix 1.

3.2 Botanical Surveys

Special-status plant surveys were conducted for ten days in conjunction with the vegetation community mapping effort. From April 14, 2009 to April 17, 2009, Ms. Julie Niceswanger and Mr. Rocky Brown surveyed the 16kV proposed project site and parts of the 66kV site within SCGC property. From April 20, 2009 to April 23, 2009, Dr. Frank Landis and Mr. Rocky Brown surveyed the remaining 66KV proposed alignment site on lands adjacent to the SCGC property. On June 8 and June 9, 2009, Dr. Landis and Mr. Brown surveyed additional towers on the 66 kV proposed alignment, additional areas within the SCGC property, and rechecked five detections of potential sensitive species to confirm identities.

The study area defined for this survey was limited to 25 meters (approximately 82 feet) on each side of the proposed alignment. Surveyors concentrated their effort around each power pole within the alignment as this area would require the most disturbance during project activities. The span between poles was scanned for appropriate habitat

types to support sensitive plant species and surveyed when accessible. In several cases, the survey area included cliffs that were inaccessible and binoculars were used to make a visual assessment of the habitat. The surveys were conducted by walking meandering transects, recording observed plant species within the study area, and indicating special-status and non-native species. Locations of special-status species were recorded with sub-meter accuracy global positioning system units.

Surveys focused on natural areas however, the wildland-urban interface was surveyed if natural plant communities occurred within the 25 meter survey area. Five poles in urban Santa Clarita were scanned but not surveyed, as the entire 25 meter survey area around each pole was landscaped with ornamental non-native plants and there was a low likelihood for special-status plants to occur within these landscaped areas. An additional four poles positioned within the wildland-urban interface were surveyed due to adjacent natural habitat.

Plant species found within the study area, both sensitive and non-sensitive, were identified and recorded. When the identity of the species was not known in the field, either a sample was collected and pressed or a photograph and notes were taken to aid in the identification. Due to their sensitivity, special-status plants were photographed rather than collected.

Plants were identified to the species level from photographs and specimens and a floral inventory was compiled. Nomenclature follows Calflora (2009) and identification was conducted using the *Jepson Manual* (Hickman, 1993) supplemented by McAuley (1996), Lightner (2006), and Calflora (2009). Family names follow the current APG II system (2009) for flowering plants and Allen et al (2006) for ferns which have been updated since Hickman's publication of the *Jepson Manual* in 1993. Appendix 2 provides a list of all species encountered and includes references to the families found in the *Jepson Manual* (Hickman, 1993) where changes have occurred.

3.3 Incidental Wildlife Survey

During the field surveys, observations of potentially sensitive wildlife species were recorded as they occurred. If surveyors were unfamiliar with a species, pictures and other information were used to identify them in the office.

4.0 SURVEY RESULTS

4.1 Plant Species

In the 66kV portion of the proposed project site, 182 plant species were identified, including lycophytes, ferns, conifers, and flowering plants (Appendix 2). Approximately 82 percent of the species found were growing in natural plant communities, and the rest (16 percent) were growing in the urban-wildland interface where escaped ornamentals

were present. Of the plants found in non-urban plant communities, approximately 25 percent were non-native.

Two sensitive plant species were identified during the survey: slender mariposa lily (*Calochortus clavatus* var. *gracilis*) and Plummer's mariposa lily (*Calochortus plummerae*). Both species are listed on CNPS List 1B.

Over 1,320 slender mariposa lilies were detected around seven towers on June 8 and 9, 2009. The species was initially detected in April prior to blooming, and by June 8, almost all plants had finished flowering. Nonetheless, enough plants were blooming at each site to make a definitive identification, based on pictures and a specimen collected.

Four Plummer's mariposa lilies were found in a single population, east of the current compressor site within the SCGC plant. They are growing in burned chaparral, on a slope roughly 8-10 meters from the roadway.

Although other potential sensitive species were thought to occur on the site, subsequent visits determined that all of these were common species. The list in Appendix 2 has been updated to reflect these identifications.

Table 1. Sensitive Plant Data

Species	Location	Number	Count/Estimate
Calochortus clavatus var. *gracilis*	Tower 12/5	233	Count
Calochortus clavatus var. *gracilis*	Tower 13/1	40	Count
Calochortus clavatus var. *gracilis*	Tower 13/2	>300	Estimate
Calochortus clavatus var. *gracilis*	Tower 13/3	>500	Estimate
Calochortus clavatus var. *gracilis*	Tower 14/1	186	Count
Calochortus clavatus var. *gracilis*	Tower 14/2	57	Count
Calochortus clavatus var. *gracilis*	Tower 14/6	5	Count
Calochortus plummerae	Condenser	4	Count

4.2 Incidental Wildlife Sightings

One coast horned lizard (*Phrynosoma coronatum*) was observed at Tower 14/1. The coast horned lizard is listed by CDFG as a species of special concern (CDFG 2009a). On Tower 14/2, one Cooper's hawk (*Accipiter cooperi*) was observed perching and taking flight over the proposed project area. This species is on the CDFG watch list (CDFG 2009a)

5.0 DISCUSSION AND FUTURE EFFORTS

Two sensitive plant species were observed during the 2009 surveys. Both *Calochortus clavatus* var. *gracilis* and *Calochortus plummerae* were identified at sites within the proposed project area. A second survey should be carried out in August, to look for

any late-blooming special-status plants (as noted in Appendix 1) that were not detectable in the current efforts. Once this survey is complete, this report will be updated to incorporate the results of all surveys.

If impacted by the project development these two sensitive species would need to be mitigated. The four *Calochortus plummerae* found are on the outer edge of the proposed project site, on the far side of the road from the compressor plant. They can and should be avoided. The *Calochortus clavatus* var. *gracilis* plants may be be avoided, and the project should be designed to minimize overlap between their habitat and areas directly disturbed by the project.

Mitigation for impacts to *Calochortus clavatus* individuals may include the collection of dormant bulbs and seeds either for transplant to appropriate undisturbed portions of the project site, or for reintroduction to appropriate areas that were disturbed by the project. Additionally, *Calochortus clavatus* has the reputation of being a difficult plant to grow (Gerritsen and Parsons, 2007), so any planting should be assumed to have a low success rate. It is recommended that a Mitigation Plan be developed to provide adequate information about mitigation alternatives.

Depending on the physical characteristics of the soil, it might be possible to use equipment that does not damage the soil in which these plants grow (for instance, by using light weight machinery and using plates to spread the equipment weight across a large surface). There is no precedent for doing this to protect bulbs, and no references that demonstrate how much compaction a buried *Calochortus* bulb might survive have been found in the published literature.. Nonetheless, if it is possible to install the towers without damaging the dormant bulbs in the soil, it would minimize the need for mitigation efforts to the area impacted by the new towers. This might be the cost effective approach.

6.0 REFERENCES

California Department of Fish and Game (CDFG). 2009a. Special Animals (901 taxa). Sacramento, CA. Natural Heritage Division, California Department of Fish and Game. http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/SPAnimals.pdf (accessed 5/6/2009).

_____. 2009b. California Natural Diversity Data Base. RareFind 3. Sacramento, CA. Natural Heritage Division, California Department of Fish and Game (accessed 4/10/2009).

California Native Plant Society (CNPS). 2009. Inventory of Rare and Endangered Plants, version 7-09b. http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi (accessed 4/10/2009).

Calflora. 2009. The Calflora database: Information on California plants for education, research and conservation. Berkeley, California: The Calflora Database. http://www.calflora.org/ (accessed 5/8/2009)

Gerritsen, M.E. and R. Parsons. 2007. *Calochortus: Mariposa Lilies and Their Relatives.* Portland, OR. Timber Press.

Hickman, J.C. (ed). 1993. *The Jepson Manual: Higher Plants of California*. Berkeley, CA. The University of California Press.

Lightner, J. 2006. *San Diego County Native Plants. Second Edition*. San Diego, CA. San Diego Flora.

McAuley, M. 1996. *Wildflowers of the Santa Monica Mountains. Second Edition*. Canoga Park, CA. Canyon Publishing Company.

Smith, A.R., K.M. Pryer, E. Schuettpelz, P. Korall, H. Schneider and P. G. Wolf. 2006. A classification of extant ferns. Taxon 55(3):705-731.

Stevens, P. F. (2009). Angiosperm Phylogeny Website. Version 9, May 2009. http://www. mobot.org/ MOBOT/research/APweb/. (accessed 5/5/2009)

APPENDIX 1. Potentially Occurring Special-status Plant Species for the Aliso Canyon Turbine Replacement Project

Species	Status	Habitat	Blooming Period	Elevation	Likelihood
Mt. Pinos onion (*Allium howellii* var. *clokeyi*)	CNPS List 1B	Great Basin scrub, Pinyon and juniper woodland	Apr-Jun	1300-1850 m	Based on the site description, suitable habitat for this species does not exist within the proposed project site. Therefore, Mt. Pinos onion has a low likelihood of occurring on the proposed project site.
Braunton's milk-vetch (*Astragalus brauntonii*)	FE, CNPS List 1B	Chaparral, Coastal scrub, Valley and foothill grassland/recent burns or disturbed areas, usually sandstone with carbonate layers	Jan-Aug	4-640 m	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. However, surveys during the species' blooming period did not detect the species. Nonetheless, Braunton's milk-vetch has a high likelihood of occurring on the site. The nearest documented occurrence of this species is approximately 1.5 miles west of the proposed project site.
Nevin's barberry (*Berberis nevinii*)	FE, CE, CNPS List 1B	Chaparral, Cismontane woodland, Coastal scrub, Riparian scrub/sandy or gravelly soils	Mar-Jun	274-825 m	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. However, surveys during the species' blooming period did not detect the species. Nonetheless, Nevin's barberry has a medium likelihood of occurring on the site. The nearest documented occurrence of this species is approximately 7.5 miles east of the proposed project site.
round-leaved filaree (*California macrophylla*)	CNPS List 1B	Cismontane woodland, Valley and foothill grassland/clay soils	Mar-May	15-1200 m	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. However, surveys during the species' blooming period did not detect the species. Nonetheless, round-leaved filaree has a high likelihood of occurring on the site. The nearest documented occurrence of this species is approximately 8.5 miles northwest of the proposed project site.
Slender mariposa lily (*Calochortus clavatus* var. *gracilis*)	CNPS List 1B	Chaparral, Coastal scrub, Valley and foothill grassland	Mar-Jun	360-1000	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. However, surveys during the species' blooming period did not detect the species. Therefore slender mariposa has a high likelihood of occurring on the site. The nearest documented occurrence of this species is approximately 2 miles north of the proposed project site.

Species	Status	Habitat	Blooming Period	Elevation	Likelihood
Plummer's mariposa lily (*Calochortus plummerae*)	CNPS List 1B	Chaparral, Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Valley and foothill grassland/granitic, rocky areas	May-Jul	100-1700	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. Surveys have found non-blooming *Calochortus* on-site. Therefore Plummer's mariposa has a high likelihood of occurring on the site. The nearest documented occurrence of this species is approximately 1.5 miles west of the proposed project site.
southern tarplant (*Centromadia parryi* ssp. *australis*)	CNPS List 1B	Marshes and swamps(margins), Valley and foothill grassland (vernally mesic), Vernal pools	May-Nov	0-427 m	Based on the site description, suitable habitat for this species does not exist within the proposed project site. Therefore, southern tarplant has a low likelihood of occurring on the proposed project site.
San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*)	FC, CE, CNPS List 1B	Coastal scrub(sandy), Valley and foothill grassland	Apr-Jun	150-1220	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. Surveys have found spineflowers on-site. Therefore San Fernando Valley spineflower has a high likelihood of occurring on the site. The nearest documented occurrence of this species is approximately 1.5 miles west of the proposed project site.
Parry's spineflower (*Chorizanthe parryi* var. *parryi*)	CNPS List 1B	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland/sandy or rocky openings	Apr-Jul	270-1220	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. Surveys have found spineflowers on-site. Therefore Parry's spineflower has a high likelihood of occurring on the site. The nearest documented occurrence of this species is approximately 18 miles north of the proposed project site.
Santa Susana tarplant (*Deinandra minthornii*)	CR,CNPS List 1B	Chaparral, Coastal scrub/rocky areas	Jul-Nov	280-760 m	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. To date, it has not been found on the proposed project site. Nonetheless, Santa Susana tarplant has a medium likelihood of occurring on the site. The nearest documented occurrence of this species is approximately 1.5 miles west of the proposed project site.

Species	Status	Habitat	Blooming Period	Elevation	Likelihood
slender-horned spineflower (*Dodecahema leptoceras*)	FE, CE, CNPS List 1B	Chaparral, Cismontane woodland, Coastal scrub (alluvial fan)/sandy soils	Apr-Jun	200-760 m	Based on the site description and personal knowledge of the surveyors, suitable habitat for this species does not exist within the proposed project site. Therefore, slender-horned spineflower has a low likelihood of occurring on the proposed project site.
Blochman's dudleya (*Dudleya blochmaniae* ssp. *blochmaniae*)	CNPS List 1B	Coastal bluff scrub, Chaparral, Coastal scrub, Valley and foothill grassland/rocky, often clay or serpentinite soils	Apr-Jun	5-450 m	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. However, surveys during the species' blooming period did not detect the species. Nonetheless, Blochman's dudleya has a high likelihood of occurring on the site. The nearest documented occurrence of this species is approximately 9 miles southwest of the proposed project site.
Agoura Hills dudleya (*Dudleya cymosa* ssp. agourensis)	FT, CNPS List 1B	Chaparral, Cismontane woodland/rocky, volcanic soils	May-Jun	200-500 m	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. However, surveys during the species' blooming period did not detect the species. Nonetheless, Agoura Hills dudleya has a medium likelihood of occurring on the site. . The nearest documented occurrence of this species is approximately 13.5 miles southwest of the proposed project site.
many-stemmed dudleya (*Dudleya multicaulis*)	CNPS List 1B	Chaparral, Coastal scrub, Valley and foothill grassland/often clay soils	Apr-Jul	15-790 m	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. However, surveys during the species' blooming period did not detect the species. Nonetheless, Blochman's dudleya has a medium likelihood of occurring on the site. The nearest documented occurrence of this species is approximately 13.5 miles southwest of the proposed project site.
San Gabriel bedstraw (*Galium grande*)	CNPS List 1B	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest	Jan-Jul	425-1500 m	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. However, surveys during the species' blooming period did not detect the species. Therefore, San Gabriel bedstraw has a medium likelihood of occurring on the proposed project site. The nearest documented occurrence of this species is approximately 17 miles north of the proposed project site.

Species	Status	Habitat	Blooming Period	Elevation	Likelihood
Los Angeles sunflower (*Helianthus nuttallii* ssp. *parishii*)	CNPS List 1A,	Marshes and swamps (coastal salt and freshwater)	Aug-Oct	10-1675 m	Based on the site description, suitable habitat for this species does not exist within the proposed project site. Therefore, Los Angeles sunflower has a low likelihood of occurring on the proposed project site.
Ross' pitcher sage (*Lepechinia rossii*)	CNPS List 1B	Chaparral	May-Sep	305-790 m	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. However, surveys during the species' blooming period did not detect the species. Nonetheless, Ross' pitcher sage has a medium likelihood of occurring on the site. . The nearest documented occurrence of this species is approximately 17 miles northwest of the proposed project site.
Davidson's bush mallow (*Malacothamnus davidsonii*)	CNPS List 1B	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland	Mar-Jun	185-855	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. Surveys have found non-blooming *Malacothamnus* on-site. Therefore Davidson's bush-mallow has a high likelihood of occurring on the site. The nearest documented occurrence of this species is approximately 7.5 miles east of the proposed project site.
Moran's navarretia (*Navarretia fossalis*)	FT, CNPS List 1B	Chenopod scrub, Marshes and swamps(assorted shallow freshwater), Playas, Vernal pools	Apr-Jun	30-1300 m	Based on the site description, suitable habitat for this species does not exist within the proposed project site. Therefore, Moran's navarretia has a low likelihood of occurring on the proposed project site.
Ojai navarretia (*Navarretia ojaiensis*)	CNPS List 1B	Chaparral(openings), Coastal scrub(openings), Valley and foothill grasslands	May-Jul	275-620 m	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. However, surveys during the species' blooming period did not detect the species. Nonetheless, Ojai navarretia has a medium likelihood of occurring on the site. The nearest documented occurrence of this species is approximately 13 miles northwest of the proposed project site.

Species	Status	Habitat	Blooming Period	Elevation	Likelihood
Peninsular nolina (*Nolina cismontana*)	CNPS List 1B	Chaparral, Coastal scrub/sandstone or gabbro soils	May-Jul	140-1275 m	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. However, surveys during the species' blooming period did not detect the species. Nonetheless, peninsular nolina has a medium likelihood of occurring on the site. The nearest documented occurrence of this species is approximately 53 miles west of the proposed project site.
short-joint beavertail (*Opuntia basilaris* var. *brachyclada*)	CNPS List 1B	Chaparral, Joshua tree "woodland", Mojavean desert scrub, Pinyon and juniper woodlands	Apr-Jun	425-1800 m	Based on the site description, suitable habitat for this species does not exist within the proposed project site. Therefore, short-joint beavertail has a low likelihood of occurring on the proposed project site.
California orcutt grass (*Orcuttia californica*)	FE, CE, CNPS List 1B	Vernal pools	Apr-Aug	15-660 m	Based on the site description, suitable habitat for this species does not exist within the proposed project site. Therefore, California orcutt grass has a low likelihood of occurring on the proposed project site.
white rabbit-tobacco (*Pseudognaphalium leucocephalum*)	CNPS List 2	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland/sandy, gravelly soils	(Jul) Aug-Nov (Dec)	0-2100 m	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. To date, it has not been found on the proposed project site. Nonetheless, Santa Susana tarplant has a medium likelihood of occurring on the site. The nearest documented occurrence of this species is approximately 10 miles west of the proposed project site.
chaparral ragwort (*Senecio aphanactis*)	CNPS List 2	Chaparral, Cismontane woodland, Coastal scrub/sometimes alkaline soils	Jan-Apr	15-800 m	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. However, surveys during the species' blooming period did not detect the species. Nonetheless, chaparral ragwort has a medium likelihood of occurring on the site. The nearest documented occurrence of this species is approximately 8.5 miles northwest of the proposed project site.

Species	Status	Habitat	Blooming Period	Elevation	Likelihood
Greata's aster (*Symphyotrichum greatae*)	CNPS List 1B	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Riparian woodland/mesic soils	Jun-Oct	300-2010 m	Based on habitat and topography, apparently suitable habitat exists within the proposed project site. To date, it has not been found on the proposed project site. Nonetheless, Greata's aster has a high likelihood of occurring on the site. The nearest documented occurrence of this species is approximately 7.5 miles east of the proposed project site.

Status Codes:

FE = Federally Endangered; **FT** = Federally Threatened; **CE** = State of California Endangered; **CT** = State of California Threatened;
CR = State of California Rare, **CNPS 1A** = Presumed Extinct in California; **CNPS 1B** = Rare, Threatened, or Endangered in California and Elsewhere;
CNPS 2 = Rare, Threatened, or Endangered in California but Common Elsewhere; **CNPS 4** = Plants of Limited Distribution

Appendix 2. Plant Species Detected During the Survey

Lycopods

Selaginellaceae (Spike moss family)
- spike moss (*Selaginella bigelovii*)

Ferns

Lomariopsidaceae (Climbing holly ferns)
- boston fern (*Nephrolepis exaltata*)*p

Pteridaceae (Brake family)
- birdfoot cliffbrake (*Pellaea mucronata*)
- goldback fern (*Pentagramma triangularis*)

Conifers (Pines and Cypresses)

Cupressaceae (Cypress family)
- italian cypress (*Cupressus sempervirens*)*p
- juniper (*Juniperus* sp.)*p
- giant sequoia (*Sequoiadendron giganteum*)p

Pinaceae (Pine Family)
- Non-native pine (*Pinus* sp)*p

Angiosperms: Monocots

Agavaceae (Agave Family, part of Liliaceae in Jepson)
- agave (*Agave* sp.)*p
- chaparral yucca (*Hesperoyucca whipplei*)

Arecaceae (Palm Family)
- Mexican fan palm (*Washingtonia robusta*)*p

Asphodelaceae (Asphodel family)
- aloe (*Aloe* sp.)*p
- red hot poker (*Kniphofia uvaria*)*p

Cyperaceae (sedge family)
- umbrella plant (*Cyperus involucratus*)*

Hyacinthaceae (Hyacinth family, part of Liliaceae in Jepson)
- soap plant (*Chlorogalum pomeridianum*)

Iridaceae (Iris family)
- iris (*Iris* sp.)*p
- blue-eyed grass (*Sisyrinchium bellum*)

Liliaceae (Lily family)
- Slender mariposa lily (*Calochortus clavatus* var. *gracilis*)
- Plummer's mariposa lily (*Calochortus plummerae*)

Poaceae (Grass family)
- giant ricegrass (*Achnatherum coronatum*)
- wild oats (*Avena fatua*)*
- ripgut brome (*Bromus diandrus*)*
- soft brome (*Bromus hordeaceus*)*
- red brome (*Bromus madritensis* ssp. *rubens*)*
- Bermuda grass (*Cynodon dactylon*)*

(Appendix 1, continued)

quackgrass (*Elytrigia* sp.)*
foxtail barley (*Hordeum murinum*)*
sprangletop (*Lamarckia aurea*)*
giant wild-rye (*Leymus condensatus*)
italian ryegrass (*Lolium multiflorum*)*
chaparral melic (*Melica imperfecta*)
foothill needlegrass (*Nasella lepida*)
purple needlegrass (*Nasella pulchra*)
fountaingrass (*Pennisetum setaceum*)*p
smilo grass (*Piptatherum miliaceum*)
Mediterranean grass (*Schismus arabicus*)*
rattail fescue (*Vulpia myuros*)*

Themidaceae (Brodiaea family, part of Liliaceae in Jepson)
blue dicks (*Dichelostemma capitatum*)

Angiosperms: Eudicots

Adoxaceae (Moschatel family, part of Caprifoliaceae in Jepson)
blue elderberry (*Sambucus nigra* ssp. *caerulea*)

Aizoaceae (Fig-marigold family)
baby sun rose (*Aptenia cordifolia*)*p

Altingiaceae (Liquidambar family)
sweetgum (*Liquidambar styraciflua*)*p

Amaranthaceae (Amaranth family, includes Chenopodiaceae from Jepson)
lamb's quarters (*Chenopodium album*)*

Anacardiaceae (Cashew family)
laurel sumac (*Malosma laurina*)
sugarbush (*Rhus ovata*)
poison oak (*Toxicodendron diversilobum*)

Apiaceae (Celery family)
rattlesnake weed (*Daucus pusillus*)
snake root (*Sanicula arguta*)

Apocynaceae (Dogbane Family)
Narrow leaved milkweed (*Asclepias fascicularis*)
oleander (*Nerium oleander*)*p

Asteraceae (Aster family)
perezia (*Acourtia microcephala*)
western ragweed (*Ambrosia psilostachya*)
California sagebrush (*Artemisia californica*)
mugwort (*Artemisia douglasiana*)
coyotebush (*Baccharis pilularis*)
mulefat (*Baccharis salicifolia*)
California brickellbush (*Brickellia californica*)
italian thistle (*Carduus pycnocephalus*)*
tocalote (*Centaurea militensis*)*
yellow star thistle (*Centaurea solstitialis*)*
yellow pincushion (*Chaenactis prob. Artemisifolia*)
California thistle (*Cirsium occidentale*)

(Appendix 1, continued)

horseweed (*Conyza canadensis*)
common tarplant (*Deinandra fasciculata*)
bush sunflower (*Encelia californica*)
golden yarrow (*Eriophyllum confertiflorum*)
California filago (*Filago californica*)
common gumplant (*Grindelia camporum*)
sawtooth goldenbush (*Hazardia squarrosa*)
common sunflower (*Helianthus annuus*)p
telegraph weed (*Heterotheca grandiflora*)
prickly lettuce (*Lactuca serriola*)*
coast goldfields (*Lasthenia californi*a)
woolly aster (*Lessingia filaginifolia*)
Slender tarweed (*Madia gracilis*)
cliff aster (*Malacothrix saxatilis*)
two-tone everlasting (*Pseudognaphalium bicolor*)
fragrant everlasting (*Pseudognaphalium canescens*)
California chicory (*Rafinesquia californica*)
shrubby butterweed (*Senecio flaccidus* var. *douglasii*)
milk thistle (*Silybum marianum*)
sow thistle (*Sonchus oleraceus*)
silver puffs (*Uropappus lindleyi*)

Bignoniaceae (Trumpet creeper family)
trumpet creeper (*Campsis radicans*)*p

Boraginaceae (Borage family, includes the Hydrophyllaceae from Jepson)
rancher's fireweed (*Amsinckia menziesii* var. *intermedia*)
white forget-me-not (*Cryptantha clevelandii*)
popcorn flower (*Cryptantha intermedia*)
whispering bells (*Emmenanthe penduliflora*)
yerba santa (*Eriodictyon crassifolium*)
eucrypta (*Eucrypta chrysanthemifolia*)
caterpillar phacelia (*Phacelia cicutaria* var. *hispida*)
branching phacelia (*Phacelia ramosissima* var. *latifolia*)
fern-leaf phacelia (*Phacelia tanacetifolia*)
fiesta flower (*Pholistoma auritum*)
white fiesta flower (*Pholistoma racemosum*)

Brassicaceae (Mustard family)
black mustard (*Brassica nigra*)*
western wallflower (*Erysimum capitatum*)
mediterranean mustard (*Hirschfeldia incana*)*
sweet alyssum (*Lobularia maritima*)*p
london rocket (*Sisymbrium irio*)*

Cactaceae (Cactus family)
barrel cactus (*Ferocactus* sp.)p
indian fig prickly pear (*Opuntia ficus-indica*)*
column cactus (*Trichocereus* sp.)*p

Caryophyllaceae (Pink family)
windmill pink (*Silene gallica*)*
catchfly (*Silene* prob. *multinervia*)
chickweed (*Stellaria media*)

(Appendix 1, continued)

Chenopodiaceae (Goosefoot family)
- Lambsquarters (*Chenopodium album*)*

Convolvulaceae (Morning glory family, includes Cuscutaceae from Jepson)
- morning-glory (*Calystegia macrostegia*)
- bindweed (*Convolvulus arvensis*)*
- dodder (*Cuscuta californica*)

Crassulaceae (Stonecrop family)
- jade plant (*Crassula argentea*)*p
- lance-leaf live-forever (*Dudleya* prob*. lanceolata*)

Cucurbitaceae (Cucumber family)
- calabazilla (*Cucurbita foetidissima*)
- wild cucumber (*Marah macrocarpus*)

Ericaceae (Heather family)
- manzanita (*Arctostaphylos* sp.)

Euphorbiaceae (Spurge family)
- rattlesnake mat (*Chamaesyce albomarginata*)
- petty spurge (*Euphorbia peplus*)*

Fabaceae (Bean family)
- common dwarf locoweed (*Astragalus didymocarpus*)
- Santa Barbara locoweed (*Astragalus trichopodus* var. *phoxus*)
- spanish clover (*Lotus purshianus*)
- coastal lotus (*Lotus salsuginosus*)
- deerweed (*Lotus scoparius*)
- dove lupine (*Lupinus bicolor*)
- bajada lupine (*Lupinus concinnus*)
- summer lupine (*Lupinus formosus*)
- stinging lupine (*Lupinus hirsutissimus*)
- sky lupine (*Lupinus nanus*)
- arroyo lupine (*Lupinus succulentus*)
- bur clover (*Medicago polymorpha*)*
- sour clover (*Melilotus indica*)*
- albizia (*Paraserianthes lophantha*)*
- rose clover (*Trifolium hirtum*)*
- wildcat clover (*Trifolium wildenovii*)
- winter vetch (*Vicia villosa* ssp. *villosa*)*

Fagaceae (Beech family)
- coast live oak (*Quercus agrifolia*)
- valley oak (*Quercus lobata*)

Geraniaceae (Geranium family)
- filaree (*Erodium cicutarium*)

Grossulariaceae (Gooseberry family)
- chaparral currant (*Ribes malvaceum*)
- oak gooseberry (*Ribes quercetorum*)

Juglandaceae (Walnut family)
- California black walnut (*Juglans californica*)

(Appendix 1, continued)

Lamiaceae (Mint family)
- horehound (*Marrubium vulgare*)*
- white sage (*Salvia apiana*)
- purple sage (*Salvia leucophylla*)
- black sage (*Salvia mellifera*)

Malvaceae (Mallow family)
- chaparral bush mallow (*Malacothamnus fasciculatus*)
- cheeseweed (*Malva parviflora*)*

Nyctaginaceae (Four o'clock family)
- bougainvillea (*Bougainvillea* sp.)*p
- wishbone bush (*Mirabilis californica*)

Oleaceae (Olive family)
- flowering ash (*Fraxinus dipetala*)
- shamel ash (*Fraxinus uhdei*)*p
- jasmine (*Jasminum polyanthum*)*p
- olive (*Olea europaea*)*p

Onagraceae (Evening primrose family)
- sun cups (*Camissonia californica*)
- miniature suncup (*Camissonia micrantha*)
- eleant clarkia (*Clarkia unguiculata*)
- California fuchsia (*Epilobium canum*)

Orobanchaceae (Broomrape family, part of Scrophulariaceae in Jepson)
- indian paintbrush (*Castilleja affinis*)
- California broomrape (*Orobanche californica* ssp. *grandis*)

Paeoniaceae (Peony family)
- California peony (*Paeonia californica*)

Papaveraceae (Poppy family)
- collarless poppy (*Eschscholzia caespitosa*)
- California poppy (*Eschscholzia californica*)

Phrymaceae (Lopseed family, includes part of Jepson's Scrophulariaceae)
- bush monkeyflower (*Mimulus aurantiacus*)
- scarlet monkeyflower (*Mimulus cardinalis*)
- seep monkeyflower (*Mimulus guttatus*)

Plantaginaceae (Plantago family, includes part of Jepson's Scrophulariaceae)
- white snapdragon (*Antirrhinum coulterianum*)
- heart-leaf penstemon (*Keckiella cordifolia*)

Platanaceae (Sycamore family)
- Western sycamore (*Platanus racemosa*)

Polemoniaceae (Phlox family)
- globe gilia (*Gilia capitata* ssp. *abrotanifolia*)
- California prickly phlox (*Leptodactylon californicum*)

Polygonaceae (Smartweed family)
- Turkish rugging (*Chorizanthe staticoides*)

(Appendix 1, continued)

longstem buckwheat (*Eriogonum elongatum*)
California buckwheat (*Eriogonum fasciculatum*)
pterostegia (*Pterostegia drymarioides*)

Portulaceae (Purslane family)
scarlet pimpernel (*Anagallis arvensis*)*
red maids (*Calandrinia ciliata*)
miner's lettuce (*Claytonia perfoliata*)

Ranunculaceae (Buttercup family)
chaparral clematis (*Clematis lasiantha*)

Rhamnaceae (Buckthorn family)
hoary leaved ceanothus (*Ceanothus crassifolius*)
hairy ceanothus (*Ceanothus oliganthus*)
holly-leaf redberry (*Rhamnus ilicifolia*)

Rosaceae (Rose family)
chamise (*Adenostoma fasciculatum*)
curl-leaf mountain mahogany (*Cercocarpus ledifolius* var. *intercedens*)
birch-leaved mountain mahogany (*Cercocarpus montanus* var. *glaber*)
toyon (*Heteromeles arbutifolia*)
rose (*Rosa* sp.)*p
pacific blackberry (*Rubus ursinus*)*p

Rubiaceae (Coffee family)
narrow-leafed bedstraw (*Galium angustifolium*)
cleavers (*Galium aparine*)*

Salicaceae (Willow family)
fremont cottonwood (*Populus fremontii*)
red willow (*Salix laevigata*)
arroyo willow (*Salix lasiolepis*)

Simaroubaceae (Quassia family)
tree of heaven (*Ailanthus altissima*)*,p

Solanaceae (Nightshade family)
jimson weed (*Datura wrightii*)
tree tobacco (*Nicotiana glauca*)
white nightshade (*Solanum douglasii*)
purple nightshade (*Solanum xantii*)

Ulmaceae (Elm family)
chinese elm (*Ulmus parvifolia*)*p
siberian elm (*Ulmus pumila*)*p

Urticaceae (Nettle family)
western nettle (*Hesperocnide tenella*)
stinging nettle (*Urtica dioica* ssp. *holosericea*)

Verbenaceae (Vervain family)
robust vervain (*Verbena lasiostachys*)

(Appendix 1, continued)

Violaceae (Violet family)
California golden violet (*Viola pedunculata*)

Legend:
* = non-native
p = planted
*p = non-native, planted
*,p = non-native, both planted and growing in wild (*Ailanthus*)\

(Appendix 1, continued)

Lamiaceae (Mint family)
- horehound (*Marrubium vulgare*)*
- white sage (*Salvia apiana*)
- purple sage (*Salvia leucophylla*)
- black sage (*Salvia mellifera*)

Malvaceae (Mallow family)
- chaparral bush mallow (*Malacothamnus fasciculatus*)
- cheeseweed (*Malva parviflora*)*

Nyctaginaceae (Four o'clock family)
- bougainvillea (*Bougainvillea* sp.)*p
- wishbone bush (*Mirabilis californica*)

Oleaceae (Olive family)
- flowering ash (*Fraxinus dipetala*)
- shamel ash (*Fraxinus uhdei*)*p
- jasmine (*Jasminum polyanthum*)*p
- olive (*Olea europaea*)*p

Onagraceae (Evening primrose family)
- sun cups (*Camissonia californica*)
- miniature suncup (*Camissonia micrantha*)
- eleant clarkia (*Clarkia unguiculata*)
- California fuchsia (*Epilobium canum*)

Orobanchaceae (Broomrape family, part of Scrophulariaceae in Jepson)
- indian paintbrush (*Castilleja affinis*)
- California broomrape (*Orobanche californica* ssp. *grandis*)

Paeoniaceae (Peony family)
- California peony (*Paeonia californica*)

Papaveraceae (Poppy family)
- collarless poppy (*Eschscholzia caespitosa*)
- California poppy (*Eschscholzia californica*)

Phrymaceae (Lopseed family, includes part of Jepson's Scrophulariaceae)
- bush monkeyflower (*Mimulus aurantiacus*)
- scarlet monkeyflower (*Mimulus cardinalis*)
- seep monkeyflower (*Mimulus guttatus*)

Plantaginaceae (Plantago family, includes part of Jepson's Scrophulariaceae)
- white snapdragon (*Antirrhinum coulterianum*)
- heart-leaf penstemon (*Keckiella cordifolia*)

Platanaceae (Sycamore family)
- Western sycamore (*Platanus racemosa*)

Polemoniaceae (Phlox family)
- globe gilia (*Gilia capitata* ssp. *abrotanifolia*)
- California prickly phlox (*Leptodactylon californicum*)

Polygonaceae (Smartweed family)
- Turkish rugging (*Chorizanthe staticoides*)

(Appendix 1, continued)

longstem buckwheat (*Eriogonum elongatum*)
California buckwheat (*Eriogonum fasciculatum*)
pterostegia (*Pterostegia drymarioides*)

Portulaceae (Purslane family)
scarlet pimpernel (*Anagallis arvensis*)*
red maids (*Calandrinia ciliata*)
miner's lettuce (*Claytonia perfoliata*)

Ranunculaceae (Buttercup family)
chaparral clematis (*Clematis lasiantha*)

Rhamnaceae (Buckthorn family)
hoary leaved ceanothus (*Ceanothus crassifolius*)
hairy ceanothus (*Ceanothus oliganthus*)
holly-leaf redberry (*Rhamnus ilicifolia*)

Rosaceae (Rose family)
chamise (*Adenostoma fasciculatum*)
curl-leaf mountain mahogany (*Cercocarpus ledifolius* var. *intercedens*)
birch-leaved mountain mahogany (*Cercocarpus montanus* var. *glaber*)
toyon (*Heteromeles arbutifolia*)
rose (*Rosa* sp.)*p
pacific blackberry (*Rubus ursinus*)*p

Rubiaceae (Coffee family)
narrow-leafed bedstraw (*Galium angustifolium*)
cleavers (*Galium aparine*)*

Salicaceae (Willow family)
fremont cottonwood (*Populus fremontii*)
red willow (*Salix laevigata*)
arroyo willow (*Salix lasiolepis*)

Simaroubaceae (Quassia family)
tree of heaven (*Ailanthus altissima*)*,p

Solanaceae (Nightshade family)
jimson weed (*Datura wrightii*)
tree tobacco (*Nicotiana glauca*)
white nightshade (*Solanum douglasii*)
purple nightshade (*Solanum xantii*)

Ulmaceae (Elm family)
chinese elm (*Ulmus parvifolia*)*p
siberian elm (*Ulmus pumila*)*p

Urticaceae (Nettle family)
western nettle (*Hesperocnide tenella*)
stinging nettle (*Urtica dioica* ssp. *holosericea*)

Verbenaceae (Vervain family)
robust vervain (*Verbena lasiostachys*)

(Appendix 1, continued)

Violaceae (Violet family)
California golden violet (*Viola pedunculata*)

Legend:
* = non-native
p = planted
*p = non-native, planted
*,p = non-native, both planted and growing in wild (*Ailanthus*)\

Appendix B.3 – Transportation and Traffic

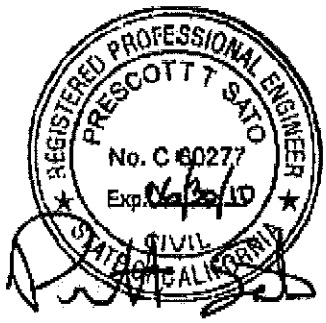
Traffic Study

URBAN CROSSROADS

5411 Avenida Encinas, Suite 100
Carlsbad, CA 92008

Prepared by:

Scott Sato, P.E.
James Santos



Prepared for:

Mr. Gregory Wolffe
AECOM
999 Town & Country Road
Orange, CA 92868

ALISO CANYON STORAGE FIELD TURBINE REPLACEMENT
PROPONENT'S ENVIRONMENTAL ASSESSMENT (PEA)
TRAFFIC IMPACT STUDY
CITY OF SANTA CLARITA, CALIFORNIA

June 23, 2009

JN:06677-07
SS:JCS:jcs

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDICES

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF EXHIBITS

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF TABLES

THIS PAGE INTENTIONALLY LEFT BLANK

Aliso Canyon Turbine Replacement Project
TRAFFIC IMPACT STUDY
CITY OF SANTA CLARITA, CALIFORNIA

1.0 INTRODUCTION

Aliso Canyon is Southern California Gas Company's (SCG) largest underground natural gas storage field and one of the largest in the U.S. The field has 80 Bcf of working storage inventory, 1875 mmcfd of withdrawal capacity, and injection capacity that varies depending on field pressure from 600 mmscfd to 300 mmscfd. Approximately 45% of SCG's total firm injection capacity is provided by Aliso Canyon. The majority of the injection capacity at Aliso Canyon is provided by three jet engine driven centrifugal compressors providing 12,000 nominal horsepower each. These units were installed in the 1970's and have poor engine efficiency due to their use of older technology for the power turbine and compressor design. The complete turbine control system was upgraded to an Allen Bradley PLC based system in 1998. As storage services are a critical part of SCG's hourly, daily, and seasonal supply/demand balance equation, it is imperative that Aliso Canyon Storage Field remains highly reliable. This project consists of an upgraded replacement and expansion of the existing compression equipment.

A. Project Description

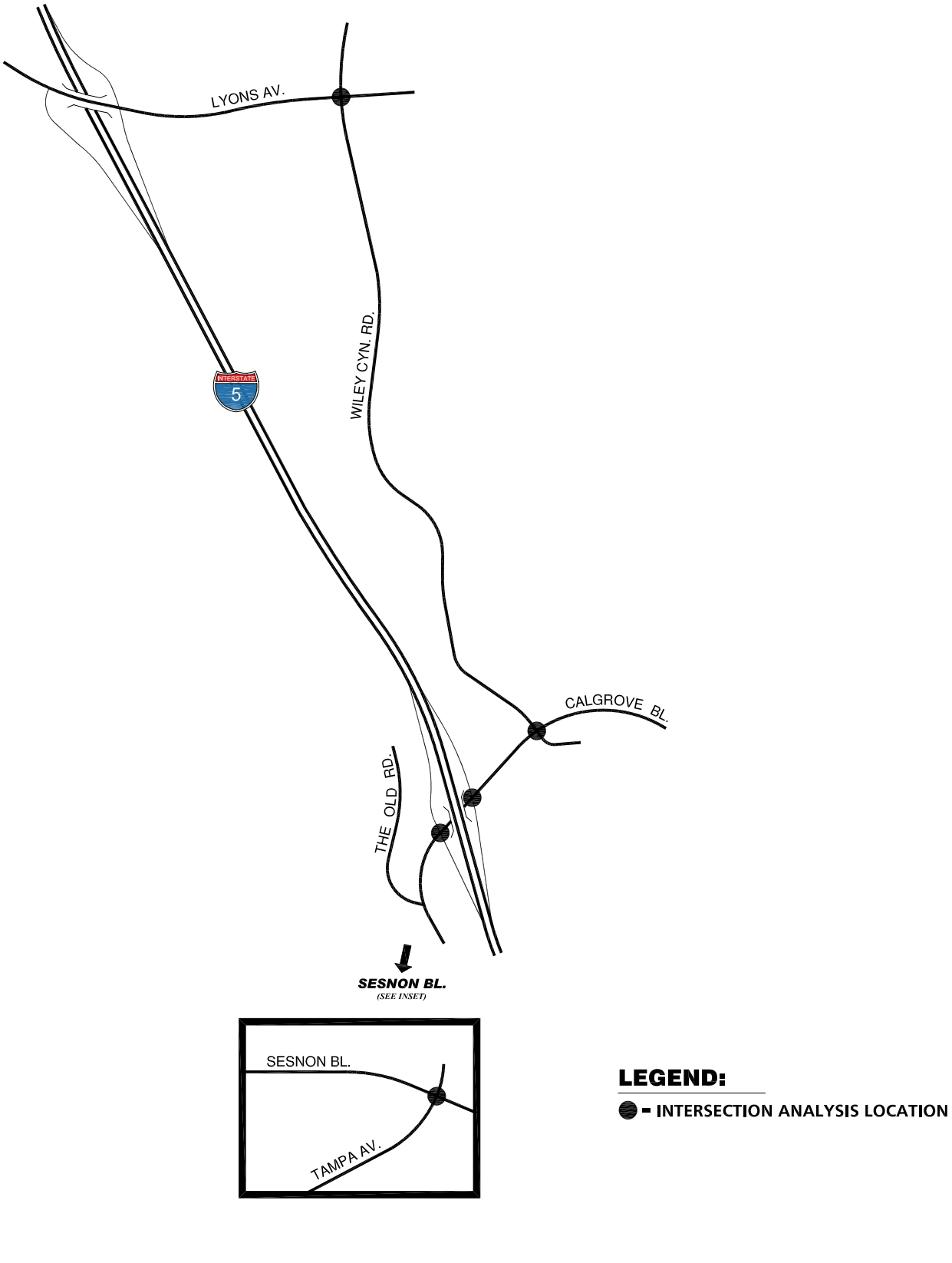
The purpose of this traffic study is to evaluate the traffic impacts associate with the proposed Aliso Canyon Turbine Replacement Project. However, since the project itself will not generate a significant amount of trips, the term "Project" in this analysis refers to the conditions associated with the activities due to construction. Specifically these include:

1. A potential southbound closure on Wiley Canyon Road, south of Lyons Avenue.

2. Provision of a shuttle service to accommodate 150 construction workers to the site.

Exhibit 1-A illustrates the traffic analysis study area.

LOCATION MAP



2.0 ANALYSIS METHODOLOGY

A. Scenarios

In accordance with the City of Santa Clarita's Traffic Impact Report Guidelines (1997), this study has analyzed the following scenarios:

1. Existing Traffic Conditions

   The existing conditions refer to the conditions which take into account the existing traffic counts, taken in April and May 2009, and existing lane configurations at study area intersections and roadway segments.

2. Existing Plus Ambient Plus Project Traffic Conditions

   Existing plus project traffic conditions includes the project traffic and ambient growth, which is added to the existing volumes. Existing geometry and intersection controls are analyzed first, then with mitigation, where required.

B. Level of Service Criteria

Level of Service (LOS) is a professional industry standard by which the operating conditions of a given roadway segment or intersection are measured. The level of service criteria utilized in this report is consistent with the standards outlined in the City of Santa Clarita's Traffic impact Report Guidelines. For all signalized study area intersections, Intersection Capacity Utilization (ICU) methodology is utilized to assess the operation of a signalized intersection. To calculate ICU, the volume of traffic using the intersection is compared with the capacity of the intersection. ICU is usually expressed as a percent, which represents that portion of the hour required to provide sufficient capacity to accommodate all intersection traffic if all approaches operate at capacity. For unsignalized intersections, the HCM methodology was utilized to calculate the level of service. The HCM method calculates the level of service based on intersection delay.

C. ICU Calculation Method for Signalized Intersections:

The study area signalized intersections have been evaluated based on the ICU methodology with the following assumptions.

1. Saturation Flow Rate

   Saturation flow value of 1,750 vehicles per lane per hour for intersections for through and turning lanes.

2. Level of Service Ranges

   The following thresholds are used in assigning a letter value to the resulting LOS:

LOS	CRITICAL VOLUME TO CAPACITY RATIO	DESCRIPTION
A	0.00 - 0.60	Excellent - Vehicl delays less than one cycle length and no approach phase is fully utilized
B	0.61 - 0.70	Very Good - An occassional approach phase is fully utilized; drivers being to feel somewhat restricted within groups of vehicles
C	0.71 - 0.80	Good - Occassionally drivers may be delayed through more than one signal cycle length and back-ups may develop behind turning vehicles
D	0.81 - 0.90	Fair - Delays may be substantial during portions of the peak hours, but adequate gaps may occur to prevent excessive backups
E	0.91 - 1.00	Poor - Represents saturation of intersection. Motorists experience delays of several cycle lengths
F	> 1.00	Failure - Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles through the intersection. Tremendous delays with increasing queue lengths

Source: City of Santa Clarita Circulation Element

3. Peak-Periods

Weekday peak-hour analysis periods are defined as follows:

7:00 to 9:00 AM
4:00 to 6:00 PM

4. Peak-Hour

The highest one-hour period in both the AM and PM peak periods, as determined by four consecutive 15-minute count periods are used in the ICU calculations. Both AM and PM peak hours are studied.

5. Peak-Hour Data Consistency

Variations in peak-hour volumes can affect LOS calculations because they vary from day-to-day. To minimize these variations, no counts are taken on Mondays, Fridays, holidays or weekends.

6. Right Turn Movements

If the distance from the edge of the outside through lane is at least 19 feet and parking is prohibited during the peak period, right turning vehicles may be assumed to utilize this "unofficial" right turn lane. Otherwise, all right turn traffic is assigned to the through lane. If a right turn lane exists, right turn activity is checked for conflicts with other critical movements. It is assumed that right turn movements are accommodated during non-conflicting left turn phases (e.g., northbound right turns during westbound left turn phase), as well as non-conflicting through flows (e.g., northbound right turn movements and north/south through flows). Right turn movements become critical when conflicting movements (e.g., northbound right turns, southbound left turns, and eastbound through flows) represent a sum of V/C ratios which are greater than the normal through/left turn critical movements.

If a free right turn lane exists (right turns do not have to stop for the signal), a flow rate of 1,750 vehicles per hour per lane is assumed. The V/C ratio of the right turn lane is reported but not included in the sum of the critical V/C ratios.

D. HCM Methodology at Unsignalized Intersections

For unsignalized intersections, the 2000 Highway Capacity Manual (HCM) (Transportation Research Board Special Report 209) is utilized to calculate the level of service. The HCM defines level of service as a qualitative measure which describes operational conditions within a traffic stream, generally in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. The criteria used to evaluate LOS (Level of Service) conditions vary based on the type of roadway and whether the traffic flow is considered interrupted or uninterrupted.

The level of service is typically dependent on the quality of traffic flow at the intersections along a roadway. The HCM methodology expresses the level of service at an intersection in terms of delay time for the various intersection approaches. The HCM uses different procedures depending on the type of intersection control. The levels of service determined in this study are determined using the HCM methodology.

The study area intersections with stop control on the minor street have been analyzed using the unsignalized intersection methodology of the HCM. For these intersections, the calculation of level of service is dependent on the occurrence of gaps occurring in the traffic flow of the main street. Using data collected describing the intersection configuration and traffic volumes at the study area locations, the level of service has been calculated. The level of service criteria for this type of intersection analysis is based on total delay per vehicle for the worst minor street movements.

The levels of service are defined for the HCM methodology:

LEVEL OF SERVICE	AVERAGE TOTAL DELAY PER VEHICLE (SECONDS)
	UNSIGNALIZED
A	0 to 10.00
B	10.01 to 15.00
C	15.01 to 25.00
D	25.01 to 35.00
E	35.01 to 50.00
F	50.01 and up

E. Level of Service Criteria at Study Area Road Segments

Level of service at the study area road segments is determined utilizing the City of Santa Clarita's volume to capacity at urban arterial highways. Table 2-1 shows the average daily traffic volume (ADT) thresholds, roadway capacities and levels of service for each roadway classification type.

TABLE 2-1

CITY OF SANTA CLARITA
LEVELS OF SERVICE (LOS), VOLUME TO CAPACITY (V/C) RATIOS &
SERVICE VOLUMES FOR URBAN ARTERIAL HIGHWAYS

LEVEL OF SERVICE	V/C RATIO	DESCRIPTION	AVERAGE DAILY TRAFFIC SERVICE VOLUMES				
			8-LANE DIVIDED	6-LANE DIVIDED	4-LANE DIVIDED	4-LANE UNDIVIDED	2-LANE UNDIVIDED
A	≤0.36	Free Flow - low volumes; little or no delay throughout the day or during peak hours	48,000	36,000	24000 (28,000)	16,000	5,000
B	≤0.54	Stable Flow - relatively low volumes; acceptable delays experienced throughout the day; some peak hour congestion	54,000	40,400	27000 (32,000)	18,000	7,500
C	≤0.71	Stable Flow - relatively low volumes; acceptable delays experienced throughout the day; some peak hour congestion.	60,000	45,000	30000 (36,000)	20,000	10,000
D	≤0.87	Approaching Unstable Flow - poor, yet tolerable delays experienced throughout the day. Peak hours may experience significant congestion and delays.	66,000	49,500	33000 (40,000)	22,000	12,500
E	≤1.00	Unstable Flow - heavy congestion and delays experienced throughout the day and during the peak hours. Volumes at or near capacity.	72,000	54,000	36000 (44,000)	24,000	15,000
F	>1.00+	Forced flow- both speeds and flow of traffic can drop to zero. Stoppages may occur for long periods with vehicles backing up from one intersection through another. (Referred to as "gridlock" condition).	This condition represents system breakdown and does not have a specific relationship to service volumes				

Augmented intersection: Will add 15% to the above roadway capacity.
Note: (XX,XXX) = Capacity for Limited Access on 4-Lane Divided Arterial

Source: *City of Santa Clarita General Plan Circulation Element, 1997*

The City of Santa Clarita Traffic Impact Report Guidelines summarizes the generally accepted level of service (LOS) criteria. The Guidelines have established a LOS “C” as acceptable level of operation for residential and industrial areas and LOS “D” for commercial, freeway ramps and CBD’s. It is assumed that a final V/C between 0.80-0.89 with an increase equal to or greater than 0.02 with project (when compare to without project conditions) is considered a project impact. Similarly, a final V/C between 0.90 or more with an increase equal to or greater than 0.01 with project (when compare to without project conditions) is considered a project impact.

For road segments, the impact criteria stipulates an increase in 3% or more in any peak hour volume due to project generated traffic.

The traffic analysis tool, Traffix R4 (2008) has been utilized to analyze the AM and PM peak hour conditions for the study area intersections. It should be noted that Traffix is a traffic analysis tools which utilizes the methodologies outlined in the 2000 Highway Capacity Manual (HCM).

THIS PAGE INTENTIONALLY LEFT BLANK

3.0 EXISTING CONDITIONS ANALYSIS

A. Study Area Intersections

The study area consists of the following intersections, as previously shown on Exhibit 1-A:

Interstate 5 SB Ramps (NS) at:

- Calgrove Boulevard (EW)

Interstate 5 NB Ramps (NS) at:

- Calgrove Boulevard (EW)

Wiley Canyon Road (NS) at:

- Lyons Avenue (EW)
- Calgrove Boulevard (EW)

Tampa Avenue (NS) at:

- Sesnon Avenue (EW)

In addition to the above intersections, the following road segments have been analyzed:

Lyons Avenue:

- Between I-5 NB Ramps and Wiley Canyon Road

The Old Road:

- West of I-5 SB Ramps

Calgrove Boulevard:

- Between I-5 NB Ramps and Wiley Canyon Road

Wiley Canyon Road:

- South of Lyons Avenue

Exhibit 3-A identifies the existing roadway conditions for study area roadways, including the number of through traffic lanes for existing roadways and the existing intersection controls.

B. Existing Street System

The currently adopted City of Santa Clarita General Plan Circulation Element is shown on Exhibit 3-B. The City of Santa Clarita General Plan roadway cross-sections are illustrated on Exhibit 3-C. The following is a description of the existing street system listed in the study area:

The Old Road is classified as a Major Arterial Highway in the currently adopted City of Santa Clarita General Plan Circulation Element. The Old Road provides north-south travel parallel to the Interstate 5 freeway. Under the General Plan Circulation Element, a Major Highway is designated to have at least six-lanes, divided, with no-on-street parking. It is currently constructed as a four-lane divided roadway south of Calgrove Boulevard with a posted speed limit of 55 mph.

Wiley Canyon Road is located east of Intestate 5 and provides parallel north-south travel parallel to the Interstate 5. Wiley Canyon Road is classified as a Major Arterial Highway in the currently adopted City of Santa Clarita General Plan Circulation Element north of Lyons Avenue. South of Lyons Avenue to Calgrove Boulevard, Wiley Canyon Road is classified as a Secondary Highway. Under the General Plan Circulation Element, a Major Highway is designated to have at least six-lanes, divided, with no-on-street parking. North of Lyons Avenue, Wiley Canyon Road is currently constructed as a four-lane divided roadway with parallel northbound and southbound bike lines. A Secondary Highway is designated as a four-lane divided roadway with no on-street parking. South of Lyons Avenue to Calgrove Boulevard, Wiley Canyon Road is currently constructed as a two-lane undivided roadway with intermittent on-street parking. Speed limits along Wiley Canyon range from 25 mph to 35 mph from Lyons Avenue to Calgrove Boulevard to the south.

Lyons Avenue provides east-west travel and classified as a Major Arterial Highway in the currently adopted City of Santa Clarita General Plan Circulation Element from The Old Road to Sierra Highway. Under the General Plan Circulation Element, a Major Highway is designated to have at least six-lanes, divided, with no-on-street parking. Within the study area, Lyons Avenue is currently constructed as a five to six-lane divided roadway with a posted speed limit of 40 mph. Bike lanes are provided along Lyons Avenue east of Wiley Canyon Road.

EXHIBIT 3-A

EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS

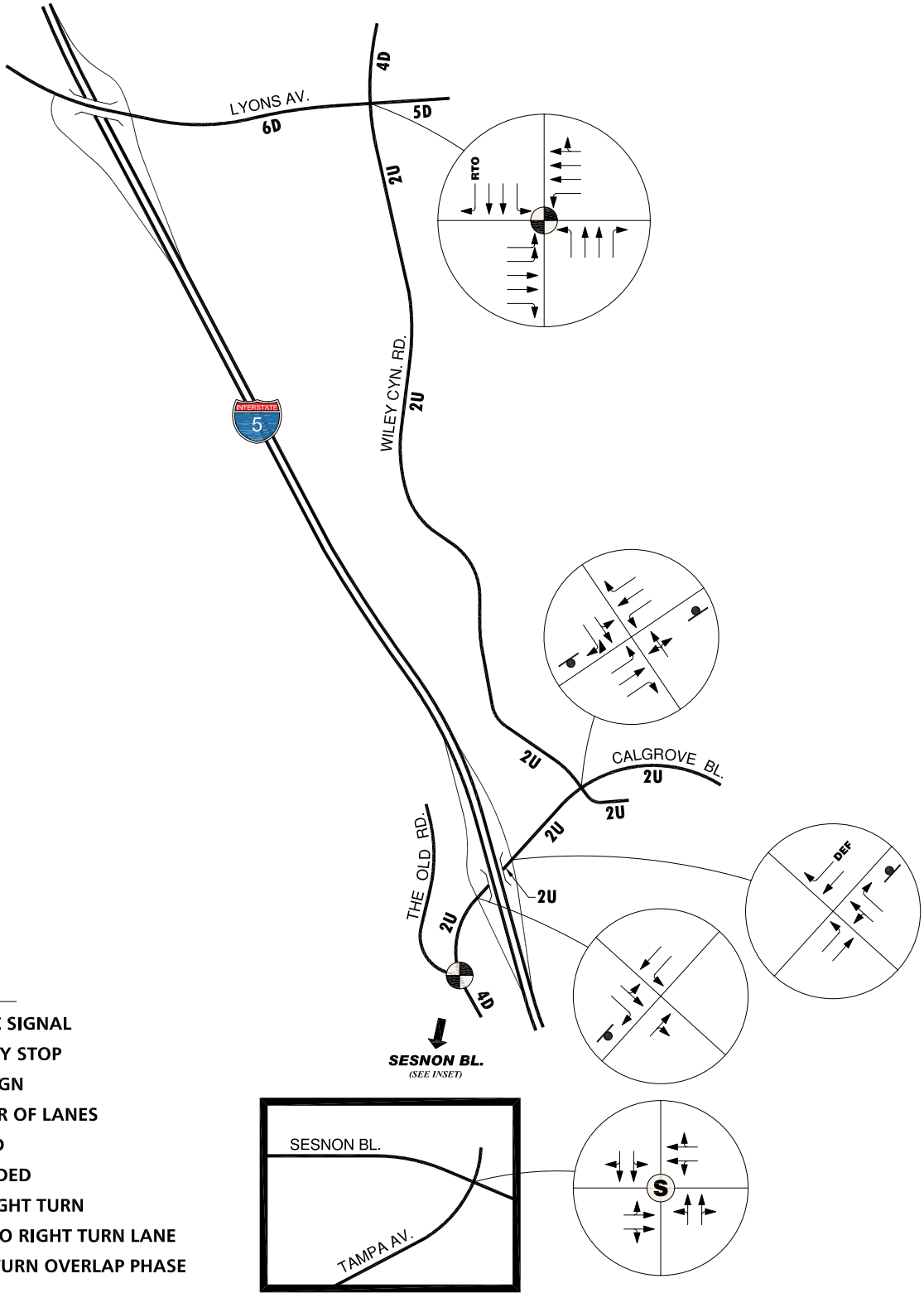


EXHIBIT 3-B

CITY OF SANTA CLARITA
GENERAL PLAN CIRCULATION ELEMENT

LEGEND:

EXPRESSWAY
Right of way width variable - 180 feet maximum

- Existing
- Proposed

FREEWAY
Right of way width variable

- Existing
- Proposed

MAJOR HIGHWAY
100 feet standard right of way width

- Existing
- Proposed

SECONDARY HIGHWAY
80 feet standard right of way width

- Existing
- Proposed

LIMITED SECONDARY HIGHWAY
64 to 80 feet standard right of way width

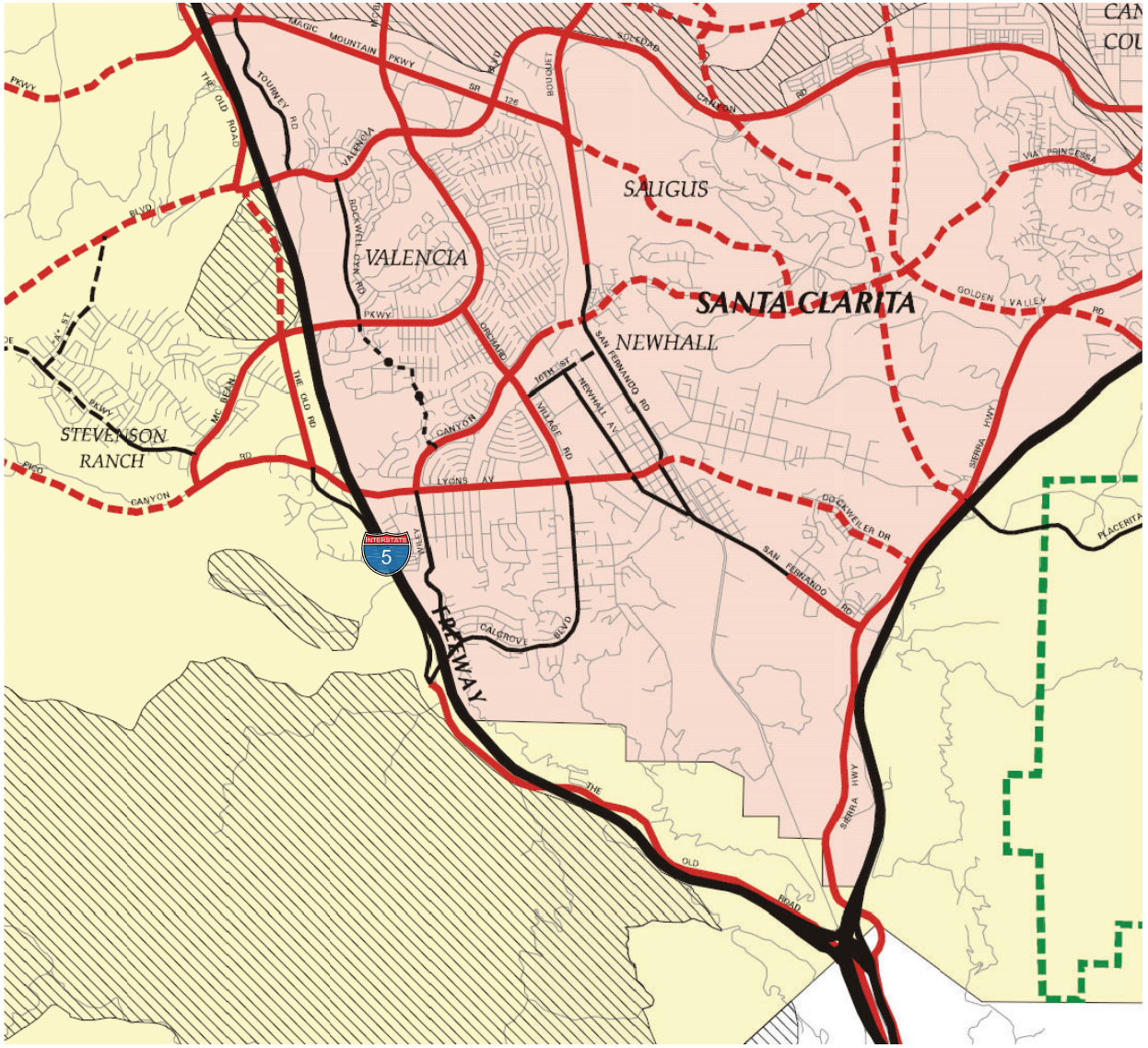
- Existing
- Proposed

PARKWAY
Right of way width variable - 80 feet minimum

- Existing
- Proposed

OTHER

- Collector / Local Street (Thomas Bros. Maps C . street file)



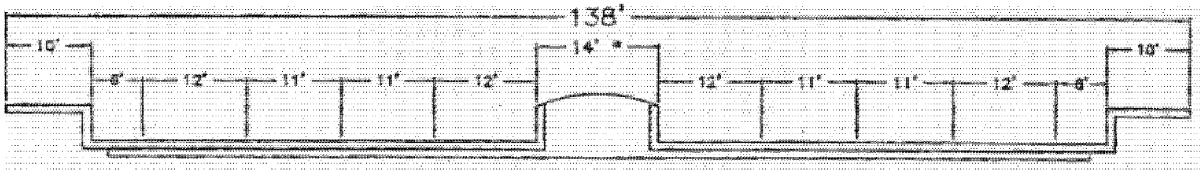
3-4

N

EXHIBIT 3-C

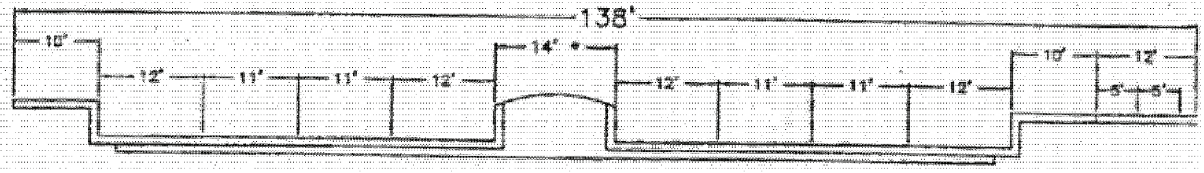
CITY OF SANTA CLARITA
GENERAL PLAN ROADWAY CROSS-SECTIONS

1. MAJOR ARTERIAL HIGHWAY 8-LANE ALTERNATIVE WITH BIKE LANE DETAIL



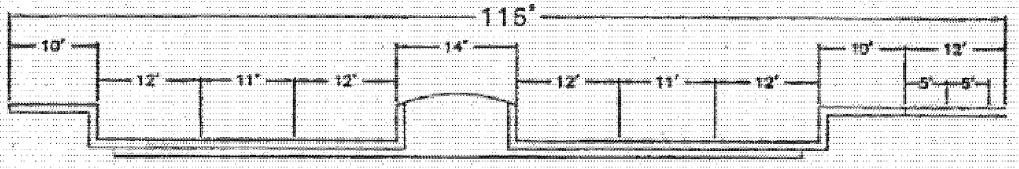
FOUR LANES IN EACH DIRECTION WITH RAISED LANDSCAPE MEDIAN, NO ON-STREET PARKING

2. MAJOR ARTERIAL HIGHWAY 8-LANE ALTERNATIVE WITH BIKE TRAIL DETAIL



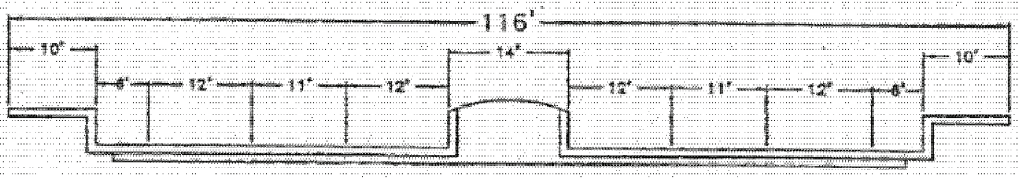
FOUR LANES IN EACH DIRECTION WITH RAISED LANDSCAPE MEDIAN, NO ON-STREET PARKING

3. MAJOR ARTERIAL HIGHWAY WITH BIKE TRAIL DETAIL



THREE LANES IN EACH DIRECTION WITH RAISED LANDSCAPE MEDIAN, NO ON-STREET PARKING

4. MAJOR ARTERIAL HIGHWAY WITH BIKE LANE DETAIL



THREE LANES IN EACH DIRECTION WITH RAISED LANDSCAPE MEDIAN, NO ON-STREET PARKING

Calgrove Boulevard provides east-west travel and classified as a Secondary Highway in the currently adopted City of Santa Clarita General Plan Circulation Element. Under the General Plan Circulation Element, a Secondary Highway is designated as a four-lane divided roadway with no on-street parking. South of Lyons Avenue to Calgrove Boulevard, Wiley Canyon Road is currently constructed as a two-lane undivided roadway with a posted speed limit of 45 mph. Bike lanes are provided along Calgrove Boulevard east of Wiley Canyon Road. West of Interstate 5, Calgrove Boulevard terminates at The Old Road and becomes Valley Street east of Wiley Canyon Road.

C. Analysis of Existing Conditions

1. Traffic Volumes and Conditions

The existing AM and PM peak hour turning movement counts are shown on Exhibits 3-D and 3-E, respectively. The intersection movement counts were taken on a typical weekday in the AM (7:00 to 9:00 AM) and PM (4:00 to 6:00 PM) peak periods. The turning movement counts were performed in April and May 2009. Traffic count worksheets are included in Appendix "A".

Existing average daily traffic (ADT) volumes on arterial highways throughout the study area are shown on Exhibit 3-F. Existing ADT volumes are based upon collected daily traffic data. Existing ADT counts are included in Appendix "A".

2. Existing Intersection Level of Service

Existing peak hour traffic operations have been evaluated for the study area intersections using the HCM methodology. The results of this analysis are summarized in Table 3-1, along with the existing intersection geometrics and traffic control devices at the analysis locations. For existing traffic conditions, the following study area intersections are currently operating with an unacceptable level of service during the peak hours:

EXHIBIT 3-D

EXISTING AM PEAK HOUR INTERSECTION VOLUMES

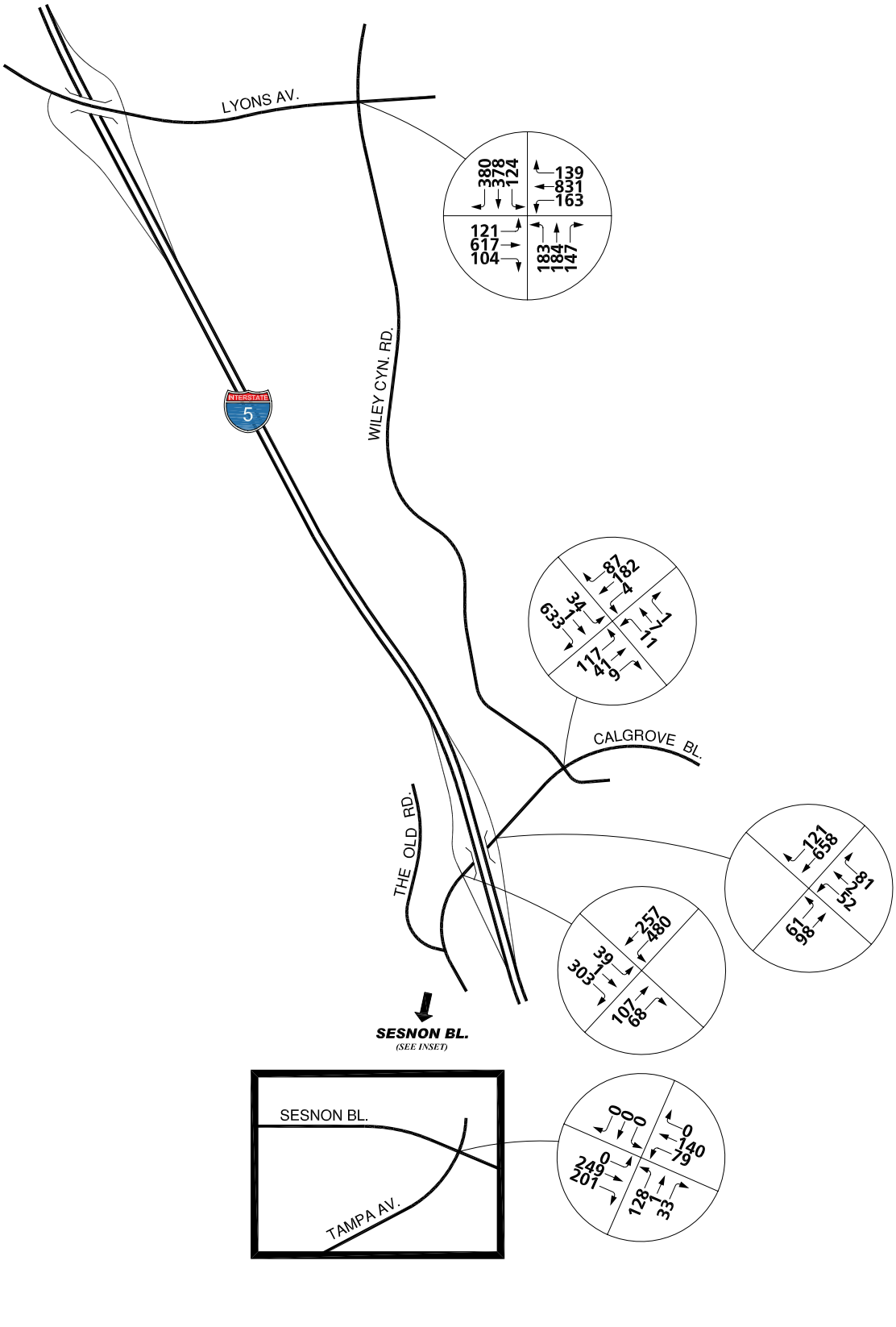
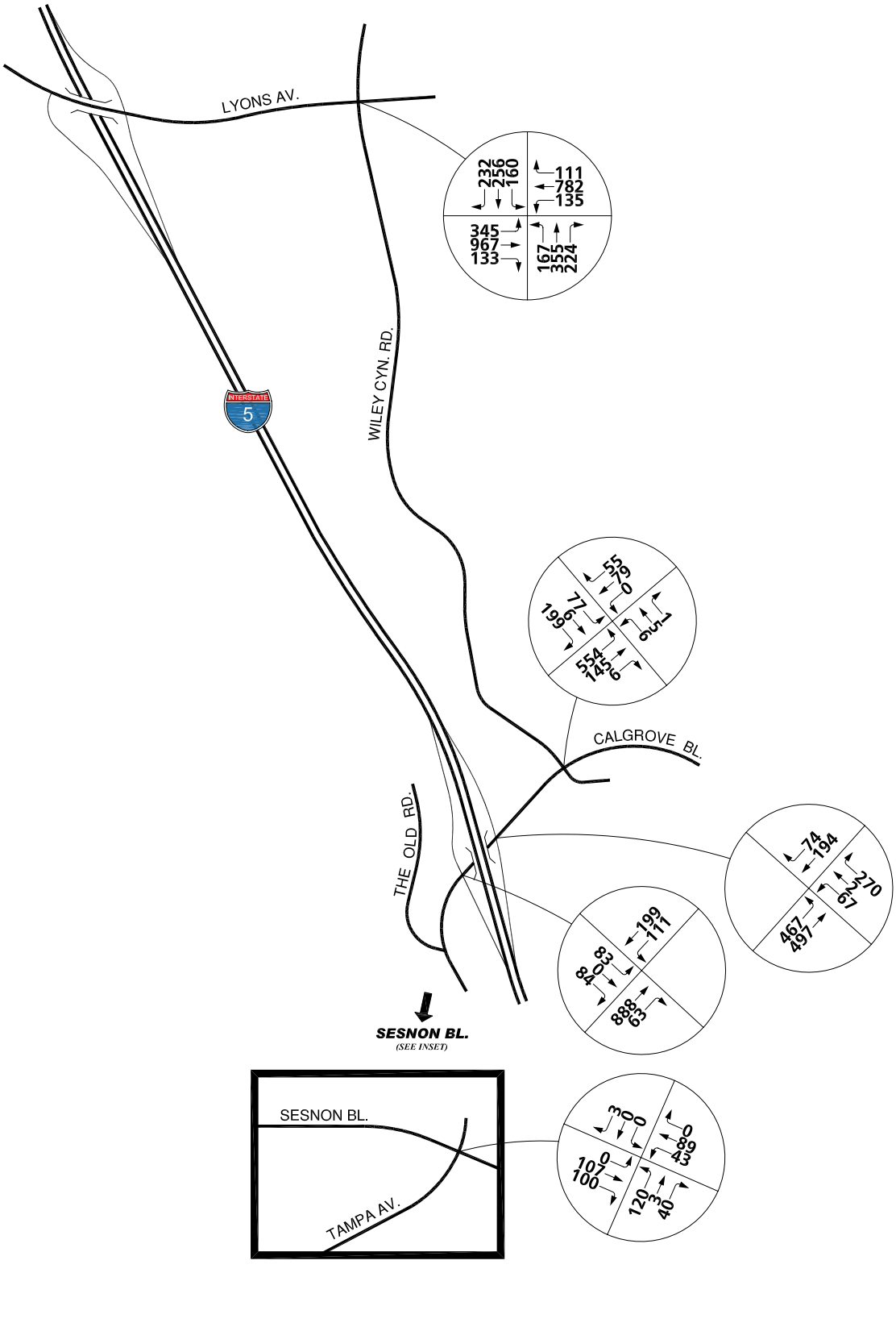


EXHIBIT 3-E

EXISTING PM PEAK HOUR INTERSECTION VOLUMES



EXISTING AVERAGE DAILY TRAFFIC (ADT)

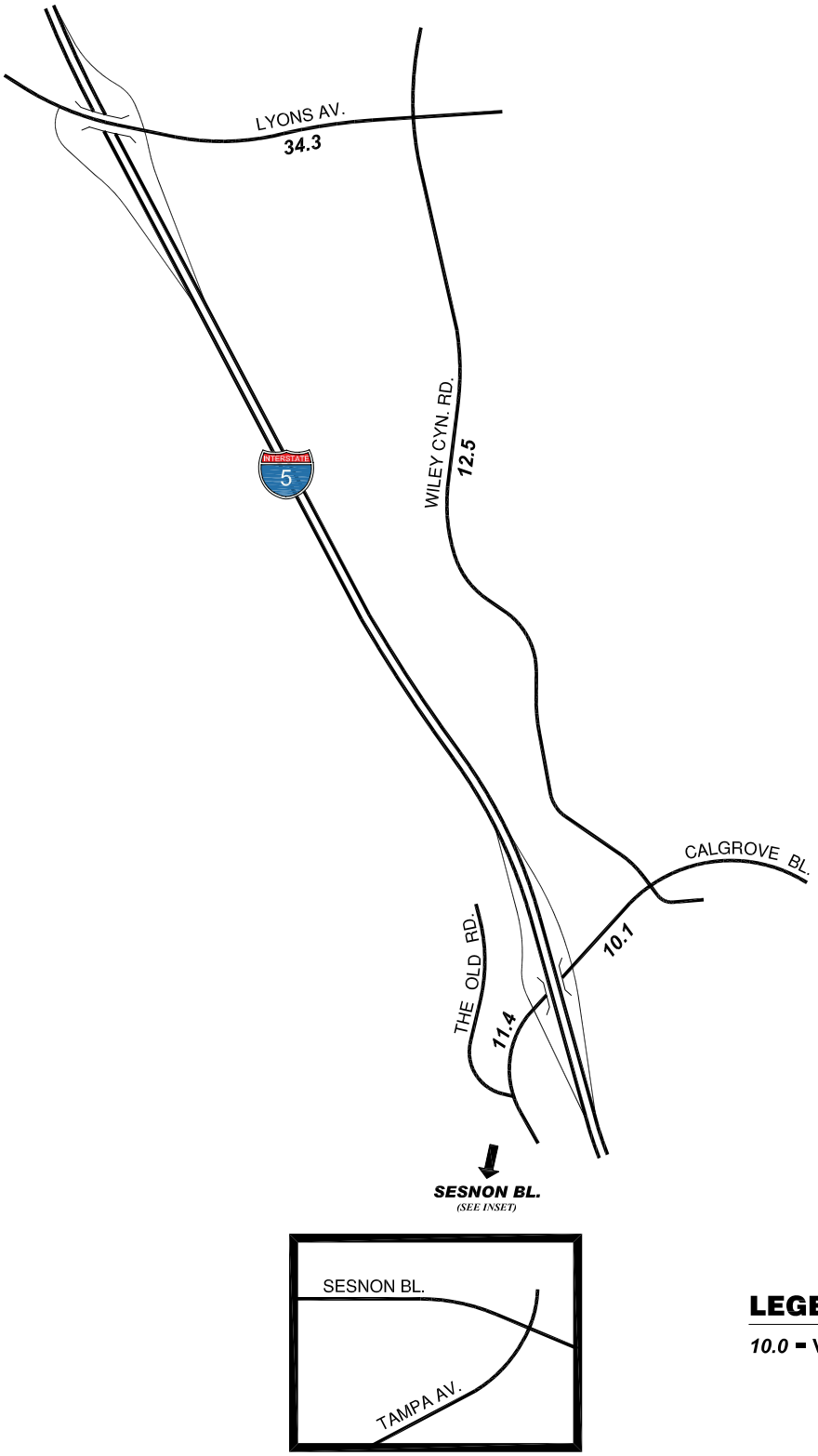


TABLE 3-1

INTERSECTION ANALYSIS FOR EXISTING CONDITIONS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1]												ICU/DELAY (SECS.)[2]		LEVEL OF SERVICE	
		NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND						
		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
Interstate 5 SB Ramps (NS) at:																	
• Calgrove Boulevard (EW)	CSS	0	0	0	0.5	0.5	1	0	1	0	1	1	0	56.0	--[4]	F	F
Interstate 5 NB Ramps (NS) at:																	
• Calgrove Boulevard (EW)	CSS	0.5	0.5	1	0	0	0	1	0	0	0	1	1	21.8	--[4]	C	F
Wiley Canyon Road (NS) at:																	
• Lyons Avenue (EW)	TS	1	2	1	1	2	1>	2	2	1	1	3	0	0.727	0.720	C	C
• Calgrove Boulevard (EW)	CSS	0	1!	0	0.5	0.5	1>>	1	1	1	1	1	1	14.4	--[4]	B	F
Tampa Avenue (NS) at:																	
• Sesnon Avenue (EW)	AWS	0.5	1.5	0	0.5	1.5	0	0.5	1.5	0	0.5	1.5	0	13.0	8.8	B	A

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; 1! = Shared left-through-right lane; 0.5 = Shared Lane; > = Right Turn Overlap Phase

[2] Per City of Santa Clarita Traffic Impact Report Guidelines, the ICU method is used to determine signalized intersection level of service. For unsignalized intersections, the intersection delay has been calculated using the HCM methodology.
Delay and level of service calculated using the following analysis software: Traffix, Version 8.0 (2008)
Intersection level of service shown is based on the V/C for intersections with traffic signals. For intersections with cross street stop control, the delay in seconds and level of service for worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal
CSS = Cross Street Stop
AWS = All Way Stop

[4] -- = Delay High, Intersection Unstable, LOS "F"

T:\Jobs_06600_06677\EXCEL\[06677-01 Rep Tables.xls]T 1-2

Interstate 5 SB Ramps (NS) at:

- Calgrove Boulevard (EW)

Interstate 5 NB Ramps (NS) at:

- Calgrove Boulevard (EW)

Wiley Canyon Road (NS) at:

- Calgrove Boulevard (EW)

HCM calculation worksheets for existing conditions are provided in Appendix "B".

Under existing conditions, the following study area intersections appear to meet the minimum criteria to warrant a traffic signal based on peak hour warrants:

Interstate 5 SB Ramps (NS) at:

- Calgrove Boulevard (EW)

Interstate 5 NB Ramps (NS) at:

- Calgrove Boulevard (EW)

Wiley Canyon Road (NS) at:

- Calgrove Boulevard (EW)

Tampa Avenue (NS) at:

- Sesnon Boulevard (EW)

Traffic signal warrant worksheets are included in Appendix "C".

D. Existing Roadway Segment Level of Service

Table 3-2 presents the results of the existing roadway segment analysis. As shown in Table 3-2, the study area road segments are currently operating with acceptable levels of service.

E. Public Transit

The study area is currently served by Santa Clarita Transit. Within the study area identified in this study, Lyons Avenue is the only roadway currently serviced by Santa Clarita Transit Routes #4, #5, #6 and #14. Bus stops are located along Lyons Avenue, east of the I-5 NB ramps and east of Wiley Canyon.

TABLE 3-2

ROADWAY SEGMENT ANALYSIS FOR EXISTING CONDITIONS

ROADWAY SEGMENT	GENERAL PLAN ROAD CLASSIFICATION	EXISTING NUMBER OF LANES	LOS E CAPACITY [1]	EXISTING ADT [2]	VOLUME / CAPACITY	LOS
Lyons Avenue:						
• Between I-5 NB Ramps and Wiley Canyon Road	Major Arterial	6-Lane Divided	54,000	34,288	0.63	C
The Old Road:						
• West of the I-5 SB Ramps	Major Arterial	4-Lane Divided	36,000	11,366	0.32	A
Calgrove Boulevard:						
• Between I-5 NB Ramps and Wiley Canyon Road	Secondary Highway	2-Lane Undivided	15,000	10,081	0.67	C
Wiley Canyon Road:						
• South of Lyons Avenue	Secondary Highway	2-Lane Undivided	15,000	12,529	0.84	D

[1] Roadway capacities derived from the City of Santa Clarita General Plan Circulation Element. Per City of Santa Clarita Circulation Element, LOS "D" is "an accepted, though undesirable, condition." Therefore, the volume to capacity ratios are based on Level of Service "E".

[2] Average Daily Traffic (ADT) expressed in vehicles per day. Existing ADT values were obtained from empirical data. See Appendix "A".

T:\Jobs_06600_06677\EXCEL\[06677-01 Rep Tables.xls]T 1-3

THIS PAGE INTENTIONALLY LEFT BLANK

4.0 NEAR TERM TRAFFIC PROJECTION

To assess the potentially significant impacts of the project, future traffic volumes along the study area are determined by adding traffic generated by approved and/or currently pending development projects and ambient growth to existing traffic volumes.

A. Cumulative Development Traffic

1. Method of Projection

To assess the near term traffic conditions that is anticipated in conjunction with construction activities, existing traffic is combined with traffic from other surrounding development. Cumulative projects in the study area were identified in the City of Santa Clarita, the City of Los Angeles, and the County of Los Angeles. The research indicates that the following 18 cumulative developments are currently planned in the study area:

1. Downtown Newhall Specific Plan
2. North Newhall Specific Plan
3. South Santa Clarita Sphere of Influence Amendment, Annexation, and Prezone
4. Gate King Industrial Park
5. Placerita Canyon Sewer Backbone
6. Tract PM 60792
7. Tract 53653
8. BFI-Sunshine Canyon Landfill
9. Tract 50242
10. Tract 52905
11. Tract 52796
12. Env-2007-3572-MND
13. Tract 60913
14. Env-2008-5060-ND
15. Env-2008-3312-MND
16. Env-2006-5624-EAF
17. Env-2008-570-EAF
18. Env-2007-5288-MND

Near term traffic volumes projections include traffic generated by approved and "reasonably foreseeable pending projects that are expected to influence the study area." Some of the cumulative projects identified above are either too far away to add traffic to the study area intersections, do not generate a significant amount of traffic (i.e. a wireless telecommunications facility), or will not be developed by the time construction activities are completed. Based on this criteria, the following four developments have been included in the near term analysis along with a three (3) percent annual growth rate.

1. Tract 53653 – 186 single family residential units
2. Tract 50242 – 8 single family residential units
3. Tract 52905 – 37 single family residential units
4. Tract 52796 – 102 single family residential units

These projects are anticipated to generate a total of approximately 3,187 trip ends per day with 249 AM peak hour trips and 337 PM peak hour trips. The trip rates and trip generation estimates are presented in a tabular format in Appendix "D".

2. Trip Distribution

Trip distribution represents the directional orientation of traffic to and from the cumulative projects. Trip distribution is heavily influenced by the geographical location of the site, the location of commercial uses in the general region and the proximity to the regional freeway system.

Trip distribution for this study has been based upon near term (2010) conditions and those highway facilities representing the completion time frame for the proposed road improvements. The directional distribution and assignment of the cumulative development traffic is included in Appendix "D".

3. Non-Site Traffic for Study Area

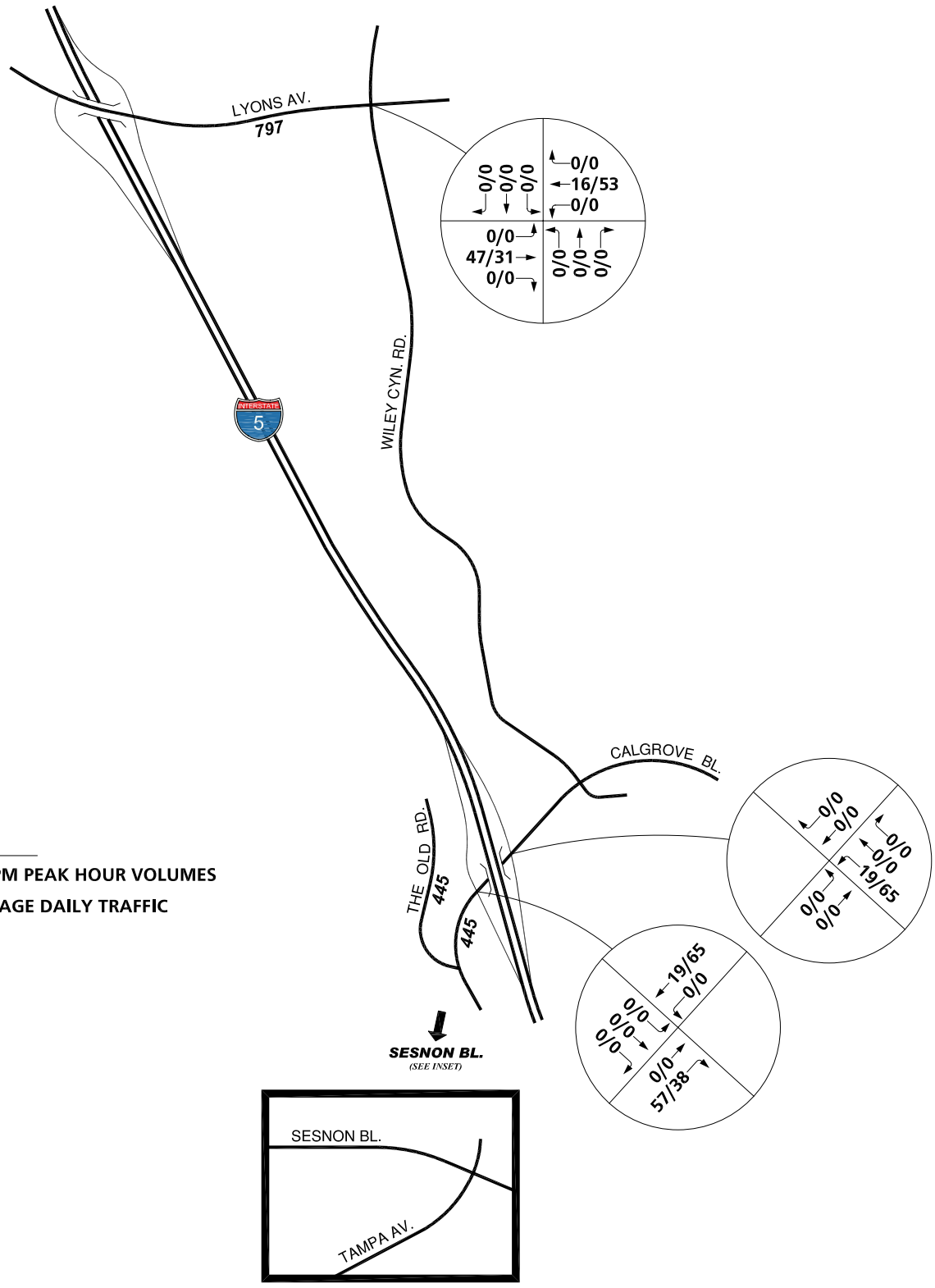
The cumulative AM and PM peak hour turning movements and ADT are shown on Exhibit 4-A.

B. Ambient Growth

In addition to the traffic from the cumulative projects described above, an ambient growth rate has been added to existing volumes. This ambient growth rate accounts for traffic flowing through the study area that is not directly accounted for from known projects. The City of Santa Clarita indicates that a 3 percent per year rate is appropriate.

EXHIBIT 4-A

CUMULATIVE PROJECTS TRAFFIC VOLUMES



LEGEND:

19/65 = AM/PM PEAK HOUR VOLUMES

797 = AVERAGE DAILY TRAFFIC

5.0 TRAFFIC IMPACTS

This section of the report describes the results of the level of service analysis for the study area intersections and roadway segments for existing plus ambient growth plus cumulative conditions – with and without the project-related construction traffic. Additional recommendations to address potential impacts are also discussed.

A. Existing Plus Ambient Growth Plus Cumulative Traffic Conditions

The traffic generated for the cumulative projects has been added to existing volumes, in addition to an ambient growth rate. The cumulative development traffic has been distributed to the existing, as-built roadway network. These assumptions have been used to analyze the study area roadway segments and intersections.

1. Roadway Segment Analysis

The study area roadway segments were analyzed with the traffic generated from the cumulative projects and ambient growth added to existing traffic volumes. Existing plus ambient growth plus cumulative average daily traffic (ADT) volumes on arterial highways throughout the study area are shown on Exhibit 5-A.

Table 5-1 details the results of the existing plus ambient growth plus cumulative projects segment analysis. As shown in Table 5-1, with the addition of the ambient growth and cumulative traffic, the roadway segments are anticipated to continue to operate with an acceptable LOS.

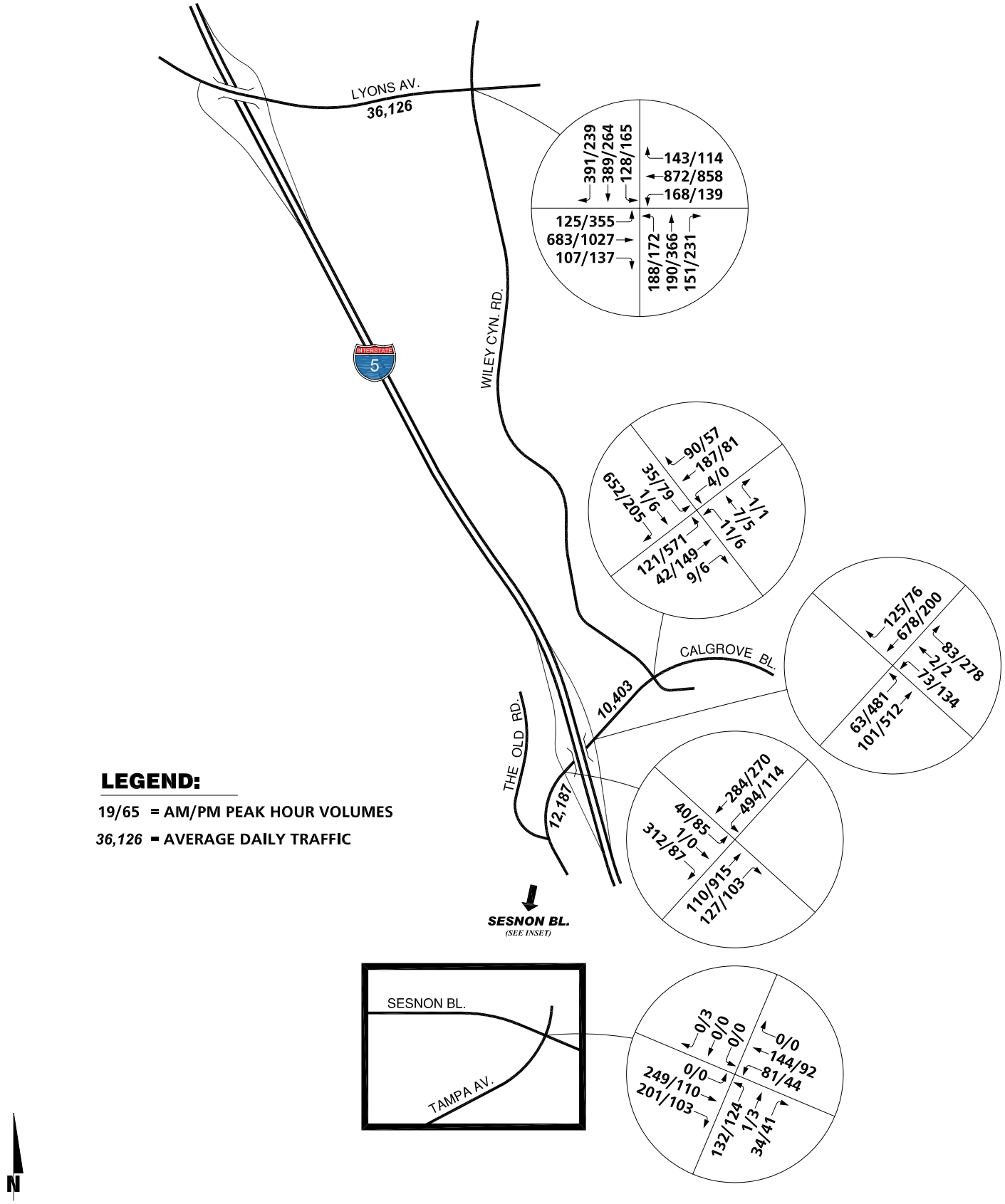
2. Intersection Analysis

The intersections were analyzed with the traffic generated from the ambient growth and cumulative projects added to existing traffic volumes. The existing plus ambient plus cumulative AM and PM peak hour turning movement counts are shown on Exhibit 5-A.

Existing plus ambient growth plus cumulative intersection level of service analysis results are shown in Table 5-2. As shown in Table 5-2, for existing plus ambient growth plus

EXHIBIT 5-A

EXISTING PLUS AMBIENT PLUS CUMULATIVE PROJECT TRAFFIC VOLUMES



LEGEND:

19/65 = AM/PM PEAK HOUR VOLUMES

36,126 = AVERAGE DAILY TRAFFIC

TABLE 5-1

ROADWAY SEGMENT ANALYSIS FOR EXISTING + AMBIENT + CUMULATIVE CONDITIONS

ROADWAY SEGMENT	GENERAL PLAN ROAD CLASSIFICATION	EXISTING NUMBER OF LANES	LOS E CAPACITY [1]	EAC ADT [2]	VOLUME / CAPACITY	LOS
Lyons Avenue:						
• Between I-5 NB Ramps and Wiley Canyon Road	Major Arterial	6-Lane Divided	54,000	36,114	0.67	C
The Old Road:						
• West of the I-5 SB Ramps	Major Arterial	4-Lane Divided	36,000	12,152	0.34	A
Calgrove Boulevard:						
• Between I-5 NB Ramps and Wiley Canyon Road	Secondary Highway	2-Lane Undivided	15,000	10,383	0.69	C
Wiley Canyon Road:						
• South of Lyons Avenue	Secondary Highway	2-Lane Undivided	15,000	12,905	0.86	D

[1] Roadway capacities derived from the City of Santa Clarita General Plan Circulation Element. Per City of Santa Clarita Circulation Element, LOS "D" is "an accepted, though undesirable, condition." Therefore, the volume to capacity ratios are based on Level of Service "E".

[2] Average Daily Traffic (ADT) expressed in vehicles per day.
See Appendix "A".

T:\Jobs_06600_06677\EXCEL\[06677-01 Rep Tables.xls]T 1-3 (2)

TABLE 5-2

INTERSECTION ANALYSIS FOR EXISTING + AMBIENT + CUMULATIVE CONDITIONS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1]												ICU/DELAY (SECS.)[2]		LEVEL OF SERVICE	
		NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND						
		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
Interstate 5 SB Ramps (NS) at:																	
• Calgrove Boulevard (EW)	CSS	0	0	0	0.5	0.5	1	0	1	0	1	1	0	72.4	--[4]	F	F
Interstate 5 NB Ramps (NS) at:																	
• Calgrove Boulevard (EW)	CSS	0.5	0.5	1	0	0	0	1	0	0	0	1	1	24.7	--[4]	C	F
Wiley Canyon Road (NS) at:																	
• Lyons Avenue (EW)	TS	1	2	1	1	2	1>	2	2	1	1	3	0	0.761	0.748	C	C
• Calgrove Boulevard (EW)	CSS	0	1!	0	0.5	0.5	1>>	1	1	1	1	1	1	14.7	--[4]	B	F
Tampa Avenue (NS) at:																	
• Sesnon Avenue (EW)	AWS	0.5	1.5	0	0.5	1.5	0	0.5	1.5	0	0.5	1.5	0	13.4	8.8	B	A

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; 1! = Shared left-through-right lane; 0.5 = Shared Lane; > = Right Turn Overlap Phase

[2] Per City of Santa Clarita Traffic Impact Report Guidelines, the ICU method is used to determine signalized intersection level of service. For unsignalized intersections, the intersection delay has been calculated using the HCM methodology.
Delay and level of service calculated using the following analysis software: Traffix, Version 8.0 (2008)
Intersection level of service shown is based on the V/C for intersections with traffic signals. For intersections with cross street stop control, the delay in seconds and level of service for worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal
CSS = Cross Street Stop
AWS = All Way Stop

[4] -- = Delay High, Intersection Unstable, LOS "F"

T:\Jobs_06600_06677\EXCEL\[06677-01 Rep Tables.xls]T 5-3

cumulative traffic conditions, the following study area intersections are anticipated to continue to operate with unacceptable levels of service (LOS "E" or worse) during the peak hours:

Interstate 5 SB Ramps (NS) at:

- Calgrove Boulevard (EW)

Interstate 5 NB Ramps (NS) at:

- Calgrove Boulevard (EW)

Wiley Canyon Road (NS) at:

- Calgrove Boulevard (EW)

Existing plus ambient growth plus cumulative project intersection operations worksheets are provided in Appendix "E".

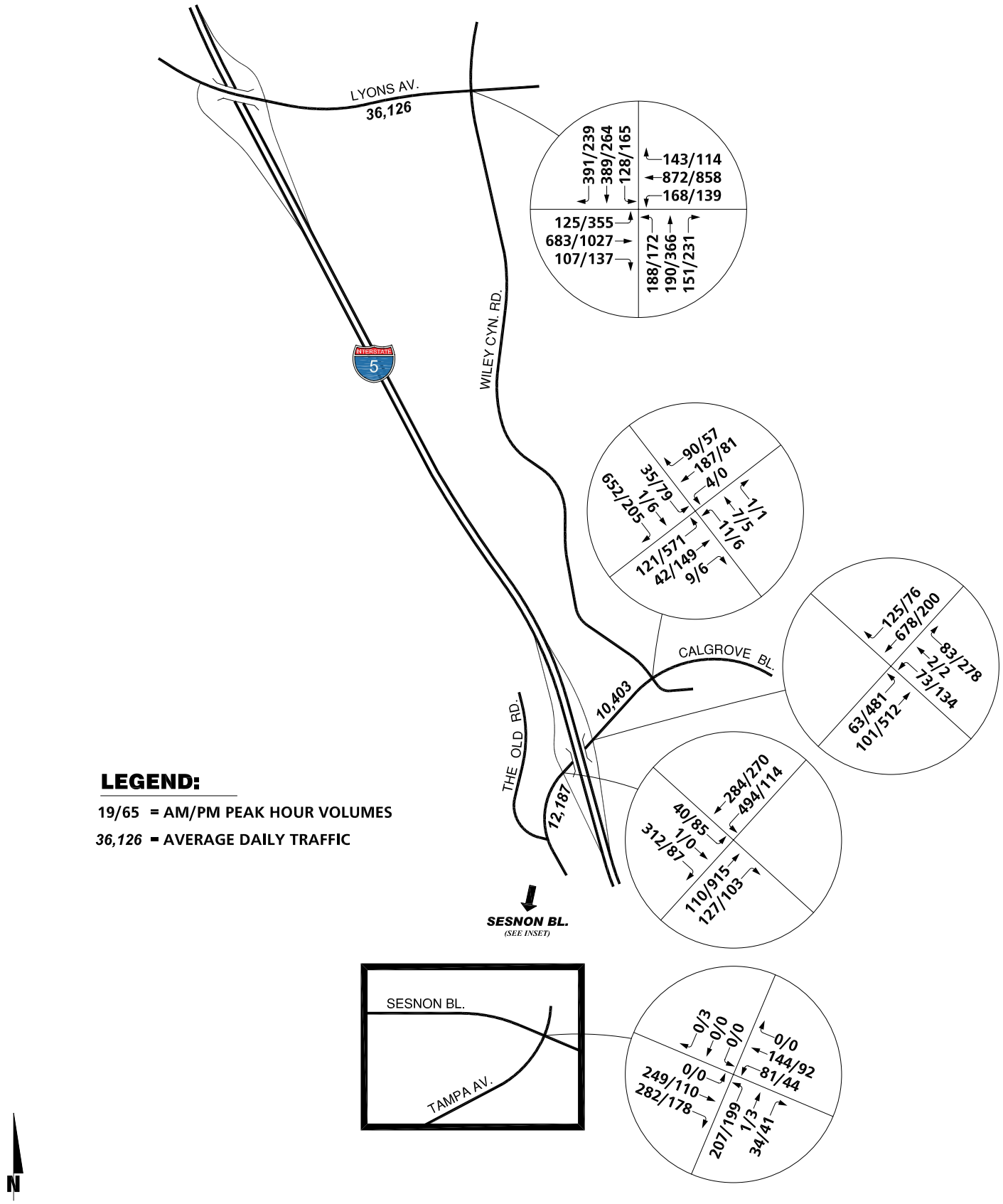
C. Existing Plus Ambient Growth Plus Cumulative With Project-Related Construction Traffic Conditions

The traffic generated from the ambient growth and cumulative developments has been added to existing volumes. It has been assumed that the project may consist of a lane closure for the southbound through traffic at the intersection of Wiley Canyon Road/Lyons Avenue. In addition, approximately 150 construction workers are expected to access the site driveway off of Senson Boulevard (just west of Tampa Avenue). However, a shuttle service consisting of 15 shuttles is proposed at a parking lot (to be determined) near the 118 Freeway to minimize the number of trips at the Sesnon Blvd/Tampa Ave. intersection. For a typical day, the site is also expected to have 7 construction vehicle trips per day and 1 material delivery truck trip per day during non-peak hours.

A passenger car equivalency (PCE) factor has been applied to the large, oversized vehicles for operational analysis purposes. A PCE factor is defined as an equivalency value applied to a large vehicle to equate it's characteristics to those of a passenger car. PCE values generally range from 1.0 (for passenger cars) to 3.0 (very large slow moving trucks) depending on the vehicle's

EXHIBIT 5-B

EXISTING PLUS AMBIENT PLUS CUMULATIVE PLUS PROJECT TRAFFIC VOLUMES



size, weight, maneuverability, and speed. The PCE values for the vehicles to/from the site on a typical day would be as follows:

15 Shuttles (1.5 PCE) = 22.5 PCE, say 23 PCE
7 construction vehicles (2.5 PCE) = 17.5 PCE, say 18 PCE
1 materials delivery truck (2.5 PCE) = 2.5 PCE, say 3 PCE
Total = 44 PCE

For the purposes of the evaluation conducted for this PEA, it has been assumed that a worst case condition of 75 PCE's to/from the site would occur during the AM and PM peak hour. These assumptions have been used to analyze the study area roadway segments and intersections to ensure a conservative, worst case condition. Exhibit 5-B illustrates the daily, AM peak hour, and PM peak hour traffic volumes associated with this condition.

Roadway Segment Analysis

The study area roadway segments were analyzed with the traffic generated from the ambient growth and cumulative projects added to existing traffic volumes. Table 5-3 summarizes the results of the existing plus ambient growth plus cumulative "with project related conditions" segment analysis. As shown in Table 5-3, with the addition of ambient and cumulative traffic, the roadway segments are anticipated to continue to operate with acceptable LOS at the study area road segments.

1. Intersection Analysis

The intersections were analyzed with the traffic generated from the ambient growth and cumulative projects added to existing traffic volumes. Existing plus ambient growth and cumulative with project-related conditions intersection level of service analysis results are shown in Table 5-4. As shown in Table 5-4, the study area intersections are anticipated to operate with acceptable levels of service (LOS "D" or better) during the peak hours, except for the following locations:

Interstate 5 SB Ramps (NS) at:

- Calgrove Boulevard (EW)

TABLE 5-3

ROADWAY SEGMENT ANALYSIS FOR EXISTING + AMBIENT + CUMULATIVE + PROJECT CONDITIONS

ROADWAY SEGMENT	GENERAL PLAN ROAD CLASSIFICATION	EXISTING NUMBER OF LANES	LOS E CAPACITY [1]	EAC ADT [2]	VOLUME / CAPACITY	LOS
Lyons Avenue:						
• Between I-5 NB Ramps and Wiley Canyon Road	Major Arterial	6-Lane Divided	54,000	36,114	0.67	C
The Old Road:						
• West of the I-5 SB Ramps	Major Arterial	4-Lane Divided	36,000	12,152	0.34	A
Calgrove Boulevard:						
• Between I-5 NB Ramps and Wiley Canyon Road	Secondary Highway	2-Lane Undivided	15,000	10,383	0.69	C
Wiley Canyon Road:						
• South of Lyons Avenue	Secondary Highway	2-Lane Undivided	15,000	12,905	0.86	D

[1] Roadway capacities derived from the City of Santa Clarita General Plan Circulation Element. Per City of Santa Clarita Circulation Element, LOS "D" is "an accepted, though undesirable, condition." Therefore, the volume to capacity ratios are based on Level of Service "E".

[2] Average Daily Traffic (ADT) expressed in vehicles per day.

T:\Jobs_06600_06677\EXCEL\[06677-01 Rep Tables.xls]T 1-3 (3)

TABLE 5-4

INTERSECTION ANALYSIS FOR EXISTING + AMBIENT + CUMULATIVE + PROJECT CONDITIONS

INTERSECTION	TRAFFIC CONTROL[3]	INTERSECTION APPROACH LANES[1]												ICU/DELAY (SECS.)[2]		LEVEL OF SERVICE	
		NORTH-BOUND			SOUTH-BOUND			EAST-BOUND			WEST-BOUND						
		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
Interstate 5 SB Ramps (NS) at:																	
• Calgrove Boulevard (EW)	CSS	0	0	0	0.5	0.5	1	0	1	0	1	1	0	72.4	--[4]	F	F
Interstate 5 NB Ramps (NS) at:																	
• Calgrove Boulevard (EW)	CSS	0.5	0.5	1	0	0	0	1	0	0	0	1	1	24.7	--[4]	C	F
Wiley Canyon Road (NS) at:																	
• Lyons Avenue (EW)	TS	1	2	1	1	2	1>	2	2	1	1	3	0	0.800	0.773	D	C
• Calgrove Boulevard (EW)	CSS	0	1!	0	0.5	0.5	1>>	1	1	1	1	1	1	14.7	--[4]	B	F
Tampa Avenue (NS) at:																	
• Sesnon Avenue (EW)	AWS	0.5	1.5	0	0.5	1.5	0	0.5	1.5	0	0.5	1.5	0	18.6	9.9	C	A

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; 1! = Shared left-through-right lane; 0.5 = Shared Lane; > = Right Turn Overlap Phase

[2] Per City of Santa Clarita Traffic Impact Report Guidelines, the ICU method is used to determine signalized intersection level of service. For unsignalized intersections, the intersection delay has been calculated using the HCM methodology.
Delay and level of service calculated using the following analysis software: Traffix, Version 8.0 (2008)
Intersection level of service shown is based on the V/C for intersections with traffic signals. For intersections with cross street stop control, the delay in seconds and level of service for worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal
CSS = Cross Street Stop
AWS = All Way Stop

[4] -- = Delay High, Intersection Unstable, LOS "F"

T:\Jobs_06600_06677\EXCEL\[06677-01 Rep Tables.xls]T 5-4

Interstate 5 NB Ramps (NS) at:

- Calgrove Boulevard (EW)

Wiley Canyon Road (NS) at:

- Calgrove Boulevard (EW)

Existing plus ambient plus cumulative plus project service level calculation worksheets are provided in Appendix "F".

D. Near Term With and Without Project-Related Conditions - Level of Service Comparison

The results of the road segment and intersection levels of service analysis indicate the effects of the project-related conditions from a level of service standpoint. The near term with and without the project-related conditions level of service at the study area road segments and intersections are compared.

1. Roadway Segment Level of Service Comparison

The study area roadway segments levels of service are anticipated to operate acceptably for near term conditions with the additional traffic due to construction workers and a southbound lane closure on Wiley Road. Therefore, a significant impact is not anticipated.

2. Intersection Level of Service Comparison

The project is expected to add traffic to the intersection of Sesnon Blvd/Tampa Ave. and potentially cause a lane closure along Wiley Canyon Road (just south of Lyons Avenue). The intersections levels of service at these two locations during the peak hours are expected to operate acceptably. The following intersections are expected to operate at unacceptable service levels with or without the project-related activities:

Interstate 5 SB Ramps (NS) at:

- Calgrove Boulevard (EW)

Interstate 5 NB Ramps (NS) at:

- Calgrove Boulevard (EW)

Wiley Canyon Road (NS) at:

- Calgrove Boulevard (EW)

Since the project is not anticipated to add traffic or reduce the capacity of these intersections, the project is not anticipated to cause an impact.

6.0 POTENTIAL IMPACTS AND MITIGATION MEASURES

This section summarizes the potential traffic impacts associated with the near-term cumulative conditions in conjunction with the construction activities of the proposed project.

A. Significance Criteria

The following significance criteria are based on the CEQA Guidelines. A project is determined to cause a potentially significant impact if it would:

- Cause an increase in traffic , which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections);

- Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways;

- Result in change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks;

- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment);

- Result in inadequate parking capacity; or

- Conflict with adopted policies, plans or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).

B. Impact Analysis

Would the project cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?

LESS THAN SIGNIFICANT WITH MITIGATION

The project is expected to shuttle approximately 150 construction workers from an off-site parking area to the site. In addition, the operations would also consist of 7 construction vehicle trips per day and 1 material delivery truck trip per day during non-peak hours to/from the site. For analysis purposes, a very conservative estimate of 75 round trips per hour was assumed. It is more likely that the actual number of passenger car equivalent trips to/from the site would be less than the 75 PCE's analyzed, but this provides a "worst case" condition. The increase in traffic associated with these additional trips has been evaluated at the intersection of Tampa Avenue/Sesnon Boulevard. Based on the intersection operations, this location is anticipated to operate at acceptable service levels with the additional trips. Therefore, no significant impacts are anticipated.

The project should ensure that a shuttle program is instituted to reduce the amount of individual construction workers to the site.

Would the project exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?

LESS THAN SIGNIFICNT

A temporary lane closure on Wiley Canyon Road may be required as part of the construction activities. Based on the level of service analysis, the intersection of Wiley Canyon Road/Lyons Avenue is expected to operate at acceptable levels in conjunction with the lane closure.

Would the project result in change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks?

NO IMPACT

No operating airports or heliports are within a close proximity of the project. Helicopters would not be used during project construction. Therefore, the project would not include any features that would disrupt or affect air traffic.

Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?

LESS THAN SIGNIFICANT WITH MITIGATION

A temporary lane closure on Wiley Canyon Road may be required as part of the construction activities. In order to minimize short-term construction-related impacts on local traffic, and potential traffic safety hazards, a traffic control plan should be prepared in accordance with the latest version of SCE's WATCH manual.

Would the project result in inadequate parking capacity?

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATION.

The project is anticipated to involve a lane closure along Wiley Canyon Road, south of Lyons Avenue. However, since parking is currently not allowed on this segment of roadway, no impact to the parking capacity on Wiley Canyon Road is expected.

The project is also anticipated to shuttle construction workers between an off-site parking area and the site. In order to ensure that a parking deficiency does not occur, a site should be chosen that demonstrates that excess parking will be available to accommodate the construction workers.

Would the project conflict with adopted policies, plans or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

NO IMPACT.

The project would not conflict with adopted policies, plans, or programs that support alternative transportation in the project area since no physical alterations to alternative transportation facilities would occur.

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX A

TRAFFIC COUNT WORKSHEETS

TDSSW, Inc.
Event Counts

EventCount-290 -- English (ENU)

Datasets:

Site:	**[12801] Lyons Ave - Btwn I-5 N/B Ramps & Wiley Canyon Rd**
Input A:	2 - East bound. - Added to totals. (1)
Input B:	4 - West bound. - Excluded from totals. (0)
Survey Duration:	13:18 Tuesday, April 28, 2009 => 11:54 Friday, May 01, 2009
File:	Z:\mcdata\Crossroads\2009\128\1280101May2009.EC0 (Base)
Identifier:	A570G7NP MC56-1 [MC55] (c)Microcom 07/06/99
Algorithm:	Event Count
Data type:	Axle sensors - Separate (Count)

Profile:

Filter time:	**14:00 Tuesday, April 28, 2009 => 9:00 Thursday, April 30, 2009**
Name:	Factory default profile
Scheme:	Count events divided by two.
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Events = 58230 / 60316 (96.54%)

*** Tuesday, April 28, 2009=9836 (Incomplete) , 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	**1210**	**1417**	**1516**	**1620**	**1210**	**966**	**795**	**510**	**374**	**218**	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	278	386	392	502	323	259	237	149	114	84	37
-	-	-	-	-	-	-	-	-	-	-	-	-	-	292	331	344	400	296	258	191	140	97	53	25
-	-	-	-	-	-	-	-	-	-	-	-	-	-	314	360	376	359	302	244	184	106	90	52	29
-	-	-	-	-	-	-	-	-	-	-	-	-	-	326	340	404	359	289	205	183	115	73	29	20

*** Wednesday, April 29, 2009=17127, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
111	**59**	**52**	**35**	**56**	**145**	**333**	**774**	**922**	**797**	**855**	**925**	**1087**	**1117**	**1304**	**1330**	**1451**	**1516**	**1315**	**987**	**787**	**556**	**377**	**236**	
37	18	15	10	10	20	67	141	252	221	201	192	**255**	264	303	329	330	**350**	342	291	223	163	99	86	40
25	14	18	8	7	40	42	147	223	165	207	245	**278**	268	282	355	360	**365**	328	239	198	132	108	55	42
29	16	9	8	11	40	99	213	208	204	204	228	**278**	278	355	316	351	**385**	333	225	195	129	97	56	28
20	11	10	9	28	45	125	273	239	207	243	**260**	276	307	364	330	410	**416**	312	232	171	132	73	39	18

AM Peak 1145 - 1245 (1071), AM PHF=0.96 PM Peak 1700 - 1800 (1516), PM PHF=0.91

*** Thursday, April 30, 2009=2352 (Incomplete) , 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
128	**55**	**53**	**34**	**49**	**138**	**347**	**719**	**829**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
40	20	15	6	10	31	53	121	220	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42	6	14	9	9	27	58	151	207	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	20	13	7	12	36	107	187	200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	9	11	12	18	44	129	260	202	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TDSSW, Inc.
Event Counts

EventCount-291 -- English (ENU)

Datasets:

Site:	**[12801] Lyons Ave - Btwn I-5 N/B Ramps & Wiley Canyon Rd**
Input A:	2 - East bound. - Excluded from totals. (0)
Input B:	4 - West bound. - Added to totals. (1)
Survey Duration:	13:18 Tuesday, April 28, 2009 => 11:54 Friday, May 01, 2009
File:	Z:\mcdata\Crossroads\2009\128\1280101May2009.EC0 (Base)
Identifier:	A570G7NP MC56-1 [MC55] (c)Microcom 07/06/99
Algorithm:	Event Count
Data type:	Axle sensors - Separate (Count)

Profile:

Filter time:	**14:00 Tuesday, April 28, 2009 => 9:00 Thursday, April 30, 2009**
Name:	Factory default profile
Scheme:	Count events divided by two.
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Events = 58230 / 60316 (96.54%)

*** Tuesday, April 28, 2009=8212 (Incomplete) , 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	1105	1149	1222	1300	1107	879	642	434	237	137	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	258	311	280	338	278	247	197	133	76	50	24
-	-	-	-	-	-	-	-	-	-	-	-	-	-	279	334	291	341	299	229	161	120	72	34	18
-	-	-	-	-	-	-	-	-	-	-	-	-	-	296	253	337	322	269	194	148	101	49	23	10
-	-	-	-	-	-	-	-	-	-	-	-	-	-	272	251	314	299	261	209	136	80	40	30	13

*** Wednesday, April 29, 2009=17161, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
65	38	24	43	121	425	695	1010	1204	925	902	1118	1236	1108	1072	1238	1138	1284	1101	840	675	494	277	128	
24	12	6	8	11	76	121	195	391	240	208	260	310	292	276	314	269	306	289	216	165	148	102	47	25
18	14	3	13	25	82	141	221	343	259	225	290	307	295	262	282	286	336	269	227	189	114	64	27	15
10	7	11	11	38	118	194	252	231	215	220	266	323	268	283	326	267	314	264	191	179	142	60	24	19
13	5	4	11	47	149	239	342	239	211	249	302	296	253	251	316	316	328	279	206	142	90	51	30	10

AM Peak 0730 - 0830 (1328), AM PHF=0.85 PM Peak 1700 - 1800 (1284), PM PHF=0.96

*** Thursday, April 30, 2009=3541 (Incomplete) , 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
69	54	28	48	100	394	651	990	1207	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
25	12	7	9	13	62	138	199	356	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	14	8	13	14	85	140	197	341	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	18	7	11	29	118	163	260	235	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	10	6	15	44	129	210	334	275	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TDSSW, Inc.
Event Counts

EventCount-298 -- English (ENU)

Datasets:

Site:	**[12802E] Calgrove Blvd - Btwn I-5 N/B Ramps & Wiley Canyon Rd**
Input A:	2 - East bound. - Added to totals. (1)
Input B:	0 - Unused or unknown. - Excluded from totals. (0)
Survey Duration:	13:47 Tuesday, April 28, 2009 => 11:47 Friday, May 01, 2009
File:	Z:\mcdata\Crossroads\2009\128\12802E01May2009.EC0 (Base)
Identifier:	A5613NK0 MC56-1 [MC55] (c)Microcom 07/06/99
Algorithm:	Event Count
Data type:	Axle sensors - Separate (Count)

Profile:

Filter time:	**14:00 Tuesday, April 28, 2009 => 9:00 Thursday, April 30, 2009**
Name:	Factory default profile
Scheme:	Count events divided by two.
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Events = 8251 / 8304 (99.36%)

*** Tuesday, April 28, 2009=3166 (Incomplete) , 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
--	--	--	--	--	--	--	--	--	--	--	--	--	--	313	376	504	604	505	313	203	184	108	56	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	62	92	107	127	132	82	55	51	31	17	10
-	-	-	-	-	-	-	-	-	-	-	-	-	-	60	94	116	156	130	78	52	45	32	13	10
-	-	-	-	-	-	-	-	-	-	-	-	-	-	89	84	137	153	113	74	54	42	21	13	6
-	-	-	-	-	-	-	-	-	-	-	-	-	-	102	106	144	168	130	79	42	46	24	13	7

*** Wednesday, April 29, 2009=4636, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
33	16	12	6	8	22	65	148	140	116	154	166	207	260	313	390	529	597	519	309	266	187	120	53	
10	2	3	1	2	6	14	34	38	27	32	47	51	68	75	96	116	128	138	93	76	42	42	15	11
10	3	4	3	0	6	14	28	34	28	39	40	49	63	70	89	135	141	130	82	66	57	24	12	4
6	5	2	1	0	6	16	40	40	24	43	39	47	59	74	103	139	139	126	71	65	48	38	11	5
7	6	3	1	6	4	21	46	28	37	40	40	60	70	94	102	139	189	125	63	59	40	16	15	7

AM Peak 1145 - 1245 (187), AM PHF=0.92 PM Peak 1715 - 1815 (607), PM PHF=0.80

*** Thursday, April 30, 2009=449 (Incomplete) , 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
27	20	17	7	10	27	60	127	154	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
11	7	7	3	1	6	8	22	37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	3	4	1	3	1	12	33	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	5	2	2	3	10	13	38	43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	5	4	1	3	10	27	34	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TDSSW, Inc.
Event Counts

EventCount-293 -- English (ENU)

Datasets:

Site:	**[12802W] Calgrove Blvd - Btwn I-5 N/B Ramps & Wiley Canyon Rd**
Input A:	0 - Unused or unknown. - Added to totals. (1)
Input B:	0 - Unused or unknown. - Excluded from totals. (0)
Survey Duration:	13:48 Tuesday, April 28, 2009 => 11:51 Friday, May 01, 2009
File:	Z:\mcdata\Crossroads\2009\128\12802W01May2009.EC0 (Plus)
Identifier:	M278T7ZB MC56-6 [MC55] (c)Microcom 02/03/01
Algorithm:	Event Count
Data type:	Axle sensors - Separate (Count)

Profile:

Filter time:	**14:00 Tuesday, April 28, 2009 => 9:00 Thursday, April 30, 2009**
Name:	Factory default profile
Scheme:	Count events divided by two.
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Events = 9442 / 9484 (99.56%)

*** Tuesday, April 28, 2009=1765 (Incomplete) , 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	**242**	**229**	**285**	**243**	**229**	**203**	**124**	**103**	**71**	**36**	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	55	66	71	58	63	46	39	30	20	12	8
-	-	-	-	-	-	-	-	-	-	-	-	-	-	58	48	66	56	52	56	27	27	22	12	1
-	-	-	-	-	-	-	-	-	-	-	-	-	-	64	60	72	59	57	57	39	24	18	5	3
-	-	-	-	-	-	-	-	-	-	-	-	-	-	65	55	76	70	57	44	19	22	11	7	3

*** Wednesday, April 29, 2009=5445, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
15	**10**	**6**	**15**	**41**	**246**	**558**	**776**	**599**	**307**	**270**	**222**	**241**	**223**	**241**	**257**	**280**	**288**	**289**	**196**	**139**	**104**	**79**	**43**	
8	1	1	2	2	34	92	**207**	190	76	61	63	67	51	51	74	73	65	76	50	37	21	17	12	4
1	2	4	4	9	57	123	**209**	160	90	87	55	66	62	70	55	79	**81**	72	53	41	30	23	7	6
3	2	0	4	17	68	160	**189**	150	67	66	60	55	54	51	72	64	**69**	77	44	38	33	26	5	5
3	5	1	5	13	87	**183**	171	99	74	56	44	53	56	69	56	64	**73**	64	49	23	20	13	19	3

AM Peak 0645 - 0745 (788), AM PHF=0.94 PM Peak 1715 - 1815 (299), PM PHF=0.92

*** Thursday, April 30, 2009=2232 (Incomplete) , 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
18	**13**	**11**	**16**	**55**	**256**	**514**	**772**	**577**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4	1	3	2	6	35	87	193	205	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	7	6	2	7	47	121	239	151	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	3	0	7	20	70	120	187	131	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	2	2	5	22	104	186	153	90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TDSSW, Inc.
Event Counts

EventCount-294 -- English (ENU)

Datasets:

Site:	**[12803N] Wiley Canyon Rd - S/O Lyons Ave**
Input A:	1 - North bound. - Added to totals. (1)
Input B:	0 - Unused or unknown. - Excluded from totals. (0)
Survey Duration:	13:34 Tuesday, April 28, 2009 => 11:53 Friday, May 01, 2009
File:	Z:\mcdata\Crossroads\2009\128\12803N01May2009.EC0 (Plus)
Identifier:	M508KRAN MC56-6 [MC55] (c)Microcom 02/03/01
Algorithm:	Event Count
Data type:	Axle sensors - Separate (Count)

Profile:

Filter time:	**14:00 Tuesday, April 28, 2009 => 9:00 Thursday, April 30, 2009**
Name:	Factory default profile
Scheme:	Count events divided by two.
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Events = 10982 / 11311 (97.09%)

*** Tuesday, April 28, 2009=3598 (Incomplete) , 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
–	–	–	–	–	–	–	–	–	–	–	–	–	–	**422**	**492**	**581**	**659**	**545**	**420**	**203**	**134**	**95**	**47**	
–	–	–	–	–	–	–	–	–	–	–	–	–	–	86	126	145	149	155	119	57	33	29	16	11
–	–	–	–	–	–	–	–	–	–	–	–	–	–	111	116	133	161	133	109	51	37	32	11	5
–	–	–	–	–	–	–	–	–	–	–	–	–	–	126	121	167	165	122	94	53	28	22	9	8
–	–	–	–	–	–	–	–	–	–	–	–	–	–	99	129	136	184	135	98	42	36	12	11	9

*** Wednesday, April 29, 2009=6348, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
33	**17**	**6**	**10**	**21**	**74**	**175**	**398**	**359**	**309**	**263**	**310**	**331**	**319**	**417**	**490**	**571**	**625**	**616**	**396**	**293**	**171**	**99**	**45**	
11	4	1	1	2	10	25	63	150	91	54	77	82	78	99	138	146	149	175	120	89	45	24	14	6
5	5	3	5	4	19	38	64	**87**	78	68	71	96	78	123	117	146	141	**173**	111	67	52	24	14	9
8	4	1	2	4	18	53	**108**	61	64	61	102	79	88	94	119	141	**152**	137	96	67	36	27	6	3
9	4	1	2	11	27	59	**163**	61	76	80	60	74	75	101	116	138	**183**	131	69	70	38	24	11	6

AM Peak 0730 - 0830 (508), AM PHF=0.78 PM Peak 1730 - 1830 (683), PM PHF=0.93

*** Thursday, April 30, 2009=1036 (Incomplete) , 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
24	**24**	**10**	**7**	**18**	**62**	**169**	**351**	**371**	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
6	6	5	3	3	8	27	47	147	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
9	9	3	1	6	10	27	57	93	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
3	8	1	1	3	14	44	98	48	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
6	1	1	2	6	30	71	149	83	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

TDSSW, Inc.
Event Counts

EventCount-295 -- English (ENU)

Datasets:

Site:	**[12803S] Wiley Canyon Rd - S/O Lyons Ave**
Input A:	3 - South bound. - Added to totals. (1)
Input B:	0 - Unused or unknown. - Excluded from totals. (0)
Survey Duration:	13:35 Tuesday, April 28, 2009 => 11:50 Friday, May 01, 2009
File:	Z:\mcdata\Crossroads\2009\128\12803S01May2009.EC0 (Plus)
Identifier:	1387F8VW MC56-6 [MC55] (c)Microcom 02/03/01
Algorithm:	Event Count
Data type:	Axle sensors - Separate (Count)

Profile:

Filter time:	**14:00 Tuesday, April 28, 2009 => 9:00 Thursday, April 30, 2009**
Name:	Factory default profile
Scheme:	Count events divided by two.
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Events = 10836 / 11137 (97.30%)

*** Tuesday, April 28, 2009=2992 (Incomplete) , 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	373	384	452	420	418	328	239	205	122	51	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	96	94	112	118	114	69	69	69	42	25	11
-	-	-	-	-	-	-	-	-	-	-	-	-	-	103	106	101	100	106	94	48	54	36	11	3
-	-	-	-	-	-	-	-	-	-	-	-	-	-	78	86	119	108	102	89	68	48	18	7	7
-	-	-	-	-	-	-	-	-	-	-	-	-	-	96	98	120	94	96	76	54	34	26	8	2

*** Wednesday, April 29, 2009=6181, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
23	13	12	12	32	140	353	649	530	241	228	261	283	273	370	390	441	457	463	329	300	194	116	71	
11	4	2	1	2	20	52	135	181	56	47	53	68	70	102	101	102	105	132	91	62	47	38	22	11
3	4	5	2	6	34	83	172	149	75	60	56	61	66	96	91	93	119	120	67	80	49	40	19	12
7	1	2	4	12	42	112	157	117	58	54	75	76	64	68	100	123	108	116	90	88	42	20	18	5
2	4	3	5	12	44	106	185	83	52	67	77	78	73	104	98	123	125	95	81	70	56	18	12	4

AM Peak 0715 - 0815 (695), AM PHF=0.94 PM Peak 1745 - 1845 (493), PM PHF=0.93

*** Thursday, April 30, 2009=1662 (Incomplete) , 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
32	19	14	9	37	133	328	607	483	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
11	4	5	2	4	18	54	126	179	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	8	3	1	4	21	84	170	123	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	3	1	1	12	36	75	157	105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	4	5	5	17	58	115	154	76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TDSSW, Inc.
Event Counts

EventCount-296 -- English (ENU)

Datasets:

Site:	**[12804] The Old Road - W/O I-5 S/B Ramps**
Input A:	2 - East bound. - Added to totals. (1)
Input B:	4 - West bound. - Excluded from totals. (0)
Survey Duration:	13:58 Tuesday, April 28, 2009 => 11:49 Friday, May 01, 2009
File:	Z:\mcdata\Crossroads\2009\128\1280401May2009.EC0 (Plus)
Identifier:	M293M05F MC56-6 [MC55] (c)Microcom 02/03/01
Algorithm:	Event Count
Data type:	Axle sensors - Separate (Count)

Profile:

Filter time:	**14:00 Tuesday, April 28, 2009 => 9:00 Thursday, April 30, 2009**
Name:	Factory default profile
Scheme:	Count events divided by two.
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Events = 19429 / 20088 (96.72%)

*** Tuesday, April 28, 2009=3985 (Incomplete) , 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	**309**	**464**	**787**	**960**	**729**	**331**	**138**	**114**	**72**	**81**	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	59	98	200	212	240	94	41	21	17	25	9
-	-	-	-	-	-	-	-	-	-	-	-	-	-	83	95	175	253	198	85	34	27	30	27	12
-	-	-	-	-	-	-	-	-	-	-	-	-	-	68	117	211	243	145	85	34	29	15	18	5
-	-	-	-	-	-	-	-	-	-	-	-	-	-	99	154	201	252	146	67	29	37	10	11	15

*** Wednesday, April 29, 2009=6034, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
41	**26**	**20**	**20**	**18**	**66**	**104**	**181**	**158**	**191**	**204**	**233**	**233**	**238**	**305**	**459**	**842**	**1088**	**804**	**343**	**212**	**131**	**67**	**50**	
9	0	6	0	3	12	20	40	49	40	35	56	**80**	54	67	87	182	235	**267**	106	73	44	19	12	7
12	7	8	6	4	14	17	31	39	49	45	57	**64**	75	73	95	217	**290**	194	103	55	28	23	14	6
5	14	4	11	7	23	31	58	36	54	58	**69**	49	57	79	131	225	**261**	209	84	48	32	21	13	1
15	5	2	3	4	17	36	52	34	48	66	**51**	40	52	86	146	218	**302**	134	50	36	27	4	11	3

AM Peak 1130 - 1230 (264), AM PHF=0.82 PM Peak 1715 - 1815 (1120), PM PHF=0.93

*** Thursday, April 30, 2009=575 (Incomplete) , 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
17	**11**	**6**	**5**	**16**	**46**	**110**	**179**	**185**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
7	4	1	3	1	3	14	27	51	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	2	3	1	2	13	25	64	48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	2	1	1	6	12	30	38	46	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	3	1	0	7	18	41	50	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TDSSW, Inc.
Event Counts

EventCount-297 -- English (ENU)

Datasets:

Site:	**[12804] The Old Road - W/O I-5 S/B Ramps**
Input A:	2 - East bound. - Excluded from totals. (0)
Input B:	4 - West bound. - Added to totals. (1)
Survey Duration:	13:58 Tuesday, April 28, 2009 => 11:49 Friday, May 01, 2009
File:	Z:\mcdata\Crossroads\2009\128\1280401May2009.EC0 (Plus)
Identifier:	M293M05F MC56-6 [MC55] (c)Microcom 02/03/01
Algorithm:	Event Count
Data type:	Axle sensors - Separate (Count)

Profile:

Filter time:	**14:00 Tuesday, April 28, 2009 => 9:00 Thursday, April 30, 2009**
Name:	Factory default profile
Scheme:	Count events divided by two.
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Events = 19429 / 20088 (96.72%)

*** Tuesday, April 28, 2009=1717 (Incomplete) , 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
–	–	–	–	–	–	–	–	–	–	–	–	–	–	261	308	298	288	168	149	73	89	56	27	
–	–	–	–	–	–	–	–	–	–	–	–	–	–	56	72	73	71	50	41	16	23	19	7	3
–	–	–	–	–	–	–	–	–	–	–	–	–	–	60	88	62	87	44	31	19	28	12	5	7
–	–	–	–	–	–	–	–	–	–	–	–	–	–	72	68	59	80	35	40	22	18	19	4	2
–	–	–	–	–	–	–	–	–	–	–	–	–	–	73	80	104	50	39	37	16	20	6	11	1

*** Wednesday, April 29, 2009=5332, 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
13	11	9	9	21	153	554	863	553	259	242	236	279	266	305	300	312	347	226	131	99	70	46	28	
3	2	0	3	2	12	92	201	169	71	68	68	66	70	66	73	65	88	55	43	25	18	16	5	5
7	1	3	1	2	29	117	238	170	72	74	51	65	85	85	76	81	97	52	20	27	21	10	6	5
2	5	4	3	11	54	165	214	134	65	42	55	75	54	67	77	76	76	53	30	27	14	13	9	3
1	3	2	2	6	58	180	210	80	51	58	62	73	57	87	74	90	86	66	38	20	17	7	8	1

AM Peak 0700 - 0800 (863), AM PHF=0.91 PM Peak 1630 - 1730 (351), PM PHF=0.90

*** Thursday, April 30, 2009=1785 (Incomplete) , 15 minute drops**

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
14	9	4	10	19	175	497	686	371	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
5	3	2	0	2	14	94	181	125	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
5	1	0	2	5	34	127	214	95	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
3	3	1	4	6	50	123	173	95	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1	2	1	4	6	77	153	118	56	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

TDSSW, Inc.
PO Box 1544
Lakeside, CA 92040
(619) 390-8495 Fax (866) 768-1818

Weather: Clear & Dry
Counted by: M. Parish
Board No: D1-2278
Loc: I-5 S/B Ramps & Calgrove Blvd

File Name : 09128040
Site Code : 00128040
Start Date : 4/28/2009
Page No : 1

Groups Printed- Group 1

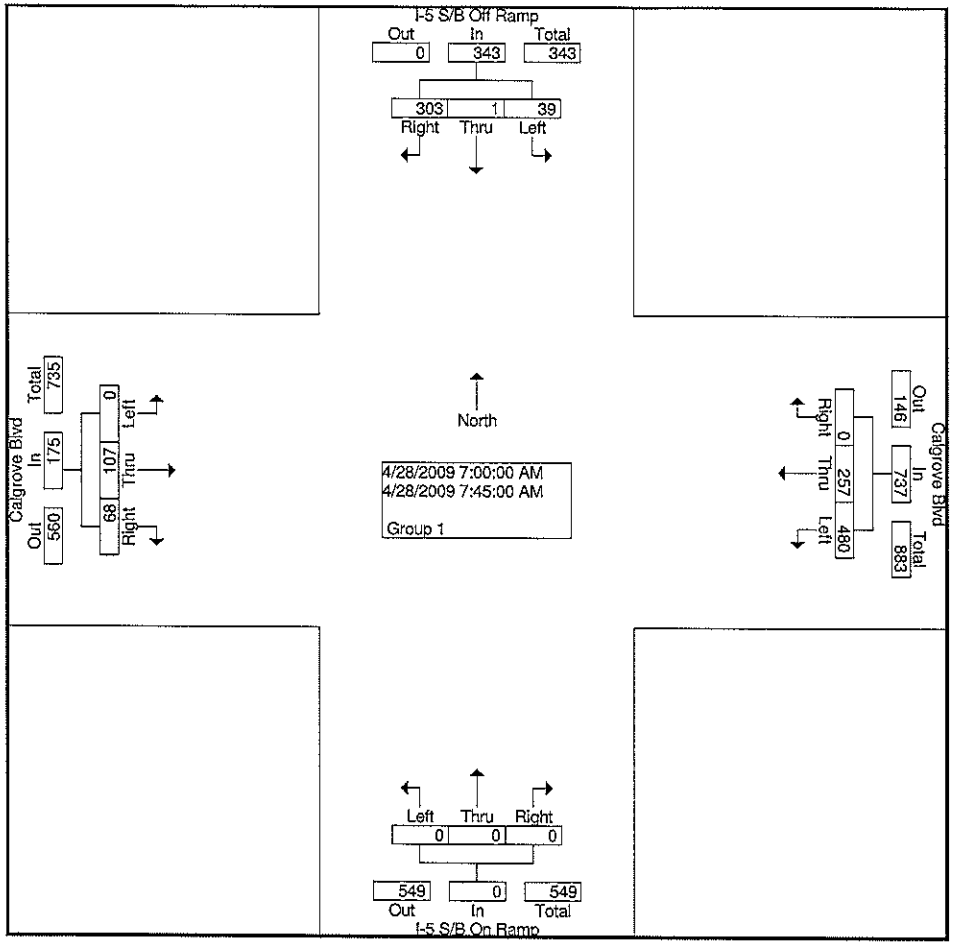
	I-5 S/B Off Ramp Southbound					Calgrove Blvd Westbound					I-5 S/B On Ramp Northbound					Calgrove Blvd Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00	10	1	75	0	86	125	58	0	0	183	0	0	0	0	0	0	25	14	0	39	0	308	308
07:15	5	0	81	0	86	125	80	0	0	205	0	0	0	1	0	0	18	17	0	35	1	326	327
07:30	6	0	57	0	63	130	65	0	0	195	0	0	0	0	0	0	33	19	0	52	0	310	310
07:45	18	0	90	0	108	100	54	0	0	154	0	0	0	0	0	0	31	18	0	49	0	311	311
Total	39	1	303	0	343	480	257	0	0	737	0	0	0	1	0	0	107	68	0	175	1	1255	1256
08:00	13	1	64	0	78	120	49	0	0	169	0	0	0	0	0	0	32	13	0	45	0	292	292
08:15	19	0	76	0	95	98	47	0	0	145	0	0	0	0	0	0	25	20	0	45	0	285	285
08:30	16	1	44	0	61	109	63	0	0	172	0	0	0	0	0	0	29	12	0	41	0	274	274
08:45	6	1	23	0	30	59	35	0	0	94	0	0	0	0	0	0	12	14	1	26	1	150	151
Total	54	3	207	0	264	386	194	0	0	580	0	0	0	0	0	0	98	59	1	157	1	1001	1002
Grand Total	93	4	510	0	607	866	451	0	0	1317	0	0	0	1	0	0	205	127	1	332	2	2256	2258
Apprch %	15.3	0.7	84.0			65.8	34.2	0.0			0.0	0.0	0.0			0.0	61.7	38.3					
Total %	4.1	0.2	22.6		26.9	38.4	20.0	0.0		58.4	0.0	0.0	0.0		0.0	0.0	9.1	5.6		14.7	0.1	99.9	

	I-5 S/B Off Ramp Southbound				Calgrove Blvd Westbound				I-5 S/B On Ramp Northbound				Calgrove Blvd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 07:00 to 08:45 - Peak 1 of 1																	
Intersection	07:00																
Volume	39	1	303	343	480	257	0	737	0	0	0	0	0	107	68	175	1255
Percent	11.4	0.3	88.3		65.1	34.9	0.0		0.0	0.0	0.0		0.0	61.1	38.9		
07:15 Volume	5	0	81	86	125	80	0	205	0	0	0	0	0	18	17	35	326
Peak Factor																	0.962
High Int.	07:45				07:15				6:45:00 AM				07:30				
Volume	18	0	90	108	125	80	0	205	0	0	0	0	0	33	19	52	
Peak Factor				0.794				0.899								0.841	

TDSSW, Inc.
PO Box 1544
Lakeside, CA 92040
(619) 390-8495 Fax (866) 768-1818

Weather: Clear & Dry
Counted by: M. Parish
Board No: D1-2278
Loc: I-5 S/B Ramps & Calgrove Blvd

File Name : 09128040
Site Code : 00128040
Start Date : 4/28/2009
Page No : 2



TDSSW, Inc.
PO Box 1544
Lakeside, CA 92040
(619) 390-8495 Fax (866) 768-1818

Weather: Clear & Dry
Counted by: C. Hust
Board No: D1-2278
Loc: I-5 N/B Ramps & Calgrove Blvd

File Name : 09128030
Site Code : 00128030
Start Date : 4/28/2009
Page No : 1

Groups Printed- Group 1

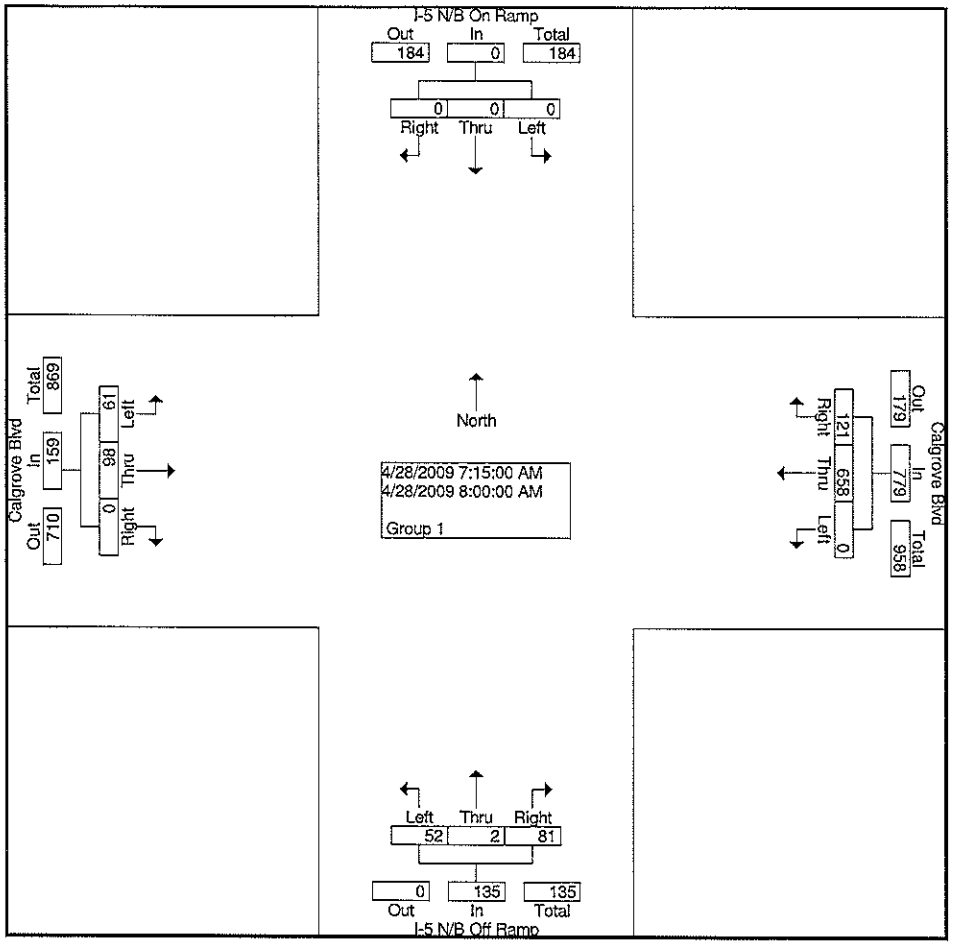
	I-5 N/B On Ramp Southbound					Calgrove Blvd Westbound					I-5 N/B Off Ramp Northbound					Calgrove Blvd Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0				
07:00	0	0	0	0	0	0	186	22	0	208	6	0	16	0	22	17	17	0	0	34	0	264	264
07:15	0	0	0	0	0	0	195	22	0	217	12	1	20	0	33	12	11	0	0	23	0	273	273
07:30	0	0	0	0	0	0	168	23	0	191	16	0	26	0	42	19	22	0	0	41	0	274	274
07:45	0	0	0	0	0	0	144	33	0	177	11	0	17	0	28	14	36	0	0	50	0	255	255
Total	0	0	0	0	0	0	693	100	0	793	45	1	79	0	125	62	86	0	0	148	0	1066	1066
08:00	0	0	0	0	0	0	151	43	0	194	13	1	18	0	32	16	29	0	0	45	0	271	271
08:15	0	0	0	0	0	0	145	22	0	167	10	0	18	0	28	11	33	0	0	44	0	239	239
08:30	0	0	0	0	0	0	147	15	0	162	16	0	14	0	30	11	37	0	0	48	0	240	240
08:45	0	0	0	0	0	0	86	17	0	103	13	2	22	0	37	8	11	0	0	19	0	159	159
Total	0	0	0	0	0	0	529	97	0	626	52	3	72	0	127	46	110	0	0	156	0	909	909
Grand Total	0	0	0	0	0	0	1222	197	0	1419	97	4	151	0	252	108	196	0	0	304	0	1975	1975
Apprch %	0.0	0.0	0.0			0.0	86.1	13.9			38.5	1.6	59.9			35.5	64.5	0.0					
Total %	0.0	0.0	0.0		0.0	0.0	61.9	10.0		71.8	4.9	0.2	7.6		12.8	5.5	9.9	0.0		15.4	0.0	100.0	

	I-5 N/B On Ramp Southbound				Calgrove Blvd Westbound				I-5 N/B Off Ramp Northbound				Calgrove Blvd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 07:00 to 08:45 - Peak 1 of 1																	
Intersection	07:15																
Volume	0	0	0	0	0	658	121	779	52	2	81	135	61	98	0	159	1073
Percent	0.0	0.0	0.0		0.0	84.5	15.5		38.5	1.5	60.0		38.4	61.6	0.0		
07:30 Volume	0	0	0	0	0	168	23	191	16	0	26	42	19	22	0	41	274
Peak Factor																	0.979
High Int.	6:45:00 AM				07:15				07:30				07:45				
Volume	0	0	0	0	0	195	22	217	16	0	26	42	14	36	0	50	
Peak Factor								0.897				0.804				0.795	

TDSSW, Inc.
PO Box 1544
Lakeside, CA 92040
(619) 390-8495 Fax (866) 768-1818

Weather: Clear & Dry
Counted by: C. Hust
Board No: D1-2278
Loc: I-5 N/B Ramps & Calgrove Blvd

File Name : 09128030
Site Code : 00128030
Start Date : 4/28/2009
Page No : 2



TDSSW, Inc.
PO Box 1544
Lakeside, CA 92040
(619) 390-8495 Fax (866) 768-1818

Weather: Clear & Dry
Counted by:S. Tillman
Board No: D1-2278
Loc: Wiley Cyn Rd & Lyons Avenue

File Name : 09128020
Site Code : 00128020
Start Date : 4/29/2009
Page No : 1

Groups Printed- Group 1

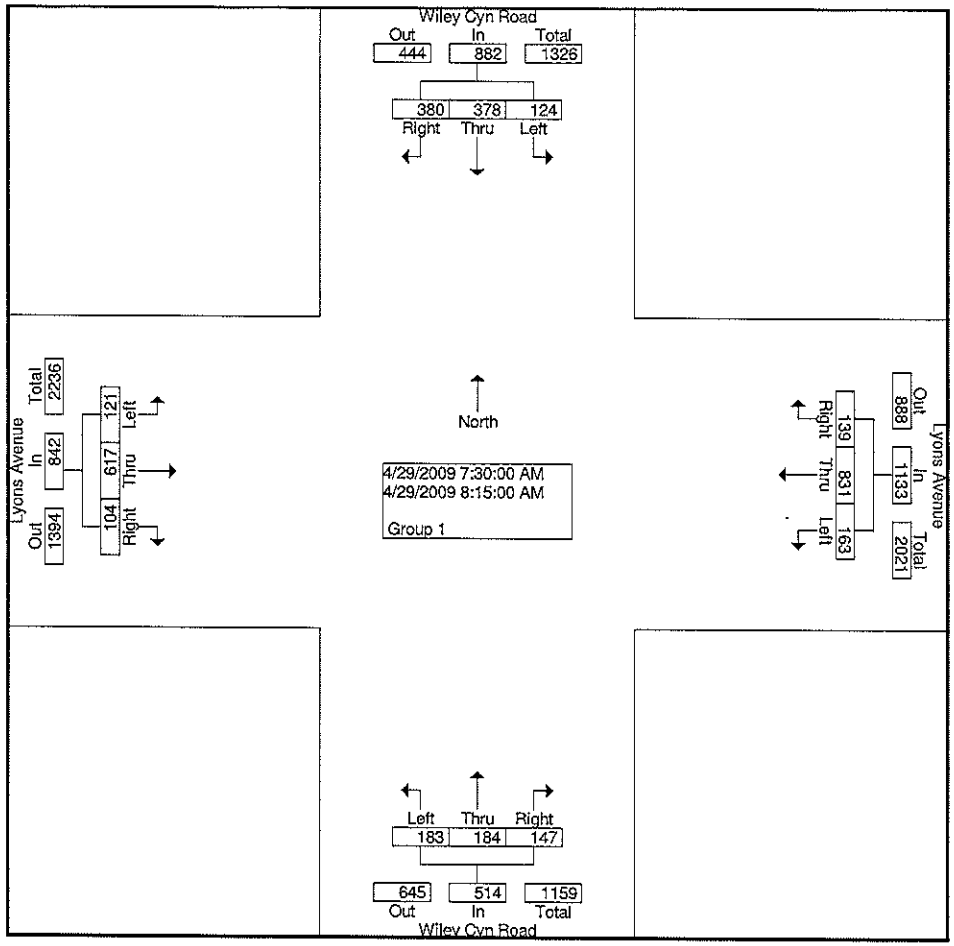
	Wiley Cyn Road Southbound					Lyons Avenue Westbound					Wiley Cyn Road Northbound					Lyons Avenue Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00	18	95	56	1	169	24	135	19	0	178	13	21	18	0	52	20	91	10	0	121	1	520	521
07:15	26	111	68	2	205	36	98	16	4	150	20	17	21	0	58	24	93	25	1	142	7	555	562
07:30	14	101	84	0	199	37	170	19	3	226	28	35	36	2	99	30	153	12	0	195	5	719	724
07:45	38	84	84	1	206	47	214	44	2	305	63	45	39	4	147	30	197	22	0	249	7	907	914
Total	96	391	292	4	779	144	617	98	9	859	124	118	114	6	356	104	534	69	1	707	20	2701	2721
08:00	30	99	119	0	248	45	223	54	4	322	63	62	41	5	166	30	146	38	4	214	13	950	963
08:15	42	94	93	2	229	34	224	22	0	280	29	42	31	0	102	31	121	32	3	184	5	795	800
08:30	24	67	92	2	183	22	146	14	1	182	14	25	16	0	55	34	140	23	2	197	5	617	622
08:45	32	54	93	1	179	22	166	16	6	204	29	41	24	0	94	27	148	17	2	192	9	669	678
Total	128	314	397	5	839	123	759	106	11	988	135	170	112	5	417	122	555	110	11	787	32	3031	3063
Grand Total	224	705	689	9	1618	267	1376	204	20	1847	259	288	226	11	773	226	1089	179	12	1494	52	5732	5784
Apprch %	13.8	43.6	42.6			14.5	74.5	11.0			33.5	37.3	29.2			15.1	72.9	12.0					
Total %	3.9	12.3	12.0		28.2	4.7	24.0	3.6		32.2	4.5	5.0	3.9		13.5	3.9	19.0	3.1		26.1	0.9	99.1	

	Wiley Cyn Road Southbound				Lyons Avenue Westbound				Wiley Cyn Road Northbound				Lyons Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 07:00 to 08:45 - Peak 1 of 1																	
Intersection	07:30																
Volume	124	378	380	882	163	831	139	1133	183	184	147	514	121	617	104	842	3371
Percent	14.1	42.9	43.1		14.4	73.3	12.3		35.6	35.8	28.6		14.4	73.3	12.4		
08:00 Volume	30	99	119	248	45	223	54	322	63	62	41	166	30	146	38	214	950
Peak Factor																	0.887
High Int.	08:00				08:00				08:00				07:45				
Volume	30	99	119	248	45	223	54	322	63	62	41	166	30	197	22	249	
Peak Factor				0.889				0.880				0.774				0.845	

TDSSW, Inc.
PO Box 1544
Lakeside, CA 92040
(619) 390-8495 Fax (866) 768-1818

Weather: Clear & Dry
Counted by:S. Tillman
Board No: D1-2278
Loc: Wiley Cyn Rd & Lyons Avenue

File Name : 09128020
Site Code : 00128020
Start Date : 4/29/2009
Page No : 2



TDSSW, Inc.
PO Box 1544
Lakeside, CA 92040
(619) 390-8495 Fax (866) 768-1818

Weather: Clear & Dry
Counted by: C. Parish
Board No: D1-1429
Loc: Wiley Cyn Rd & Calgrove Blvd

File Name : 09128010
Site Code : 00128010
Start Date : 4/30/2009
Page No : 1

Groups Printed- Group 1

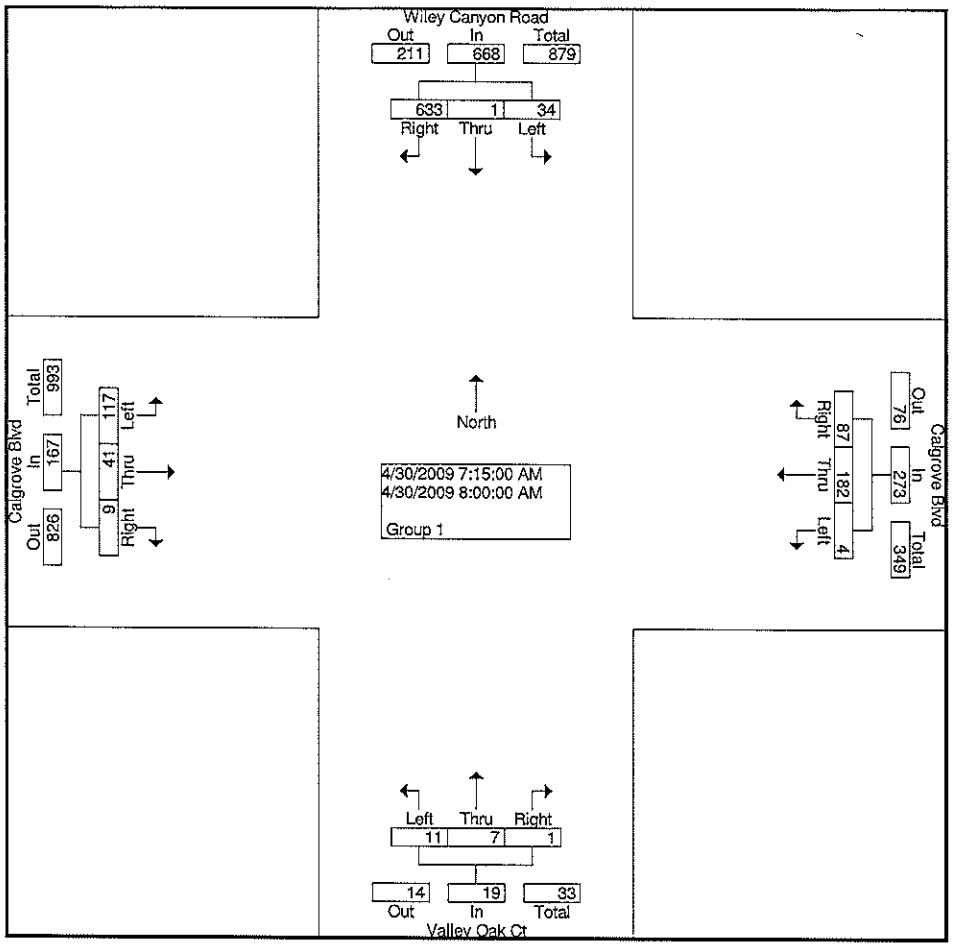
	Wiley Canyon Road Southbound					Calgrove Blvd Westbound					Valley Oak Ct Northbound					Calgrove Blvd Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0				
07:00	4	0	173	0	177	0	25	11	1	36	4	0	0	0	4	20	8	0	0	28	1	245	246
07:15	7	0	192	0	199	0	54	10	2	64	5	0	0	0	5	26	10	3	0	39	2	307	309
07:30	2	0	155	0	157	2	37	20	0	59	1	1	1	0	3	35	5	2	0	42	0	261	261
07:45	10	0	124	0	134	0	34	36	0	70	3	2	0	0	5	31	7	2	1	40	1	249	250
Total	23	0	644	0	667	2	150	77	3	229	13	3	1	0	17	112	30	7	1	149	4	1062	1066
08:00	15	1	162	0	178	2	57	21	0	80	2	4	0	0	6	25	19	2	0	46	0	310	310
08:15	12	0	122	0	134	0	37	7	0	44	2	1	0	0	3	27	16	3	0	46	0	227	227
08:30	13	3	109	0	125	0	34	10	0	44	0	0	0	0	0	36	19	0	0	55	0	224	224
08:45	10	1	71	0	82	0	26	14	0	40	1	0	0	0	1	27	16	0	0	43	0	166	166
Total	50	5	464	0	519	2	154	52	0	208	5	5	0	0	10	115	70	5	0	190	0	927	927
Grand Total	73	5	1108	0	1186	4	304	129	3	437	18	8	1	0	27	227	100	12	1	339	4	1989	1993
Apprch %	6.2	0.4	93.4			0.9	69.6	29.5			66.7	29.6	3.7			67.0	29.5	3.5					
Total %	3.7	0.3	55.7		59.6	0.2	15.3	6.5		22.0	0.9	0.4	0.1		1.4	11.4	5.0	0.6		17.0	0.2	99.8	

	Wiley Canyon Road Southbound				Calgrove Blvd Westbound				Valley Oak Ct Northbound				Calgrove Blvd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 07:00 to 08:45 - Peak 1 of 1																	
Intersection	07:15																
Volume	34	1	633	668	4	182	87	273	11	7	1	19	117	41	9	167	1127
Percent	5.1	0.1	94.8		1.5	66.7	31.9		57.9	36.8	5.3		70.1	24.6	5.4		
08:00 Volume	15	1	162	178	2	57	21	80	2	4	0	6	25	19	2	46	310
Peak Factor																	0.909
High Int.	07:15				08:00				08:00				08:00				
Volume	7	0	192	199	2	57	21	80	2	4	0	6	25	19	2	46	
Peak Factor				0.839				0.853				0.792				0.908	

TDSSW, Inc.
PO Box 1544
Lakeside, CA 92040
(619) 390-8495 Fax (866) 768-1818

Weather: Clear & Dry
Counted by: C. Parish
Board No: D1-1429
Loc: Wiley Cyn Rd & Calgrove Blvd

File Name : 09128010
Site Code : 00128010
Start Date : 4/30/2009
Page No : 2



TDSSW, Inc.
PO Box 1544
Lakeside, CA 92040
(619) 390-8495 Fax (866) 768-1818

Weather : Clear & Dry
Counted By: M. Parish
Board #: D1-1431
Loc: Loc: Tampa Ave & Sasnon Blvd

File Name : 09128050
Site Code : 00128050
Start Date : 5/5/2009
Page No : 1

Groups Printed- Group 1

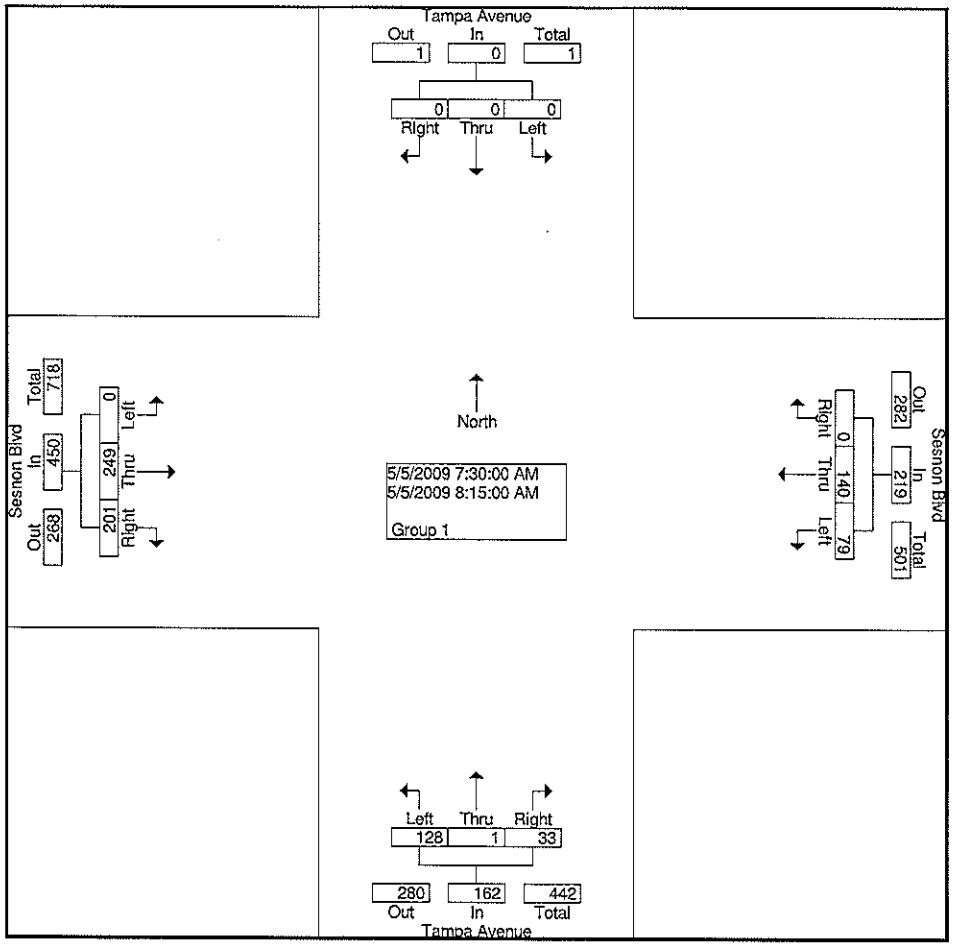
	Tampa Avenue Southbound					Sesnon Blvd Westbound					Tampa Avenue Northbound					Sesnon Blvd Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0				
07:00	0	2	0	2	2	12	14	2	0	28	5	0	5	1	10	0	27	25	0	52	3	92	95
07:15	1	0	1	0	2	12	13	0	0	25	10	1	3	0	14	0	46	24	0	70	0	111	111
07:30	0	0	0	2	0	9	17	0	0	26	17	0	8	1	25	0	45	35	0	80	3	131	134
07:45	0	0	0	0	0	13	22	0	0	35	21	0	5	2	26	0	66	28	0	94	2	155	157
Total	1	2	1	4	4	46	66	2	0	114	53	1	21	4	75	0	184	112	0	296	8	489	497
08:00	0	0	0	0	0	28	37	0	0	65	38	0	12	0	50	0	100	94	0	194	0	309	309
08:15	0	0	0	0	0	29	64	0	0	93	52	1	8	0	61	0	38	44	0	82	0	236	236
08:30	0	0	1	0	1	10	18	2	0	30	23	2	7	2	32	0	23	31	0	54	2	117	119
08:45	0	1	0	4	1	12	12	2	2	26	8	0	8	3	16	0	21	25	5	46	14	89	103
Total	0	1	1	4	2	79	131	4	2	214	121	3	35	5	159	0	182	194	5	376	16	751	767
Grand Total	1	3	2	8	6	125	197	6	2	328	174	4	56	9	234	0	366	306	5	672	24	1240	1264
Apprch %	16.7	50.0	33.3			38.1	60.1	1.8			74.4	1.7	23.9			0.0	54.5	45.5					
Total %	0.1	0.2	0.2		0.5	10.1	15.9	0.5		26.5	14.0	0.3	4.5		18.9	0.0	29.5	24.7		54.2	1.9	98.1	

	Tampa Avenue Southbound				Sesnon Blvd Westbound				Tampa Avenue Northbound				Sesnon Blvd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 07:00 to 08:45 - Peak 1 of 1																	
Intersection	07:30																
Volume	0	0	0	0	79	140	0	219	128	1	33	162	0	249	201	450	831
Percent	0.0	0.0	0.0		36.1	63.9	0.0		79.0	0.6	20.4		0.0	55.3	44.7		
08:00 Volume	0	0	0	0	28	37	0	65	38	0	12	50	0	100	94	194	309
Peak Factor																	0.672
High Int.	6:45:00 AM				08:15				08:15				08:00				
Volume	0	0	0	0	29	64	0	93	52	1	8	61	0	100	94	194	
Peak Factor								0.589				0.664				0.580	

TDSSW, Inc.
PO Box 1544
Lakeside, CA 92040
(619) 390-8495 Fax (866) 768-1818

Weather : Clear & Dry
Counted By: M. Parish
Board #: D1-1431
Loc: Loc: Tampa Ave & Sasnon Blvd

File Name : 09128050
Site Code : 00128050
Start Date : 5/5/2009
Page No : 2



TDSSW, Inc.
PO Box 1544
Lakeside, CA 92040
(619) 390-8495 Fax (866) 768-1818

Weather: Clear & Dry
Counted by: M. Parish
Board No: D1-2278
Loc: I-5 S/B Ramps & Calgrove Blvd

File Name : 09128041
Site Code : 00128041
Start Date : 4/28/2009
Page No : 1

Groups Printed- Group 1

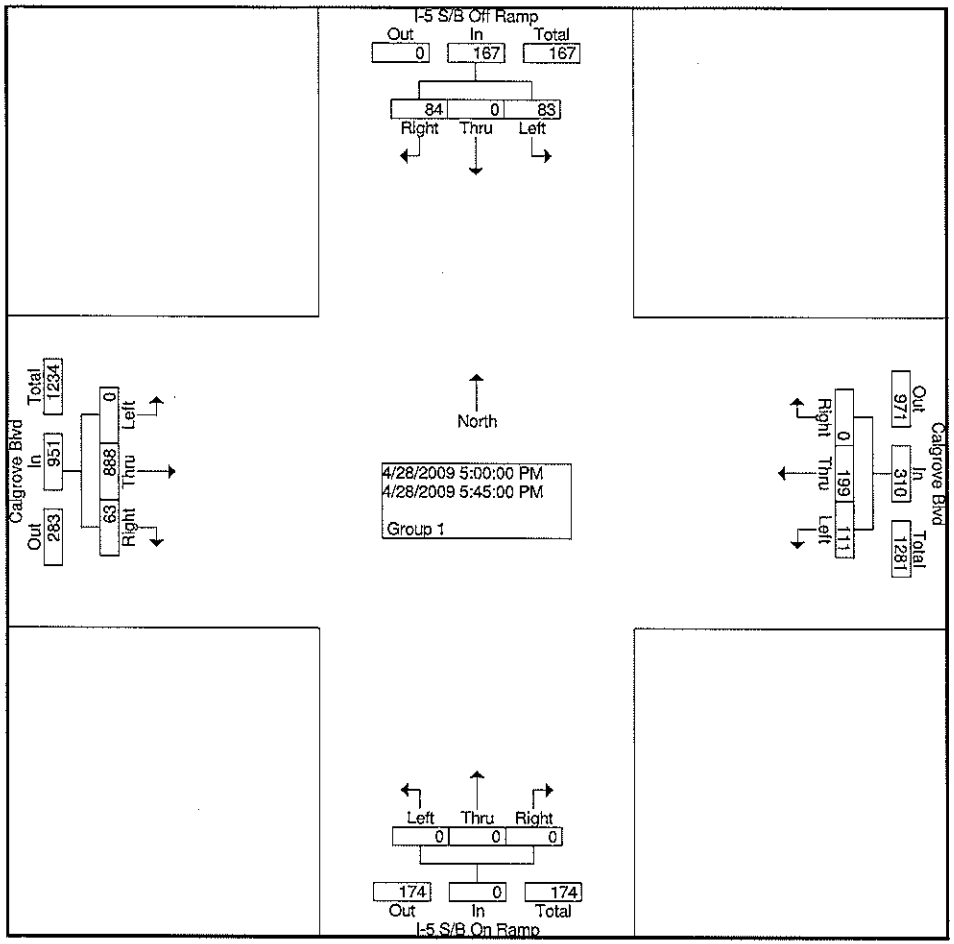
	I-5 S/B Off Ramp Southbound					Calgrove Blvd Westbound					I-5 S/B On Ramp Northbound					Calgrove Blvd Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
16:00	16	0	15	0	31	21	16	0	0	37	0	0	0	0	0	0	146	21	0	167	0	235	235
16:15	16	0	13	0	29	22	19	0	0	41	0	0	0	0	0	0	151	20	0	171	0	241	241
16:30	18	0	12	2	30	29	53	0	0	82	0	0	0	0	0	0	200	18	0	218	2	330	332
16:45	16	0	17	0	33	49	62	0	0	111	0	0	0	0	0	0	176	19	0	195	0	339	339
Total	66	0	57	2	123	121	150	0	0	271	0	0	0	0	0	0	673	78	0	751	2	1145	1147
17:00	15	0	27	0	42	17	58	0	0	75	0	0	0	0	0	0	159	18	0	177	0	294	294
17:15	18	0	28	0	46	24	50	0	0	74	0	0	0	0	0	0	267	15	0	282	0	402	402
17:30	18	0	14	0	32	32	48	0	0	80	0	0	0	0	0	0	250	18	0	268	0	380	380
17:45	32	0	15	1	47	38	43	0	0	81	0	0	0	0	0	0	212	12	0	224	1	352	353
Total	83	0	84	1	167	111	199	0	0	310	0	0	0	0	0	0	888	63	0	951	1	1428	1429
Grand Total	149	0	141	3	290	232	349	0	0	581	0	0	0	0	0	0	1561	141	0	1702	3	2573	2576
Apprch %	51.4	0.0	48.6			39.9	60.1	0.0			0.0	0.0	0.0			0.0	91.7	8.3					
Total %	5.8	0.0	5.5		11.3	9.0	13.6	0.0		22.6	0.0	0.0	0.0		0.0	0.0	60.7	5.5		66.1	0.1	99.9	

	I-5 S/B Off Ramp Southbound				Calgrove Blvd Westbound				I-5 S/B On Ramp Northbound				Calgrove Blvd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 16:00 to 17:45 - Peak 1 of 1																	
Intersection	17:00																
Volume	83	0	84	167	111	199	0	310	0	0	0	0	0	888	63	951	1428
Percent	49.7	0.0	50.3		35.8	64.2	0.0		0.0	0.0	0.0		0.0	93.4	6.6		
17:15 Volume	18	0	28	46	24	50	0	74	0	0	0	0	0	267	15	282	402
Peak Factor																	0.888
High Int.	17:45				17:45				3:45:00 PM				17:15				
Volume	32	0	15	47	38	43	0	81	0	0	0	0	0	267	15	282	
Peak Factor				0.888				0.957								0.843	

TDSSW, Inc.
PO Box 1544
Lakeside, CA 92040
(619) 390-8495 Fax (866) 768-1818

Weather: Clear & Dry
Counted by: M. Parish
Board No: D1-2278
Loc: I-5 S/B Ramps & Calgrove Blvd

File Name : 09128041
Site Code : 00128041
Start Date : 4/28/2009
Page No : 2



TDSSW, Inc.
PO Box 1544
Lakeside, CA 92040
(619) 390-8495 Fax (866) 768-1818

Weather: Clear & Dry
Counted by: C Hust
Board No: D1-2278
Loc: I-5 N/B Ramps & Calgrove Blvd

File Name : 09128031
Site Code : 00128031
Start Date : 4/28/2009
Page No : 1

Groups Printed- Group 1

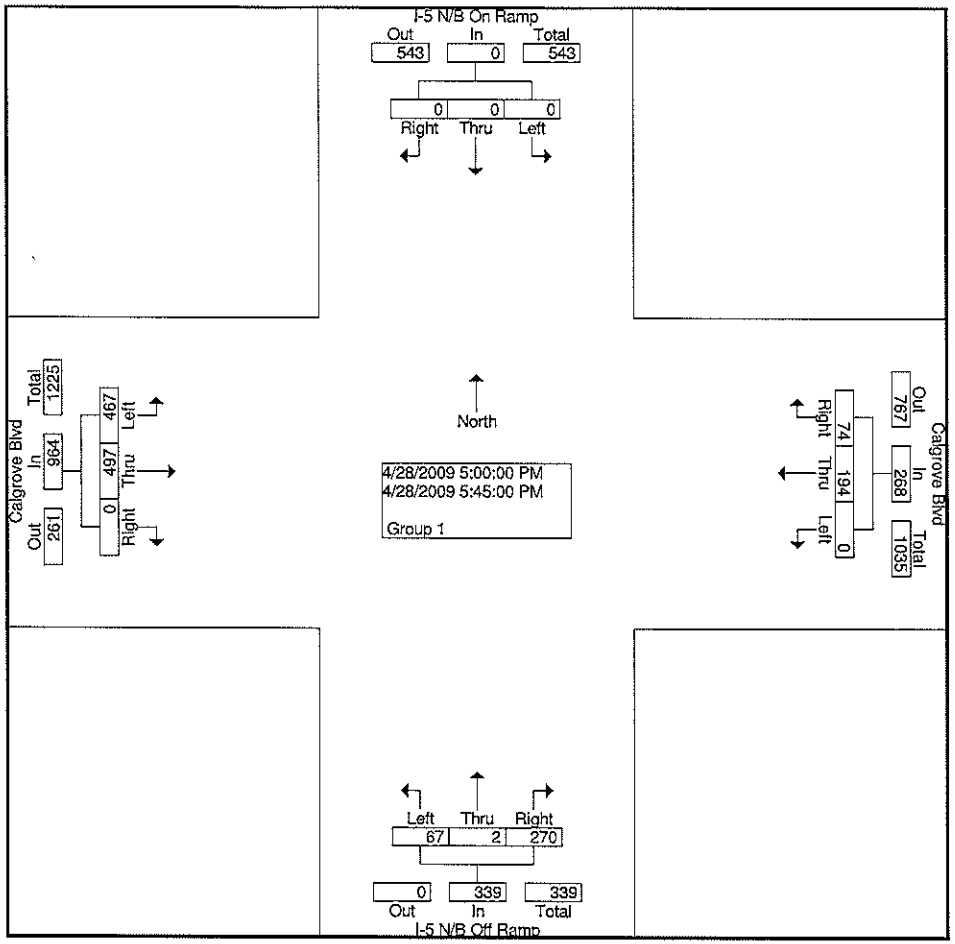
	I-5 N/B On Ramp Southbound					Calgrove Blvd Westbound					I-5 N/B Off Ramp Northbound					Calgrove Blvd Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0				
16:00	0	0	0	0	0	0	53	27	1	80	11	0	45	0	56	62	73	0	0	135	1	271	272
16:15	0	0	0	0	0	1	55	25	0	81	21	1	57	0	79	73	88	0	0	161	0	321	321
16:30	0	0	0	0	0	0	59	20	0	79	14	0	65	0	79	114	107	0	0	221	0	379	379
16:45	0	0	0	0	0	0	71	9	0	80	22	2	60	0	84	100	108	0	0	208	0	372	372
Total	0	0	0	0	0	1	238	81	1	320	68	3	227	0	298	349	376	0	0	725	1	1343	1344
17:00	0	0	0	0	0	0	49	15	0	64	12	0	60	0	72	95	104	0	0	199	0	335	335
17:15	0	0	0	0	0	0	47	20	0	67	10	0	75	0	85	126	122	0	0	248	0	400	400
17:30	0	0	0	0	0	0	48	19	0	67	25	1	64	0	90	118	127	0	0	245	0	402	402
17:45	0	0	0	0	0	0	50	20	0	70	20	1	71	0	92	128	144	0	0	272	0	434	434
Total	0	0	0	0	0	0	194	74	0	268	67	2	270	0	339	467	497	0	0	964	0	1571	1571
Grand Total	0	0	0	0	0	1	432	155	1	588	135	5	497	0	637	816	873	0	0	1689	1	2914	2915
Apprch %	0.0	0.0	0.0			0.2	73.5	26.4			21.2	0.8	78.0			48.3	51.7	0.0					
Total %	0.0	0.0	0.0		0.0	0.0	14.8	5.3		20.2	4.6	0.2	17.1		21.9	28.0	30.0	0.0		58.0	0.0	100.0	

	I-5 N/B On Ramp Southbound				Calgrove Blvd Westbound				I-5 N/B Off Ramp Northbound				Calgrove Blvd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 16:00 to 17:45 - Peak 1 of 1																	
Intersection	17:00																
Volume	0	0	0	0	0	194	74	268	67	2	270	339	467	497	0	964	1571
Percent	0.0	0.0	0.0		0.0	72.4	27.6		19.8	0.6	79.6		48.4	51.6	0.0		
17:45 Volume	0	0	0	0	0	50	20	70	20	1	71	92	128	144	0	272	434
Peak Factor																	0.905
High Int.	3:45:00 PM				17:45				17:45				17:45				
Volume	0	0	0	0	0	50	20	70	20	1	71	92	128	144	0	272	
Peak Factor								0.957				0.921				0.886	

TDSSW, Inc.
PO Box 1544
Lakeside, CA 92040
(619) 390-8495 Fax (866) 768-1818

Weather: Clear & Dry
Counted by: C Hust
Board No: D1-2278
Loc: I-5 N/B Ramps & Calgrove Blvd

File Name : 09128031
Site Code : 00128031
Start Date : 4/28/2009
Page No : 2



TDSSW, Inc.
PO Box 1544
Lakeside, CA 92040
(619) 390-8495 Fax (866) 768-1818

Weather: Clear & Dry
Counted by: S. Tillman
Board No: D1-2278
Loc: Wiley Cyn Rd & Lyons Avenue

File Name : 09128021
Site Code : 00128021
Start Date : 4/29/2009
Page No : 1

Groups Printed- Group 1

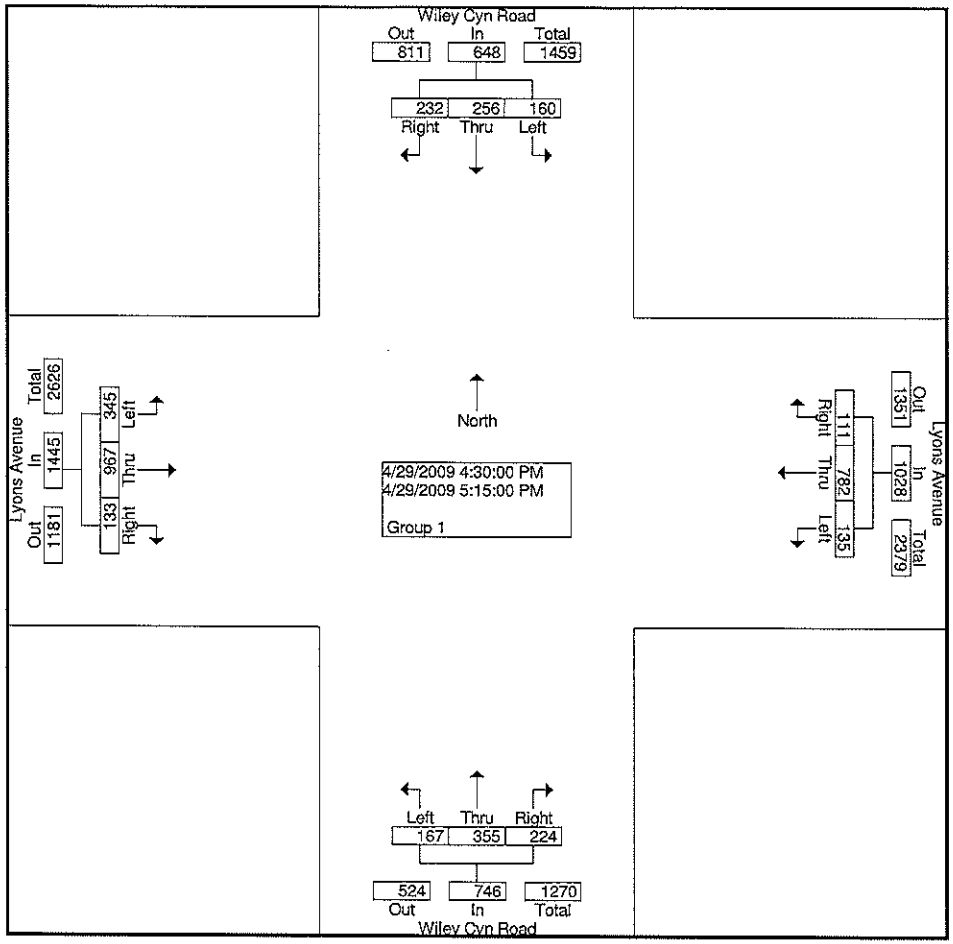
	Wiley Cyn Road Southbound					Lyons Avenue Westbound					Wiley Cyn Road Northbound					Lyons Avenue Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
16:00	44	56	59	1	159	33	145	24	4	202	40	88	49	4	177	75	219	31	5	325	14	863	877
16:15	28	56	49	2	133	39	192	37	9	268	40	73	58	14	171	80	255	26	0	361	25	933	958
16:30	44	64	53	1	161	36	152	27	4	215	38	95	66	6	199	69	226	29	3	324	14	899	913
16:45	48	64	60	2	172	35	210	29	2	274	46	71	60	6	177	92	291	40	0	423	10	1046	1056
Total	164	240	221	6	625	143	699	117	19	959	164	327	233	30	724	316	991	126	8	1433	63	3741	3804
17:00	37	75	54	0	166	34	191	28	1	253	32	102	46	3	180	102	215	25	0	342	4	941	945
17:15	31	53	65	4	149	30	229	27	2	286	51	87	52	2	190	82	235	39	0	356	8	981	989
17:30	34	46	66	0	146	40	170	27	1	237	40	78	50	3	168	110	206	28	0	344	4	895	899
17:45	44	57	68	2	169	41	207	23	4	271	53	98	42	12	193	76	270	37	4	383	22	1016	1038
Total	146	231	253	6	630	145	797	105	8	1047	176	365	190	20	731	370	926	129	4	1425	38	3833	3871
Grand Total	310	471	474	12	1255	288	1496	222	27	2006	340	692	423	50	1455	686	1917	255	12	2858	101	7574	7675
Apprch %	24.7	37.5	37.8			14.4	74.6	11.1			23.4	47.6	29.1			24.0	67.1	8.9					
Total %	4.1	6.2	6.3		16.6	3.8	19.8	2.9		26.5	4.5	9.1	5.6		19.2	9.1	25.3	3.4		37.7	1.3	98.7	

	Wiley Cyn Road Southbound				Lyons Avenue Westbound				Wiley Cyn Road Northbound				Lyons Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 16:00 to 17:45 - Peak 1 of 1																	
Intersection	16:30																
Volume	160	256	232	648	135	782	111	1028	167	355	224	746	345	967	133	1445	3867
Percent	24.7	39.5	35.8		13.1	76.1	10.8		22.4	47.6	30.0		23.9	66.9	9.2		
16:45 Volume	48	64	60	172	35	210	29	274	46	71	60	177	92	291	40	423	1046
Peak Factor																	0.924
High Int.	16:45				17:15				16:30				16:45				
Volume	48	64	60	172	30	229	27	286	38	95	66	199	92	291	40	423	
Peak Factor				0.942				0.899				0.937				0.854	

TDSSW, Inc.
PO Box 1544
Lakeside, CA 92040
(619) 390-8495 Fax (866) 768-1818

Weather: Clear & Dry
Counted by: S. Tillman
Board No: D1-2278
Loc: Wiley Cyn Rd & Lyons Avenue

File Name : 09128021
Site Code : 00128021
Start Date : 4/29/2009
Page No : 2



TDSSW, Inc.
PO Box 1544
Lakeside, CA 92040
(619) 390-8495 Fax (866) 768-1818

Weather: Clear & Dry
Counted by: C. Parish
Board No: D1-1429
Loc: Wiley Cyn Rd & Calgrove Blvd

File Name : 09128011
Site Code : 00128011
Start Date : 4/29/2009
Page No : 1

Groups Printed- Group 1

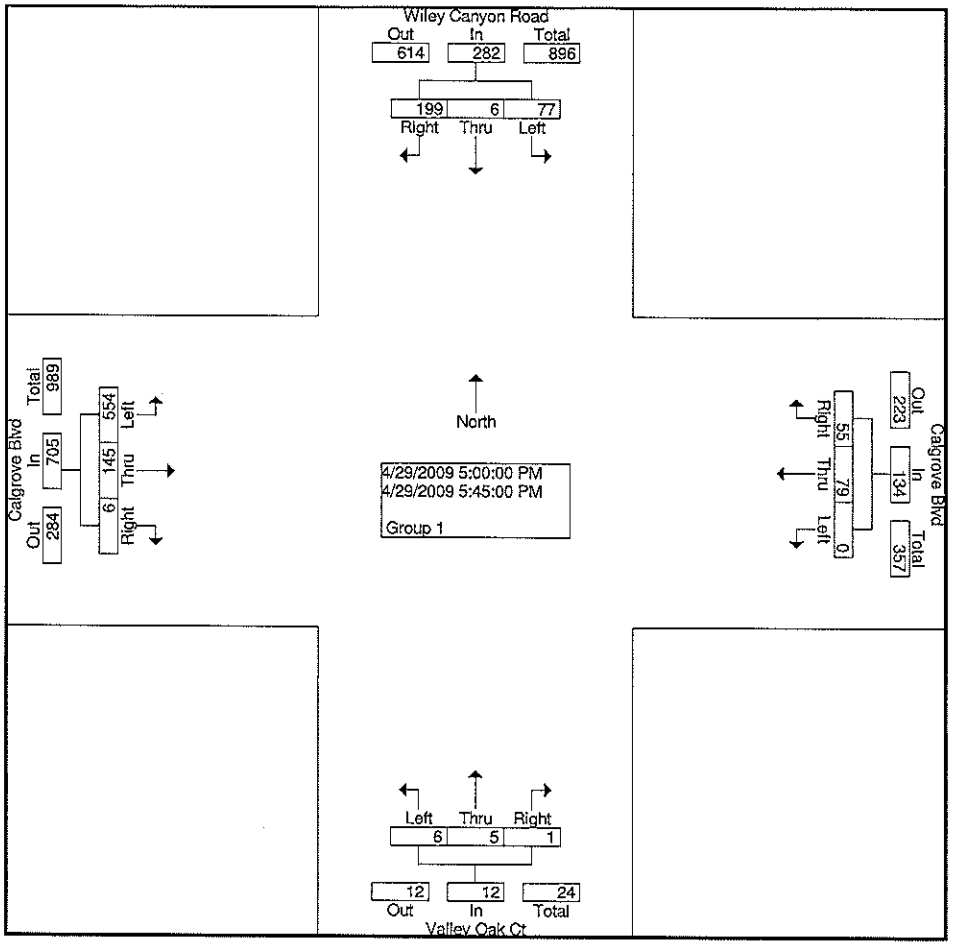
	Wiley Canyon Road Southbound					Calgrove Blvd Westbound					Valley Oak Ct Northbound					Calgrove Blvd Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0				
16:00	21	1	53	0	75	0	20	16	0	36	1	1	0	0	2	106	27	0	0	133	0	246	246
16:15	12	1	65	0	78	0	24	24	0	48	1	0	0	0	1	130	29	2	0	161	0	288	288
16:30	16	1	52	0	69	1	12	14	0	27	0	0	0	0	0	131	35	0	0	166	0	262	262
16:45	24	1	41	0	66	0	21	14	0	35	0	1	0	0	1	137	26	2	0	165	0	267	267
Total	73	4	211	0	288	1	77	68	0	146	2	2	0	0	4	504	117	4	0	625	0	1063	1063
17:00	17	1	44	0	62	0	17	12	0	29	1	2	0	0	3	123	34	0	0	157	0	251	251
17:15	16	2	62	0	80	0	19	13	0	32	1	2	0	0	3	128	35	3	0	166	0	281	281
17:30	24	0	45	0	69	0	21	18	0	39	3	1	0	0	4	135	34	3	0	172	0	284	284
17:45	20	3	48	0	71	0	22	12	3	34	1	0	1	0	2	168	42	0	0	210	3	317	320
Total	77	6	199	0	282	0	79	55	3	134	6	5	1	0	12	554	145	6	0	705	3	1133	1136
Grand Total	150	10	410	0	570	1	156	123	3	280	8	7	1	0	16	1058	262	10	0	1330	3	2196	2199
Apprch %	26.3	1.8	71.9			0.4	55.7	43.9			50.0	43.8	6.3			79.5	19.7	0.8					
Total %	6.8	0.5	18.7		26.0	0.0	7.1	5.6		12.8	0.4	0.3	0.0		0.7	48.2	11.9	0.5		60.6	0.1	99.9	

	Wiley Canyon Road Southbound				Calgrove Blvd Westbound				Valley Oak Ct Northbound				Calgrove Blvd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 16:00 to 17:45 - Peak 1 of 1																	
Intersection	17:00																
Volume	77	6	199	282	0	79	55	134	6	5	1	12	554	145	6	705	1133
Percent	27.3	2.1	70.6		0.0	59.0	41.0		50.0	41.7	8.3		78.6	20.6	0.9		
17:45 Volume	20	3	48	71	0	22	12	34	1	0	1	2	168	42	0	210	317
Peak Factor																	0.894
High Int.	17:15				17:30				17:30				17:45				
Volume	16	2	62	80	0	21	18	39	3	1	0	4	168	42	0	210	
Peak Factor				0.881				0.859				0.750				0.839	

TDSSW, Inc.
PO Box 1544
Lakeside, CA 92040
(619) 390-8495 Fax (866) 768-1818

Weather: Clear & Dry
Counted by: C. Parish
Board No: D1-1429
Loc: Wiley Cyn Rd & Calgrove Blvd

File Name : 09128011
Site Code : 00128011
Start Date : 4/29/2009
Page No : 2



TDSSW, Inc.
PO Box 1544
Lakeside, CA 92040
(619) 390-8495 Fax (866) 768-1818

Weather : Clear & Dry
Counted By: C. Hust
Board #: D1-1431
Loc: Tampa Ave & Sasnon Blvd

File Name : 09128051
Site Code : 00128051
Start Date : 5/5/2009
Page No : 1

Groups Printed- Group 1

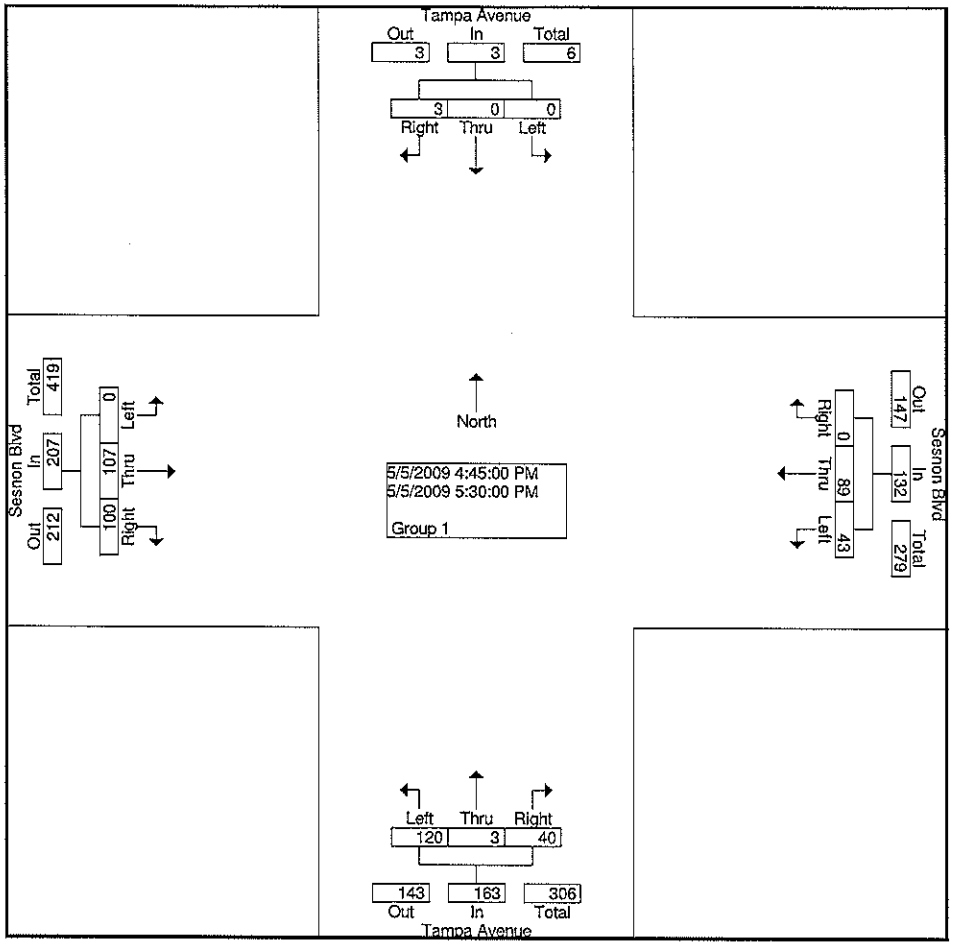
	Tampa Avenue Southbound					Sesnon Blvd Westbound					Tampa Avenue Northbound					Sesnon Blvd Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0				
16:00	0	0	1	0	1	12	23	0	0	35	21	1	14	1	36	0	16	26	0	42	1	114	115
16:15	0	0	0	0	0	4	19	0	0	23	22	0	15	1	37	0	21	14	0	35	1	95	96
16:30	0	0	0	0	0	12	24	0	0	36	36	0	11	1	47	0	21	12	0	33	1	116	117
16:45	0	0	1	0	1	14	20	0	0	34	22	3	12	1	37	0	28	27	0	55	1	127	128
Total	0	0	2	0	2	42	86	0	0	128	101	4	52	4	157	0	86	79	0	165	4	452	456
17:00	0	0	1	0	1	11	20	0	0	31	32	0	8	0	40	0	33	27	2	60	2	132	134
17:15	0	0	0	0	0	10	27	0	0	37	39	0	8	0	47	0	22	23	1	45	1	129	130
17:30	0	0	1	0	1	8	22	0	0	30	27	0	12	0	39	0	24	23	0	47	0	117	117
17:45	0	0	0	1	0	9	22	0	0	31	31	0	12	1	43	0	33	18	1	51	3	125	128
Total	0	0	2	1	2	38	91	0	0	129	129	0	40	1	169	0	112	91	4	203	6	503	509
Grand Total	0	0	4	1	4	80	177	0	0	257	230	4	92	5	326	0	198	170	4	368	10	955	965
Apprch %	0.0	0.0	100.0			31.1	68.9	0.0			70.6	1.2	28.2			0.0	53.8	46.2					
Total %	0.0	0.0	0.4		0.4	8.4	18.5	0.0		26.9	24.1	0.4	9.6		34.1	0.0	20.7	17.8		38.5	1.0	99.0	

	Tampa Avenue Southbound				Sesnon Blvd Westbound				Tampa Avenue Northbound				Sesnon Blvd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 16:00 to 17:45 - Peak 1 of 1																	
Intersection	16:45																
Volume	0	0	3	3	43	89	0	132	120	3	40	163	0	107	100	207	505
Percent	0.0	0.0	100.0		32.6	67.4	0.0		73.6	1.8	24.5		0.0	51.7	48.3		
17:00 Volume	0	0	1	1	11	20	0	31	32	0	8	40	0	33	27	60	132
Peak Factor																	0.956
High Int.	16:45				17:15				17:15				17:00				
Volume	0	0	1	1	10	27	0	37	39	0	8	47	0	33	27	60	
Peak Factor				0.750				0.892				0.867				0.863	

TDSSW, Inc.
PO Box 1544
Lakeside, CA 92040
(619) 390-8495 Fax (866) 768-1818

Weather : Clear & Dry
Counted By: C. Hust
Board #: D1-1431
Loc: Tampa Ave & Sasnon Blvd

File Name : 09128051
Site Code : 00128051
Start Date : 5/5/2009
Page No : 2



APPENDIX B

EXISTING CONDITIONS
LEVEL OF SERVICE WORKSHEETS

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #100 I-5 SB (NS)/ CALGROVE BLVD. (EW)

Average Delay (sec/veh): 8.3 Worst Case Level Of Service: C[17.8]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 1 0 0 1			0 0 0 1 0			1 0 1 0 0		
Volume Module:												
Base Vol:	0	0	0	39	1	303	0	107	68	480	257	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	39	1	303	0	107	68	480	257	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	0	0	0	41	1	315	0	111	71	499	267	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	41	1	315	0	111	71	499	267	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1412	1447	267	xxxx	xxxx	xxxxx	182	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	154	133	776	xxxx	xxxx	xxxxx	1405	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	111	86	776	xxxx	xxxx	xxxxx	1405	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.36	0.01	0.41	xxxx	xxxx	xxxx	0.36	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	2.0	xxxx	xxxx	xxxxx	1.6	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	12.8	xxxxx	xxxx	xxxxx	9.0	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	B	*	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	111	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	1.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	56.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	F	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			17.8			xxxxxx			xxxxxx		
ApproachLOS:	*			C			*			*		

Note: Queue reported is the number of cars per lane.

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #200 I-5 NB (NS)/ CALGROVE BLVD. (EW)

Average Delay (sec/veh): 2.3 Worst Case Level Of Service: B[14.2]

Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	1	0	0	1	0	0	0	0	0	1	0	1	0	0	0	0	1	0	1
Volume Module:																				
Base Vol:	52	2	81			0	0	0			61	98	0			0	658	121		
Growth Adj:	1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00		
Initial Bse:	52	2	81			0	0	0			61	98	0			0	658	121		
User Adj:	1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00		
PHF Adj:	0.98	0.98	0.98			0.98	0.98	0.98			0.98	0.98	0.98			0.98	0.98	0.98		
PHF Volume:	53	2	83			0	0	0			62	100	0			0	672	124		
Reduct Vol:	0	0	0			0	0	0			0	0	0			0	0	0		
FinalVolume:	53	2	83			0	0	0			62	100	0			0	672	124		
Critical Gap Module:																				
Critical Gp:	6.4	6.5	6.2	xxxxx	xxxx	xxxxx					4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx				
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx	xxxxx					2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx				
Capacity Module:																				
Cnflict Vol:	959	1020	100	xxxx	xxxx	xxxxx					796	xxxx	xxxxx	xxxx	xxxx	xxxxx				
Potent Cap.:	288	238	961	xxxx	xxxx	xxxxx					835	xxxx	xxxxx	xxxx	xxxx	xxxxx				
Move Cap.:	271	221	961	xxxx	xxxx	xxxxx					835	xxxx	xxxxx	xxxx	xxxx	xxxxx				
Volume/Cap:	0.20	0.01	0.09	xxxx	xxxx	xxxx					0.07	xxxx	xxxx	xxxx	xxxx	xxxx				
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	0.3	xxxx	xxxx	xxxxx					0.2	xxxx	xxxxx	xxxx	xxxx	xxxxx				
Control Del:	xxxxx	xxxx	9.1	xxxxx	xxxx	xxxxx					9.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx				
LOS by Move:	*	*	A	*	*	*					A	*	*	*	*	*				
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	269	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
SharedQueue:	0.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shrd ConDel:	21.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shared LOS:	C	*		*	*		*	*		*	*									
ApproachDel:	14.2			xxxxxx			xxxxxx			xxxxxx										
ApproachLOS:	B			*			*			*										

Note: Queue reported is the number of cars per lane.

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing Conditions
AM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #300 WILEY CANYON RD. (NS)/ LYONS AVENUE (EW)

Cycle (sec):	100	Critical Vol./Cap.(X):	0.727
Loss Time (sec):	10	Average Delay (sec/veh):	xxxxx
Optimal Cycle:	54	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2 0	1	1 0	2 0	1	2 0	2 0	1	1 0	2 1	0
Volume Module:												
Base Vol:	183	184	147	124	378	380	121	617	104	163	831	139
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	183	184	147	124	378	380	121	617	104	163	831	139
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
PHF Volume:	206	207	166	140	426	428	136	696	117	184	937	157
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	206	207	166	140	426	428	136	696	117	184	937	157
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	206	207	166	140	426	428	136	696	117	184	937	157
OvlAdjVol:						360						
Saturation Flow Module:												
Sat/Lane:	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	2.00	2.00	1.00	1.00	2.57	0.43
Final Sat.:	1750	3500	1750	1750	3500	1750	3500	3500	1750	1750	4498	752
Capacity Analysis Module:												
Vol/Sat:	0.12	0.06	0.09	0.08	0.12	0.24	0.04	0.20	0.07	0.11	0.21	0.21
OvlAdjV/S:						0.21						
Crit Moves:	****					****		****		****		

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #400 WILEY CANYON RD. (NS)/ CALGROVE BLVD. (EW)

Average Delay (sec/veh): 3.6 Worst Case Level Of Service: B[14.4]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Ignore			Include			Include		
Lanes:	0 0	1! 0	0	0 1	0 0	1	1 0	1 0	1	1 0	1 0	1
Volume Module:												
Base Vol:	11	7	1	34	1	633	117	41	9	4	182	87
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	11	7	1	34	1	633	117	41	9	4	182	87
User Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.91	0.91	0.91	0.91	0.91	0.00	0.91	0.91	0.91	0.91	0.91	0.91
PHF Volume:	12	8	1	37	1	0	129	45	10	4	200	96
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	12	8	1	37	1	0	129	45	10	4	200	96
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	560	607	45	521	521	200	296	xxxx	xxxxx	55	xxxx	xxxxx
Potent Cap.:	442	413	1030	469	462	846	1277	xxxx	xxxxx	1563	xxxx	xxxxx
Move Cap.:	406	371	1030	425	415	846	1277	xxxx	xxxxx	1563	xxxx	xxxxx
Volume/Cap:	0.03	0.02	0.00	0.09	0.00	0.00	0.10	xxxx	xxxx	0.00	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.3	xxxx	xxxxx	0.0	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.1	xxxx	xxxxx	7.3	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	405	xxxxx	425	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.2	xxxxx	0.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	14.4	xxxxx	14.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	B	*	B	*	*	*	*	*	*	*	*
ApproachDel:		14.4			14.3			xxxxxx			xxxxxx	
ApproachLOS:		B			B			*			*	

Note: Queue reported is the number of cars per lane.

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #500 Tampa Ave. (NS)/ Sesnon Boulevard (EW)

Cycle (sec):	100	Critical Vol./Cap.(X):	0.538
Loss Time (sec):	0	Average Delay (sec/veh):	13.0
Optimal Cycle:	0	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 1	0 1	0	0 1	0 1	0	0 1	0 1	0	0 1	0 1	0
Volume Module:												
Base Vol:	128	1	33	0	0	0	0	249	201	79	140	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	128	1	33	0	0	0	0	249	201	79	140	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	128	1	33	0	0	0	0	249	201	79	140	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
PHF Volume:	190	1	49	0	0	0	0	371	299	118	208	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	190	1	49	0	0	0	0	371	299	118	208	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	190	1	49	0	0	0	0	371	299	118	208	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.59	0.41	0.00	2.00	0.00	0.00	1.11	0.89	0.72	1.28	0.00
Final Sat.:	478	314	216	0	910	0	0	689	616	391	725	0
Capacity Analysis Module:												
Vol/Sat:	0.40	0.00	0.23	xxxx	0.00	xxxx	xxxx	0.54	0.49	0.30	0.29	xxxx
Crit Moves:	****				****			****		****		
Delay/Veh:	14.3	9.7	9.7	0.0	0.0	0.0	0.0	14.6	12.4	11.8	11.2	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	14.3	9.7	9.7	0.0	0.0	0.0	0.0	14.6	12.4	11.8	11.2	0.0
LOS by Move:	B	A	A	*	*	*	*	B	B	B	B	*
ApproachDel:		13.3			xxxxxx			13.6			11.4	
Delay Adj:		1.00			xxxxx			1.00			1.00	
ApprAdjDel:		13.3			xxxxxx			13.6			11.4	
LOS by Appr:		B			*			B			B	
AllWayAvgQ:	0.6	0.1	0.1	0.0	0.0	0.0	1.1	0.9	0.9	0.4	0.4	0.4

Note: Queue reported is the number of cars per lane.

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

****

Intersection #100 I-5 SB (NS)/ CALGROVE BLVD. (EW)

****

Average Delay (sec/veh): 7.9 Worst Case Level Of Service: F[59.9]

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 1 0 0 1			0 0 0 1 0			1 0 1 0 0		
Volume Module:												
Base Vol:	0	0	0	83	0	84	0	888	63	111	199	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	83	0	84	0	888	63	111	199	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
PHF Volume:	0	0	0	93	0	95	0	1000	71	125	224	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	93	0	95	0	1000	71	125	224	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1510	1545	224	xxxx	xxxx	xxxxx	1071	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	134	116	820	xxxx	xxxx	xxxxx	659	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	114	94	820	xxxx	xxxx	xxxxx	659	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.82	0.00	0.12	xxxx	xxxx	xxxx	0.19	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	0.4	xxxx	xxxx	xxxxx	0.7	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	10.0	xxxxx	xxxx	xxxxx	11.7	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	A	*	*	*	B	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	114	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	4.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	110.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	F	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			59.9			xxxxxx			xxxxxx		
ApproachLOS:	*			F			*			*		

****

Note: Queue reported is the number of cars per lane.

****

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #200 I-5 NB (NS)/ CALGROVE BLVD. (EW)

Average Delay (sec/veh): 21.7 Worst Case Level Of Service: F[87.2]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 1	0 0	1	0 0	0 0	0	1 0	1 0	0	0 0	1 0	1
Volume Module:												
Base Vol:	67	2	270	0	0	0	467	497	0	0	194	74
Growth Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
Initial Bse:	67	2	270	0	0	0	467	497	0	0	194	74
User Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
PHF Adj:	0.91 0.91	0.91		0.91 0.91	0.91		0.91 0.91	0.91		0.91 0.91	0.91	
PHF Volume:	74	2	298	0	0	0	516	549	0	0	214	82
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	74	2	298	0	0	0	516	549	0	0	214	82
Critical Gap Module:												
Critical Gp:	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1836	1877	549	xxxx	xxxx	xxxxx	296	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	84	72	539	xxxx	xxxx	xxxxx	1277	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	58	43	539	xxxx	xxxx	xxxxx	1277	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	1.28	0.05	0.55	xxxx	xxxx	xxxx	0.40	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	3.3	xxxx	xxxx	xxxxx	2.0	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	19.6	xxxxx	xxxx	xxxxx	9.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	C	*	*	*	A	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	57	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	6.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	351.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	F	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	87.2			xxxxxx			xxxxxx			xxxxxx		
ApproachLOS:	F			*			*			*		

Note: Queue reported is the number of cars per lane.

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing Conditions
PM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #300 WILEY CANYON RD. (NS)/ LYONS AVENUE (EW)

Cycle (sec):	100	Critical Vol./Cap.(X):	0.720
Loss Time (sec):	10	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	53	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2 0	1	1 0	2 0	1	2 0	2 0	1	1 0	2 1	0
Volume Module:												
Base Vol:	167	355	224	160	256	232	345	967	133	135	782	111
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	167	355	224	160	256	232	345	967	133	135	782	111
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	167	355	224	160	256	232	345	967	133	135	782	111
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	181	384	242	173	277	251	373	1047	144	146	846	120
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	181	384	242	173	277	251	373	1047	144	146	846	120
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	181	384	242	173	277	251	373	1047	144	146	846	120
OvlAdjVol:						64						
Saturation Flow Module:												
Sat/Lane:	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	2.00	2.00	1.00	1.00	2.63	0.37
Final Sat.:	1750	3500	1750	1750	3500	1750	3500	3500	1750	1750	4597	653
Capacity Analysis Module:												
Vol/Sat:	0.10	0.11	0.14	0.10	0.08	0.14	0.11	0.30	0.08	0.08	0.18	0.18
OvlAdjV/S:						0.04						
Crit Moves:			****	****				****		****		

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #400 WILEY CANYON RD. (NS)/ CALGROVE BLVD. (EW)

Average Delay (sec/veh): 40.1 Worst Case Level Of Service: F[378.4]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Ignore			Include			Include		
Lanes:	0 0	1! 0	0	0 1	0 0	1	1 0	1 0	1	1 0	1 0	1
Volume Module:												
Base Vol:	6	5	1	77	6	199	554	145	6	0	79	55
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	6	5	1	77	6	199	554	145	6	0	79	55
User Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.00	0.89	0.89	0.89	0.89	0.89	0.89
PHF Volume:	7	6	1	86	7	0	620	162	7	0	88	62
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	7	6	1	86	7	0	620	162	7	0	88	62
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1524	1551	162	1497	1497	88	150	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	98	115	888	102	124	975	1444	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	61	65	888	64	71	975	1444	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	0.11	0.09	0.00	1.35	0.09	0.00	0.43	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	68	xxxxx	64	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.7	xxxxx	8.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	70.6	xxxxx	378.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	F	*	F	*	*	*	*	*	*	*	*
ApproachDel:		70.6			378.4			xxxxxx			xxxxxx	
ApproachLOS:		F			F			*			*	

Note: Queue reported is the number of cars per lane.

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #500 Tampa Ave. (NS)/ Sesnon Boulevard (EW)

Cycle (sec):	100	Critical Vol./Cap.(X):	0.212
Loss Time (sec):	0	Average Delay (sec/veh):	8.8
Optimal Cycle:	0	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 1	0 1	0	0 1	0 1	0	0 1	0 1	0	0 1	0 1	0
Volume Module:												
Base Vol:	120	3	40	0	0	3	0	107	100	43	89	0
Growth Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
Initial Bse:	120	3	40	0	0	3	0	107	100	43	89	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	120	3	40	0	0	3	0	107	100	43	89	0
User Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
PHF Adj:	0.96 0.96	0.96		0.96 0.96	0.96		0.96 0.96	0.96		0.96 0.96	0.96	
PHF Volume:	126	3	42	0	0	3	0	112	105	45	93	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	126	3	42	0	0	3	0	112	105	45	93	0
PCE Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
MLF Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
FinalVolume:	126	3	42	0	0	3	0	112	105	45	93	0
Saturation Flow Module:												
Adjustment:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
Lanes:	1.00 0.51	0.49		0.00 1.00	1.00		0.00 1.03	0.97		0.65 1.35	0.00	
Final Sat.:	593	350	337	0	612	694	0	711	759	415	897	0
Capacity Analysis Module:												
Vol/Sat:	0.21 0.01	0.12		xxxx 0.00	0.00		xxxx 0.16	0.14		0.11 0.10	xxxx	
Crit Moves:	****				****			****			****	
Delay/Veh:	10.0 8.0	8.0		0.0 0.0	7.6		0.0 8.7	7.8		8.8 8.5	0.0	
Delay Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
AdjDel/Veh:	10.0 8.0	8.0		0.0 0.0	7.6		0.0 8.7	7.8		8.8 8.5	0.0	
LOS by Move:	B	A	A	* *	A		* A	A		A A	*	
ApproachDel:	9.5			7.6			8.3			8.6		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	9.5			7.6			8.3			8.6		
LOS by Appr:	A			A			A			A		
AllWayAvgQ:	0.2 0.1	0.1		0.0 0.0	0.0		0.2 0.1	0.1		0.1 0.1	0.1	

Note: Queue reported is the number of cars per lane.

APPENDIX C

TRAFFIC SIGNAL WARRANTS

PEAK HOUR VOLUME WARRANT
(Rural Areas)

EXISTING CONDITIONS (AM Peak Hour)

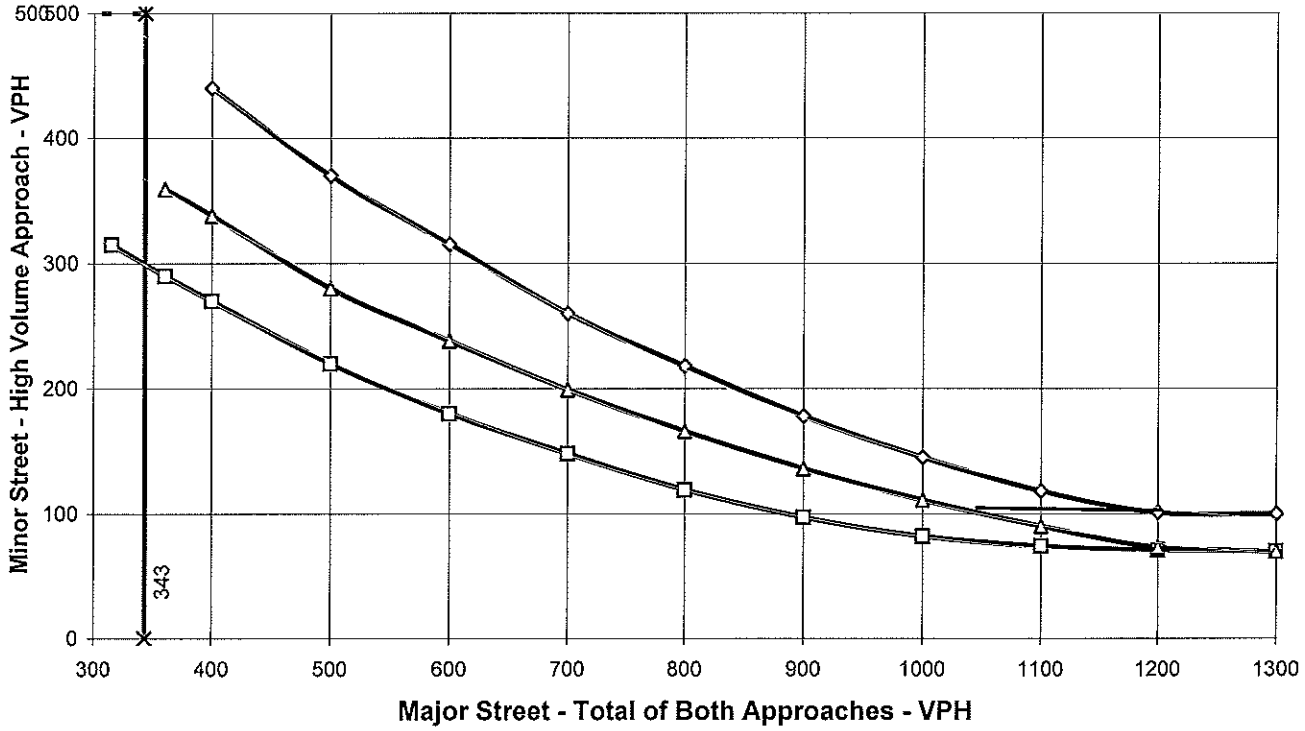
Major Street Name = **Calgrove**

Total of Both Approaches (VPH) = **343**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **I-5 SB Ramps**

High Volume Approach (VPH) = **912**
Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



** NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

PEAK HOUR VOLUME WARRANT
(Rural Areas)

EXISTING CONDITIONS (PM Peak Hour)

Major Street Name = **Calgrove**

Total of Both Approaches (VPH) = **167**

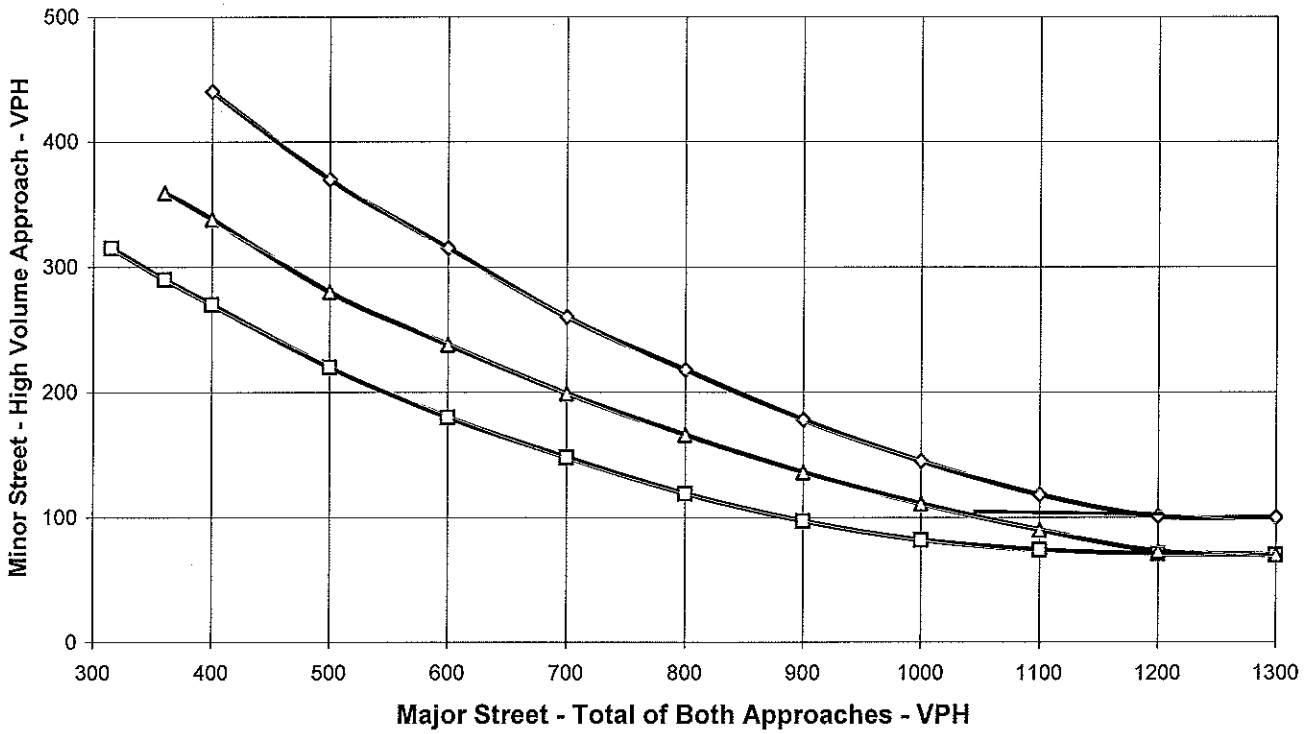
Number of Approach Lanes Major Street = **1**

Minor Street Name = **I-5 SB Ramps**

High Volume Approach (VPH) = **1261**

Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



** NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

PEAK HOUR VOLUME WARRANT
(Rural Areas)

EXISTING CONDITIONS (AM Peak Hour)

Major Street Name = **Calgrove**

Total of Both Approaches (VPH) = **135**

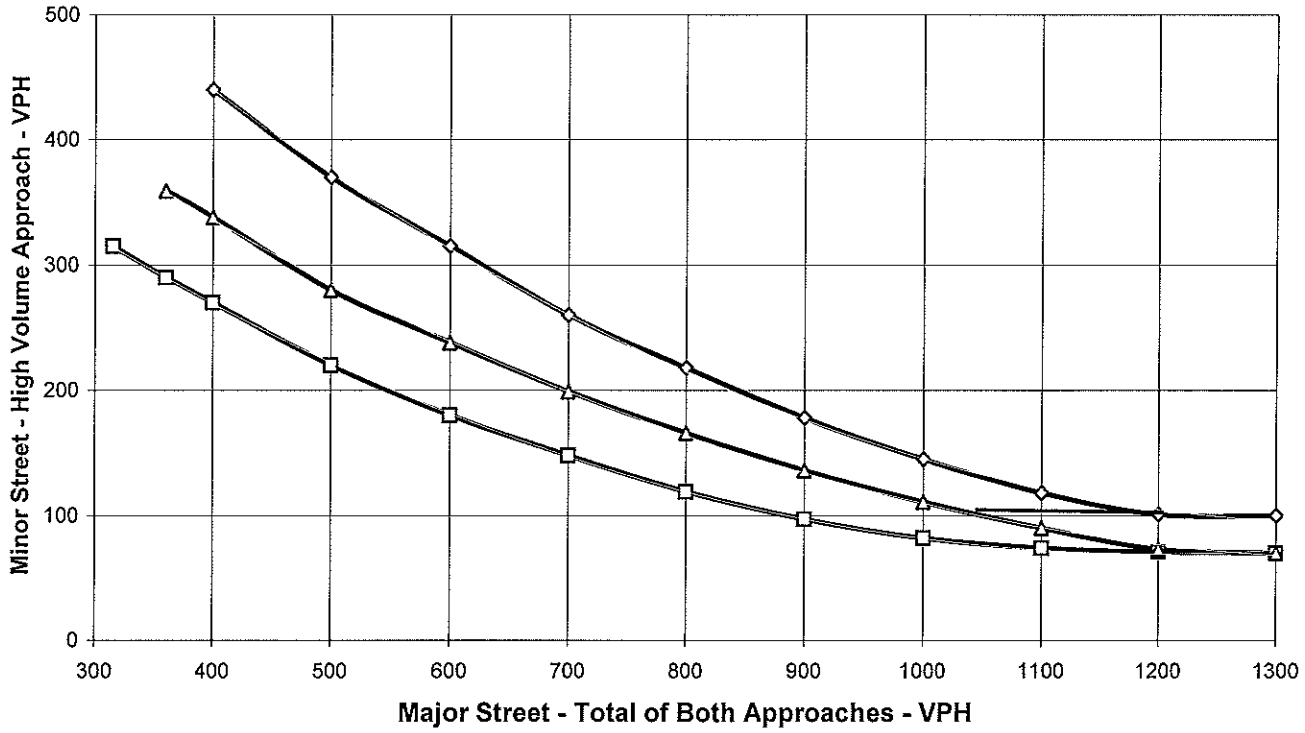
Number of Approach Lanes Major Street = **1**

Minor Street Name = **I-5 NB Ramps**

High Volume Approach (VPH) = **938**

Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



** NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

PEAK HOUR VOLUME WARRANT
(Rural Areas)

EXISTING CONDITIONS (PM Peak Hour)

Major Street Name = **Calgrove**

Total of Both Approaches (VPH) = **339**

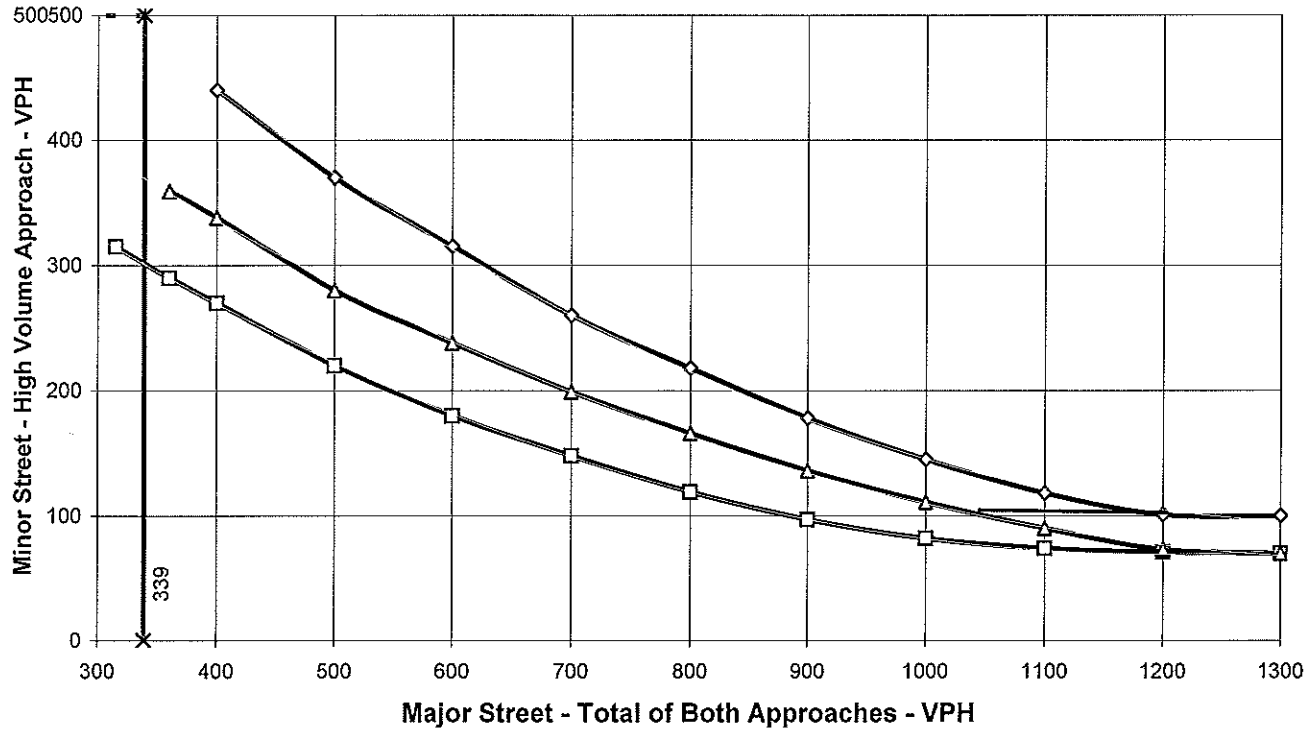
Number of Approach Lanes Major Street = **1**

Minor Street Name = **I-5 NB Ramps**

High Volume Approach (VPH) = **1232**

Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



** NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

PEAK HOUR VOLUME WARRANT
(Rural Areas)

EXISTING CONDITIONS (AM Peak Hour)

Major Street Name = **Calgrove**

Total of Both Approaches (VPH) = **440**

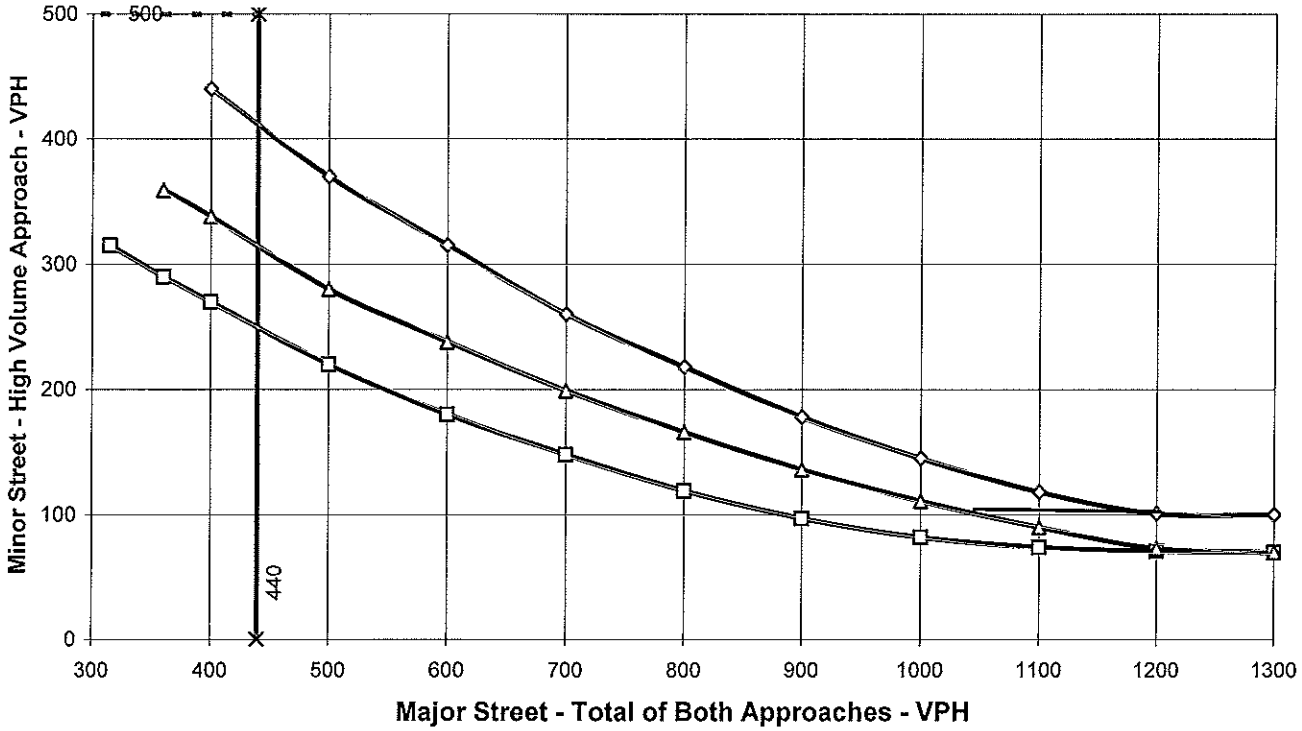
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Wiley**

High Volume Approach (VPH) = **668**

Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



** NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

PEAK HOUR VOLUME WARRANT
(Rural Areas)

EXISTING CONDITIONS (PM Peak Hour)

Major Street Name = **Calgrove**

Total of Both Approaches (VPH) = **839**

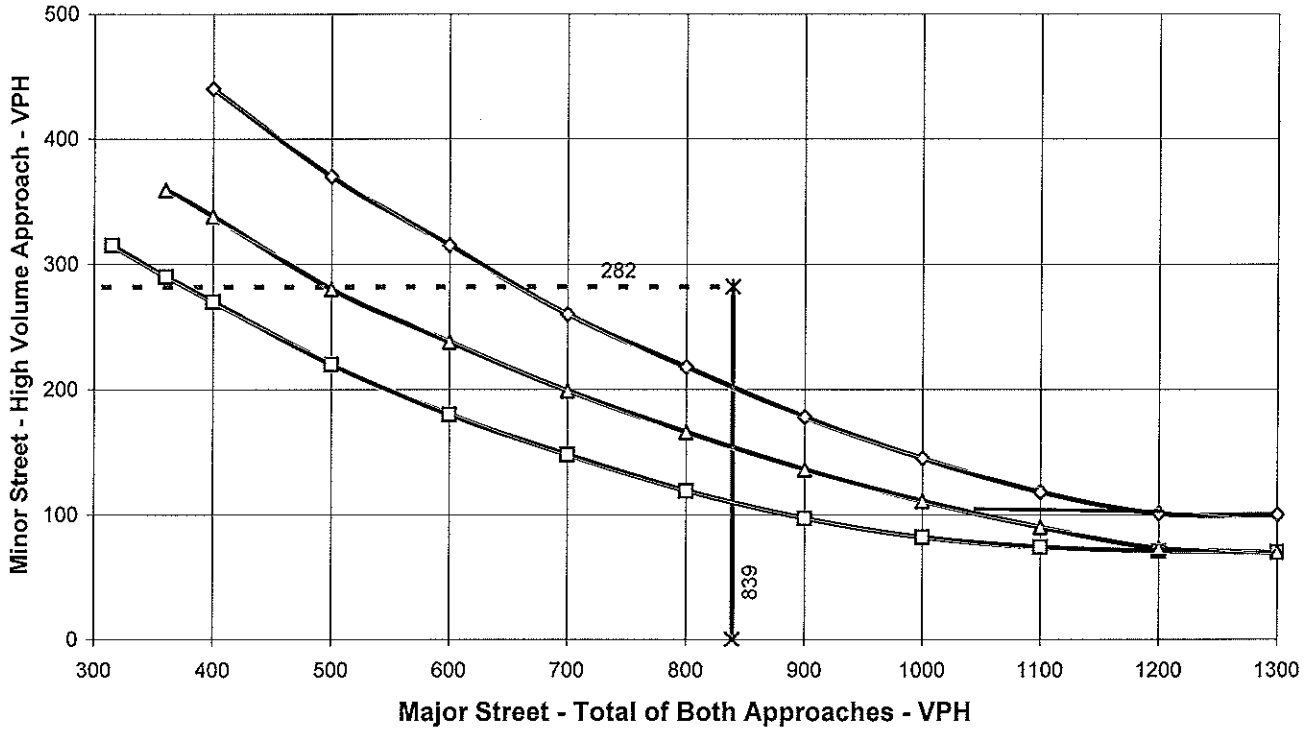
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Wiley**

High Volume Approach (VPH) = **282**

Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



** NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

PEAK HOUR VOLUME WARRANT
(Rural Areas)

EXISTING CONDITIONS (AM Peak Hour)

Major Street Name = **Sesnon**

Total of Both Approaches (VPH) = **669**

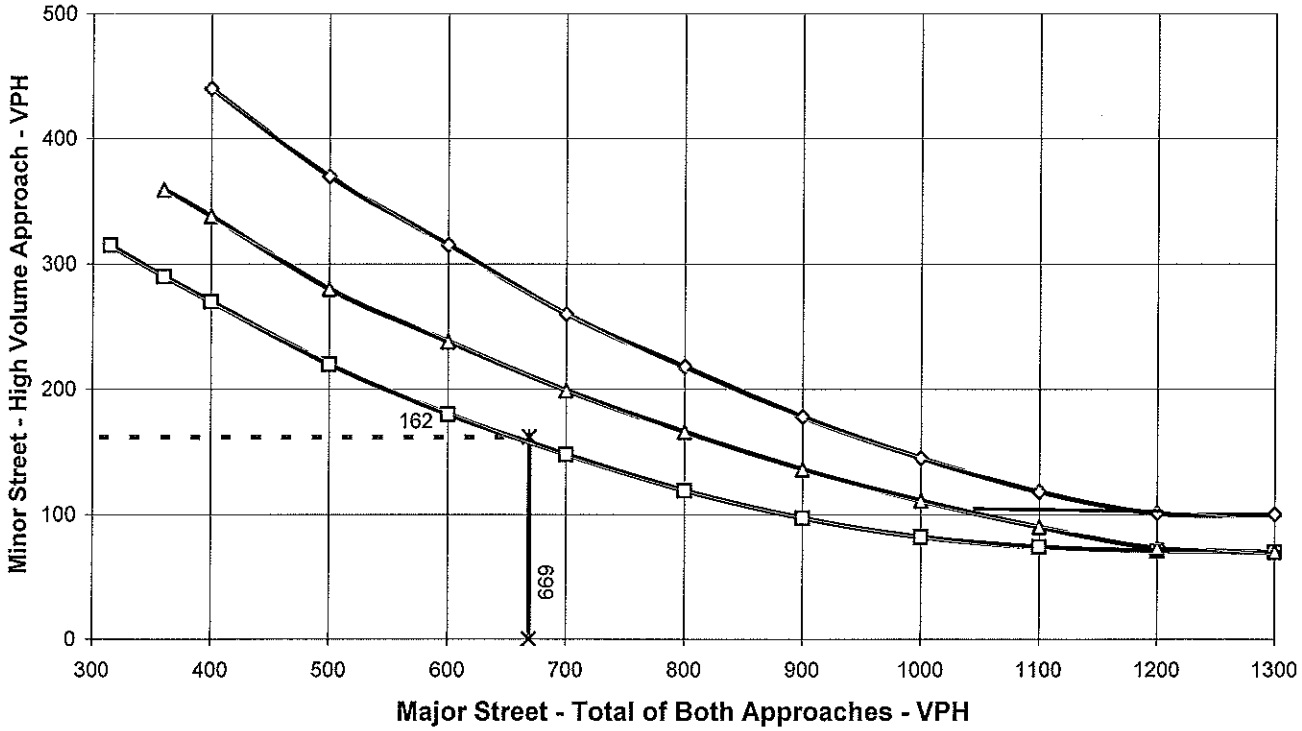
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Tampa**

High Volume Approach (VPH) = **162**

Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



1 Lane (Major) & 1 Lane (Minor)

2+ Lanes (Major) & 1 Lane (Minor) OR 1 Lane (Major) & 2+ Lanes (Minor)

2+ Lanes (Major) & 2+ Lanes (Minor)

Major Street Approaches

Minor Street Approaches

** NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

PEAK HOUR VOLUME WARRANT
(Rural Areas)

EXISTING CONDITIONS (PM Peak Hour)

Major Street Name = **Sesnon**

Total of Both Approaches (VPH) = **339**

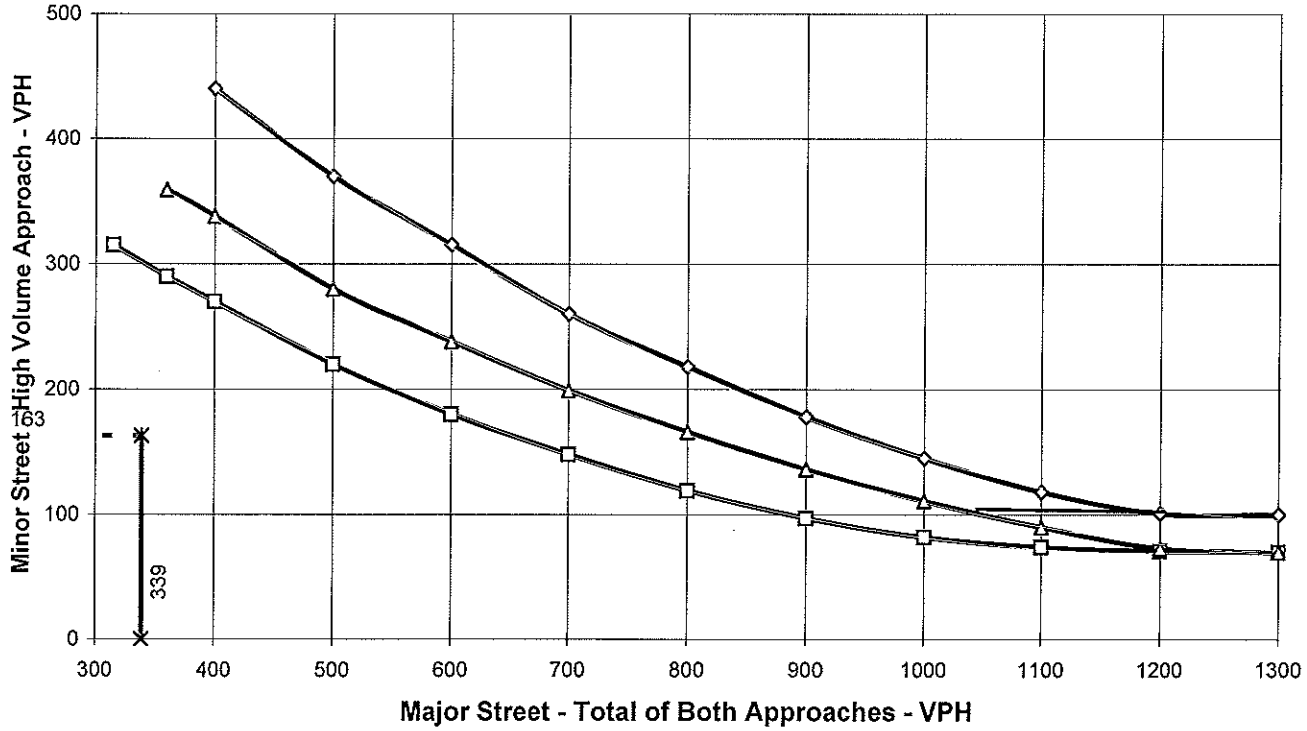
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Tampa**

High Volume Approach (VPH) = **163**

Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED

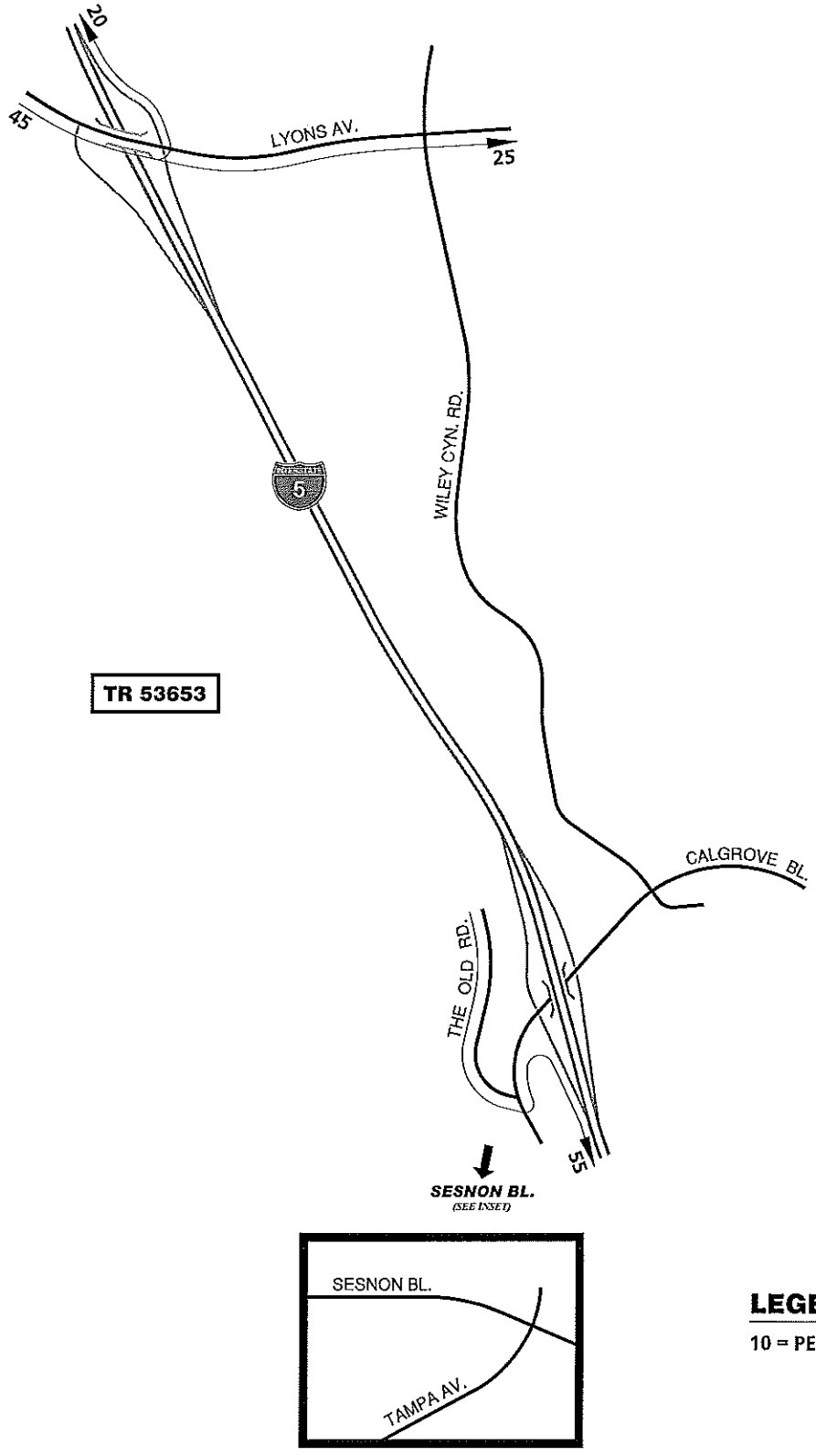


** NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

APPENDIX D

CUMULATIVE TRAFFIC

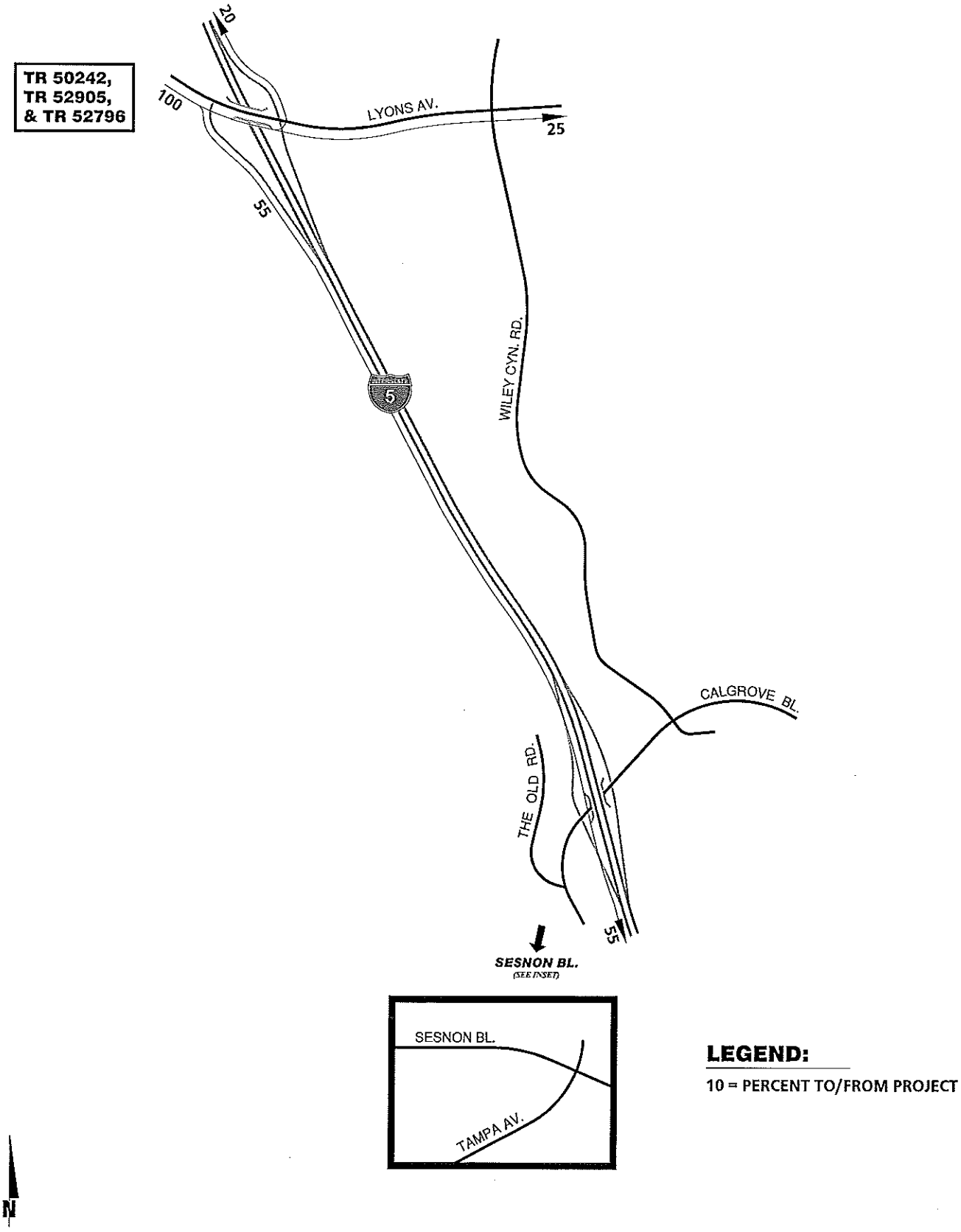
TR 53653
TRIP DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

TR 50242, TR 52905, AND TR 52796
TRIP DISTRIBUTION



APPENDIX E

EXISTING PLUS AMBIENT PLUS CUMULATIVE
LEVEL OF SERVICE WORKSHEETS

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing + Ambient + Cumulative Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #100 I-5 SB (NS)/ CALGROVE BLVD. (EW)

Average Delay (sec/veh): 8.6 Worst Case Level Of Service: C[20.3]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 1 0 0 1			0 0 0 1 0			1 0 1 0 0		
Volume Module:												
Base Vol:	0	0	0	39	1	303	0	107	68	480	257	0
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	0	0	0	40	1	312	0	110	70	494	265	0
Added Vol:	0	0	0	0	0	0	0	0	57	0	19	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	40	1	312	0	110	127	494	284	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	0	0	0	42	1	324	0	115	132	514	295	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	42	1	324	0	115	132	514	295	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1503	1569	295	xxxx	xxxx	xxxxx	247	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	135	112	749	xxxx	xxxx	xxxxx	1331	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	95	69	749	xxxx	xxxx	xxxxx	1331	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.44	0.02	0.43	xxxx	xxxx	xxxx	0.39	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	2.2	xxxx	xxxx	xxxxx	1.9	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	13.4	xxxxx	xxxx	xxxxx	9.4	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	B	*	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	94	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	1.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	72.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	F	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			20.3			xxxxxx			xxxxxx		
ApproachLOS:	*			C			*			*		

Note: Queue reported is the number of cars per lane.

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing + Ambient + Cumulative Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #200 I-5 NB (NS)/ CALGROVE BLVD. (EW)

Average Delay (sec/veh): 2.9 Worst Case Level Of Service: C[16.5]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 1	0	0 1	0 0	0	0 0	1 0	1	0 0	0 0	1	0 1
Volume Module:												
Base Vol:	52	2	81	0	0	0	61	98	0	0	658	121
Growth Adj:	1.03 1.03	1.03		1.03 1.03	1.03	1.03	1.03 1.03	1.03		1.03 1.03	1.03	
Initial Bse:	54	2	83	0	0	0	63	101	0	0	678	125
Added Vol:	19	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	73	2	83	0	0	0	63	101	0	0	678	125
User Adj:	1.00 1.00	1.00		1.00 1.00	1.00	1.00	1.00 1.00	1.00		1.00 1.00	1.00	
PHF Adj:	0.98 0.98	0.98		0.98 0.98	0.98	0.98	0.98 0.98	0.98		0.98 0.98	0.98	
PHF Volume:	74	2	85	0	0	0	64	103	0	0	692	127
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	74	2	85	0	0	0	64	103	0	0	692	127
Critical Gap Module:												
Critical Gp:	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	987	1051	103	xxxx	xxxx	xxxxx	820	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	277	229	957	xxxx	xxxx	xxxxx	818	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	260	211	957	xxxx	xxxx	xxxxx	818	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	0.29	0.01	0.09	xxxx	xxxx	xxxx	0.08	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	0.3	xxxx	xxxx	xxxxx	0.3	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	9.1	xxxxx	xxxx	xxxxx	9.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	A	*	*	*	A	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	258	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	1.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	24.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	C	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	16.5			xxxxxx			xxxxxx			xxxxxx		
ApproachLOS:	C			*			*			*		

Note: Queue reported is the number of cars per lane.

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing + Ambient + Cumulative Project Conditions
AM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #300 WILEY CANYON RD. (NS)/ LYONS AVENUE (EW)

Cycle (sec):	100	Critical Vol./Cap.(X):	0.761
Loss Time (sec):	10 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	59	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	2 0	1	1 0	2 0	1	2 0	2 0	1	1 0	2 1	0
Volume Module:												
Base Vol:	183	184	147	124	378	380	121	617	104	163	831	139
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	188	190	151	128	389	391	125	636	107	168	856	143
Added Vol:	0	0	0	0	0	0	0	47	0	0	16	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	188	190	151	128	389	391	125	683	107	168	872	143
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
PHF Volume:	213	214	171	144	439	441	141	769	121	189	983	161
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	213	214	171	144	439	441	141	769	121	189	983	161
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	213	214	171	144	439	441	141	769	121	189	983	161
OvlAdjVol:						371						
Saturation Flow Module:												
Sat/Lane:	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	2.00	2.00	1.00	1.00	2.58	0.42
Final Sat.:	1750	3500	1750	1750	3500	1750	3500	3500	1750	1750	4510	740
Capacity Analysis Module:												
Vol/Sat:	0.12	0.06	0.10	0.08	0.13	0.25	0.04	0.22	0.07	0.11	0.22	0.22
OvlAdjV/S:						0.21						
Crit Moves:	****					****		****		****		

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing + Ambient + Cumulative Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #400 WILEY CANYON RD. (NS)/ CALGROVE BLVD. (EW)

Average Delay (sec/veh): 3.6 Worst Case Level Of Service: B[14.7]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Ignore			Include			Include		
Lanes:	0 0 1!	0	0	0 1	0	0 1	1 0	1	0 1	1 0	1	0 1
Volume Module:												
Base Vol:	11	7	1	34	1	633	117	41	9	4	182	87
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	11	7	1	35	1	652	121	42	9	4	187	90
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	11	7	1	35	1	652	121	42	9	4	187	90
User Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.91	0.91	0.91	0.91	0.91	0.00	0.91	0.91	0.91	0.91	0.91	0.91
PHF Volume:	12	8	1	39	1	0	133	46	10	5	206	99
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	12	8	1	39	1	0	133	46	10	5	206	99
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	577	625	46	537	537	206	305	xxxx	xxxxx	57	xxxx	xxxxx
Potent Cap.:	431	404	1029	458	453	839	1267	xxxx	xxxxx	1561	xxxx	xxxxx
Move Cap.:	395	360	1029	413	405	839	1267	xxxx	xxxxx	1561	xxxx	xxxxx
Volume/Cap:	0.03	0.02	0.00	0.09	0.00	0.00	0.10	xxxx	xxxx	0.00	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.3	xxxx	xxxxx	0.0	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.2	xxxx	xxxxx	7.3	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	394	xxxxx	413	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.2	xxxxx	0.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	14.7	xxxxx	14.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	B	*	B	*	*	*	*	*	*	*	*
ApproachDel:		14.7			14.6			xxxxxx			xxxxxx	
ApproachLOS:		B			B			*			*	

Note: Queue reported is the number of cars per lane.

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing + Ambient + Cumulative Project Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

****

Intersection #500 Tampa Ave. (NS)/ Sesnon Boulevard (EW)

****

Cycle (sec): 100 Critical Vol./Cap.(X): 0.559
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 13.4
Optimal Cycle: 0 Level Of Service: B

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 1	0 1	0	0 1	0 1	0	0 1	0 1	0	0 1	0 1	0
Volume Module:												
Base Vol:	128	1	33	0	0	0	0	249	201	79	140	0
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	132	1	34	0	0	0	0	256	207	81	144	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	132	1	34	0	0	0	0	256	207	81	144	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
PHF Volume:	196	2	51	0	0	0	0	382	308	121	215	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	196	2	51	0	0	0	0	382	308	121	215	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	196	2	51	0	0	0	0	382	308	121	215	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.59	0.41	0.00	2.00	0.00	0.00	1.11	0.89	0.72	1.28	0.00
Final Sat.:	475	312	214	0	899	0	0	683	610	388	717	0
Capacity Analysis Module:												
Vol/Sat:	0.41	0.00	0.24	xxxx	0.00	xxxx	xxxx	0.56	0.51	0.31	0.30	xxxx
Crit Moves:	****				****			****		****		
Delay/Veh:	14.6	9.8	9.8	0.0	0.0	0.0	0.0	15.3	12.9	12.0	11.5	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	14.6	9.8	9.8	0.0	0.0	0.0	0.0	15.3	12.9	12.0	11.5	0.0
LOS by Move:	B	A	A	*	*	*	*	C	B	B	B	*
ApproachDel:		13.6			xxxxxx			14.2			11.7	
Delay Adj:		1.00			xxxxx			1.00			1.00	
ApprAdjDel:		13.6			xxxxxx			14.2			11.7	
LOS by Appr:		B			*			B			B	
AllWayAvgQ:	0.6	0.1	0.1	0.0	0.0	0.0	1.2	0.9	0.9	0.4	0.4	0.4

****

Note: Queue reported is the number of cars per lane.

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing + Ambient + Cumulative Project Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #100 I-5 SB (NS)/ CALGROVE BLVD. (EW)

Average Delay (sec/veh): 11.8 Worst Case Level Of Service: F[99.4]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 1 0 0 1			0 0 0 1 0			1 0 1 0 0		
Volume Module:												
Base Vol:	0	0	0	83	0	84	0	888	63	111	199	0
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	0	0	0	85	0	87	0	915	65	114	205	0
Added Vol:	0	0	0	0	0	0	0	0	38	0	65	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	85	0	87	0	915	103	114	270	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
PHF Volume:	0	0	0	96	0	97	0	1030	116	129	304	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	96	0	97	0	1030	116	129	304	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1649	1707	304	xxxx	xxxx	xxxxx	1146	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	110	92	740	xxxx	xxxx	xxxxx	617	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	92	73	740	xxxx	xxxx	xxxxx	617	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	1.04	0.00	0.13	xxxx	xxxx	xxxx	0.21	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	0.5	xxxx	xxxx	xxxxx	0.8	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	10.6	xxxxx	xxxx	xxxxx	12.4	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	B	*	*	*	B	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	92	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	6.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	189.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	F	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			99.4			xxxxxx			xxxxxx		
ApproachLOS:	*			F			*			*		

Note: Queue reported is the number of cars per lane.

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing + Ambient + Cumulative Project Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #200 I-5 NB (NS)/ CALGROVE BLVD. (EW)

Average Delay (sec/veh): 88.5 Worst Case Level Of Service: F[348.4]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 1	0 0	1	0 0	0 0	0	1 0	1 0	0	0 0	1 0	1
Volume Module:												
Base Vol:	67	2	270	0	0	0	467	497	0	0	194	74
Growth Adj:	1.03 1.03	1.03		1.03 1.03	1.03		1.03 1.03	1.03		1.03 1.03	1.03	
Initial Bse:	69	2	278	0	0	0	481	512	0	0	200	76
Added Vol:	65	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	134	2	278	0	0	0	481	512	0	0	200	76
User Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
PHF Adj:	0.91 0.91	0.91		0.91 0.91	0.91		0.91 0.91	0.91		0.91 0.91	0.91	
PHF Volume:	148	2	307	0	0	0	532	566	0	0	221	84
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	148	2	307	0	0	0	532	566	0	0	221	84
Critical Gap Module:												
Critical Gp:	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1892	1934	566	xxxx	xxxx	xxxxx	305	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	78	67	528	xxxx	xxxx	xxxxx	1267	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	52	39	528	xxxx	xxxx	xxxxx	1267	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	2.83	0.06	0.58	xxxx	xxxx	xxxx	0.42	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	3.7	xxxx	xxxx	xxxxx	2.1	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	20.9	xxxxx	xxxx	xxxxx	9.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	C	*	*	*	A	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	52	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	15.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	1018	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	F	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	348.4			xxxxxx			xxxxxx			xxxxxx		
ApproachLOS:	F			*			*			*		

Note: Queue reported is the number of cars per lane.

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing + Ambient + Cumulative Project Conditions
PM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #300 WILEY CANYON RD. (NS)/ LYONS AVENUE (EW)

Cycle (sec):	100	Critical Vol./Cap.(X):	0.748
Loss Time (sec):	10 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	57	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	2 0	1	1 0	2 0	1	2 0	2 0	1	1 0	2 1	0
Volume Module:												
Base Vol:	167	355	224	160	256	232	345	967	133	135	782	111
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	172	366	231	165	264	239	355	996	137	139	805	114
Added Vol:	0	0	0	0	0	0	0	31	0	0	53	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	172	366	231	165	264	239	355	1027	137	139	858	114
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	186	396	250	178	285	259	385	1111	148	150	929	124
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	186	396	250	178	285	259	385	1111	148	150	929	124
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	186	396	250	178	285	259	385	1111	148	150	929	124
OvlAdjVol:						66						
Saturation Flow Module:												
Sat/Lane:	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	2.00	2.00	1.00	1.00	2.65	0.35
Final Sat.:	1750	3500	1750	1750	3500	1750	3500	3500	1750	1750	4633	617
Capacity Analysis Module:												
Vol/Sat:	0.11	0.11	0.14	0.10	0.08	0.15	0.11	0.32	0.08	0.09	0.20	0.20
OvlAdjV/S:						0.04						
Crit Moves:			****	****				****		****		

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing + Ambient + Cumulative Project Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #400 WILEY CANYON RD. (NS)/ CALGROVE BLVD. (EW)

Average Delay (sec/veh): 48.5 Worst Case Level Of Service: F[470.5]

Approach:	North Bound			South Bound			East Bound				West Bound			
Movement:	L	T	R	L	T	R	L	T	R		L	T	R	
Control:	Stop Sign			Stop Sign			Uncontrolled				Uncontrolled			
Rights:	Include			Ignore			Include				Include			
Lanes:	0 0 1!	0	0	0 1	0	0 1	1 0	1	0	1	1 0	1	0	1
Volume Module:														
Base Vol:	6	5	1	77	6	199	554	145	6		0	79	55	
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03		1.03	1.03	1.03	
Initial Bse:	6	5	1	79	6	205	571	149	6		0	81	57	
Added Vol:	0	0	0	0	0	0	0	0	0		0	0	0	
PasserByVol:	0	0	0	0	0	0	0	0	0		0	0	0	
Initial Fut:	6	5	1	79	6	205	571	149	6		0	81	57	
User Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00		1.00	1.00	1.00	
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.00	0.89	0.89	0.89		0.89	0.89	0.89	
PHF Volume:	7	6	1	89	7	0	638	167	7		0	91	63	
Reduct Vol:	0	0	0	0	0	0	0	0	0		0	0	0	
FinalVolume:	7	6	1	89	7	0	638	167	7		0	91	63	
Critical Gap Module:														
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx		
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx		
Capacity Module:														
Cnflict Vol:	1570	1598	167	1542	1542	91	154	xxxx	xxxxx	xxxx	xxxx	xxxxx		
Potent Cap.:	91	107	882	95	116	972	1438	xxxx	xxxxx	xxxx	xxxx	xxxxx		
Move Cap.:	55	60	882	58	65	972	1438	xxxx	xxxxx	xxxx	xxxx	xxxxx		
Volume/Cap:	0.13	0.10	0.00	1.54	0.11	0.00	0.44	xxxx	xxxx	xxxx	xxxx	xxxx		
Level Of Service Module:														
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	2.3	xxxx	xxxxx	xxxx	xxxx	xxxxx		
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx		
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*		
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT		LT -	LTR -	RT	
Shared Cap.:	xxxx	62	xxxxx	58	xxxx	xxxxx	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx	0.8	xxxxx	8.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx	79.4	xxxxx	470.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	*	F	*	F	*	*	*	*	*		*	*	*	
ApproachDel:		79.4			470.5			xxxxxx				xxxxxx		
ApproachLOS:		F			F			*				*		

Note: Queue reported is the number of cars per lane.

Traffix 7.9.0415 (c) 2007 Dowling Assoc. Licensed to URBAN CROSSROADS, IRVINE

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing + Ambient + Cumulative Project Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #500 Tampa Ave. (NS)/ Sesnon Boulevard (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.219
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 8.8
Optimal Cycle: 0 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 1	0 1	0	0 1	0 1	0	0 1	0 1	0	0 1	0 1	0
Volume Module:												
Base Vol:	120	3	40	0	0	3	0	107	100	43	89	0
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	124	3	41	0	0	3	0	110	103	44	92	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	124	3	41	0	0	3	0	110	103	44	92	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	129	3	43	0	0	3	0	115	108	46	96	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	129	3	43	0	0	3	0	115	108	46	96	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	129	3	43	0	0	3	0	115	108	46	96	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.51	0.49	0.00	1.00	1.00	0.00	1.03	0.97	0.65	1.35	0.00
Final Sat.:	591	348	335	0	607	689	0	709	756	413	893	0
Capacity Analysis Module:												
Vol/Sat:	0.22	0.01	0.13	xxxx	0.00	0.00	xxxx	0.16	0.14	0.11	0.11	xxxx
Crit Moves:	****					****		****		****		
Delay/Veh:	10.1	8.1	8.1	0.0	0.0	7.6	0.0	8.8	7.9	8.9	8.6	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	10.1	8.1	8.1	0.0	0.0	7.6	0.0	8.8	7.9	8.9	8.6	0.0
LOS by Move:	B	A	A	*	*	A	*	A	A	A	A	*
ApproachDel:		9.6			7.6			8.3			8.7	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		9.6			7.6			8.3			8.7	
LOS by Appr:		A			A			A			A	
AllWayAvgQ:	0.3	0.1	0.1	0.0	0.0	0.0	0.2	0.2	0.2	0.1	0.1	0.1

Note: Queue reported is the number of cars per lane.

APPENDIX F

EXISTING PLUS AMBIENT PLUS CUMULATIVE PLUS PROJECT
LEVEL OF SERVICE WORKSHEETS

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing + Ambient + Project + Other Development Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #100 I-5 SB (NS)/ CALGROVE BLVD. (EW)

Average Delay (sec/veh): 8.6 Worst Case Level Of Service: C[20.3]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 1 0 0 1			0 0 0 1 0			1 0 1 0 0		
Volume Module:												
Base Vol:	0	0	0	39	1	303	0	107	68	480	257	0
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	0	0	0	40	1	312	0	110	70	494	265	0
Added Vol:	0	0	0	0	0	0	0	0	57	0	19	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	40	1	312	0	110	127	494	284	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	0	0	0	42	1	324	0	115	132	514	295	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	42	1	324	0	115	132	514	295	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1503	1569	295	xxxx	xxxx	xxxxx	247	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	135	112	749	xxxx	xxxx	xxxxx	1331	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	95	69	749	xxxx	xxxx	xxxxx	1331	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.44	0.02	0.43	xxxx	xxxx	xxxx	0.39	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	2.2	xxxx	xxxx	xxxxx	1.9	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	13.4	xxxxx	xxxx	xxxxx	9.4	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	B	*	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	94	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	1.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	72.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	F	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			20.3			xxxxxx			xxxxxx		
ApproachLOS:	*			C			*			*		

Note: Queue reported is the number of cars per lane.

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing + Ambient + Project + Other Development Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #200 I-5 NB (NS)/ CALGROVE BLVD. (EW)

Average Delay (sec/veh): 2.9 Worst Case Level Of Service: C[16.5]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 1	0 0	1	0 0	0 0	0	1 0	1 0	0	0 0	1 0	1
Volume Module:												
Base Vol:	52	2	81	0	0	0	61	98	0	0	658	121
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	54	2	83	0	0	0	63	101	0	0	678	125
Added Vol:	19	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	73	2	83	0	0	0	63	101	0	0	678	125
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	74	2	85	0	0	0	64	103	0	0	692	127
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	74	2	85	0	0	0	64	103	0	0	692	127
Critical Gap Module:												
Critical Gp:	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	987	1051	103	xxxx	xxxx	xxxxx	820	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	277	229	957	xxxx	xxxx	xxxxx	818	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	260	211	957	xxxx	xxxx	xxxxx	818	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	0.29	0.01	0.09	xxxx	xxxx	xxxx	0.08	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	0.3	xxxx	xxxx	xxxxx	0.3	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	9.1	xxxxx	xxxx	xxxxx	9.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	A	*	*	*	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	258	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	1.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	24.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	C	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	16.5			xxxxxx			xxxxxx			xxxxxx		
ApproachLOS:	C			*			*			*		

Note: Queue reported is the number of cars per lane.

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing + Ambient + Project + Other Development Conditions
AM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #300 WILEY CANYON RD. (NS)/ LYONS AVENUE (EW)

Cycle (sec):	100	Critical Vol./Cap.(X):	0.800
Loss Time (sec):	10 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	67	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 2	0	1	1 0 1	0	1	2 0 2	0	1	1 0 2	1	0
Volume Module:												
Base Vol:	183 184	147		124 378	380		121 617	104		163 831	139	
Growth Adj:	1.03 1.03	1.03		1.03 1.03	1.03		1.03 1.03	1.03		1.03 1.03	1.03	
Initial Bse:	188 190	151		128 389	391		125 636	107		168 856	143	
Added Vol:	0 0	0		0 0	0		0 47	0		0 16	0	
PasserByVol:	0 0	0		0 0	0		0 0	0		0 0	0	
Initial Fut:	188 190	151		128 389	391		125 683	107		168 872	143	
User Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
PHF Adj:	0.89 0.89	0.89		0.89 0.89	0.89		0.89 0.89	0.89		0.89 0.89	0.89	
PHF Volume:	213 214	171		144 439	441		141 769	121		189 983	161	
Reduct Vol:	0 0	0		0 0	0		0 0	0		0 0	0	
Reduced Vol:	213 214	171		144 439	441		141 769	121		189 983	161	
PCE Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
MLF Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
FinalVolume:	213 214	171		144 439	441		141 769	121		189 983	161	
OvlAdjVol:					371							
Saturation Flow Module:												
Sat/Lane:	1750 1750	1750		1750 1750	1750		1750 1750	1750		1750 1750	1750	
Adjustment:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
Lanes:	1.00 2.00	1.00		1.00 1.00	1.00		2.00 2.00	1.00		1.00 2.58	0.42	
Final Sat.:	1750 3500	1750		1750 1750	1750		3500 3500	1750		1750 4510	740	
Capacity Analysis Module:												
Vol/Sat:	0.12 0.06	0.10		0.08 0.25	0.25		0.04 0.22	0.07		0.11 0.22	0.22	
OvlAdjV/S:					0.21							
Crit Moves:	****			****			****			****		

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing + Ambient + Project + Other Development Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #400 WILEY CANYON RD. (NS)/ CALGROVE BLVD. (EW)

Average Delay (sec/veh): 3.6 Worst Case Level Of Service: B[14.7]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Ignore			Include			Include		
Lanes:	0 0	1! 0	0	0 1	0 0	1	1 0	1 0	1	1 0	1 0	1
Volume Module:												
Base Vol:	11	7	1	34	1	633	117	41	9	4	182	87
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	11	7	1	35	1	652	121	42	9	4	187	90
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	11	7	1	35	1	652	121	42	9	4	187	90
User Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.91	0.91	0.91	0.91	0.91	0.00	0.91	0.91	0.91	0.91	0.91	0.91
PHF Volume:	12	8	1	39	1	0	133	46	10	5	206	99
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	12	8	1	39	1	0	133	46	10	5	206	99
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	577	625	46	537	537	206	305	xxxx	xxxxx	57	xxxx	xxxxx
Potent Cap.:	431	404	1029	458	453	839	1267	xxxx	xxxxx	1561	xxxx	xxxxx
Move Cap.:	395	360	1029	413	405	839	1267	xxxx	xxxxx	1561	xxxx	xxxxx
Volume/Cap:	0.03	0.02	0.00	0.09	0.00	0.00	0.10	xxxx	xxxx	0.00	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.3	xxxx	xxxxx	0.0	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.2	xxxx	xxxxx	7.3	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	394	xxxxx	413	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.2	xxxxx	0.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	14.7	xxxxx	14.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	B	*	B	*	*	*	*	*	*	*	*
ApproachDel:		14.7			14.6			xxxxxx			xxxxxx	
ApproachLOS:		B			B			*			*	

Note: Queue reported is the number of cars per lane.

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing + Ambient + Project + Other Development Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #500 Tampa Ave. (NS)/ Sesnon Boulevard (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.680
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 18.6
Optimal Cycle: 0 Level Of Service: C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 1	0 1	0	0 1	0 1	0	0 1	0 1	0	0 1	0 1	0
Volume Module:												
Base Vol:	128	1	33	0	0	0	0	249	201	79	140	0
Growth Adj:	1.03 1.03	1.03		1.03 1.03	1.03		1.03 1.03	1.03		1.03 1.03	1.03	
Initial Bse:	132	1	34	0	0	0	0	256	207	81	144	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	75	0	0	0	0	0	0	0	75	0	0	0
Initial Fut:	207	1	34	0	0	0	0	256	282	81	144	0
User Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
PHF Adj:	0.67 0.67	0.67		0.67 0.67	0.67		0.67 0.67	0.67		0.67 0.67	0.67	
PHF Volume:	308	2	51	0	0	0	0	382	420	121	215	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	308	2	51	0	0	0	0	382	420	121	215	0
PCE Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
MLF Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
FinalVolume:	308	2	51	0	0	0	0	382	420	121	215	0
Saturation Flow Module:												
Adjustment:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
Lanes:	1.00 0.72	0.28		0.00 2.00	0.00		0.00 1.00	1.00		0.72 1.28	0.00	
Final Sat.:	464	362	141	0	839	0	0	561	629	351	647	0
Capacity Analysis Module:												
Vol/Sat:	0.66 0.00	0.36		xxxx 0.00	xxxx		xxxx 0.68	0.67		0.35 0.33	xxxx	
Crit Moves:	****			****			****			****		
Delay/Veh:	23.1 10.3	10.3		0.0 0.0	0.0		0.0 21.1	18.5		13.5 12.9	0.0	
Delay Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
AdjDel/Veh:	23.1 10.3	10.3		0.0 0.0	0.0		0.0 21.1	18.5		13.5 12.9	0.0	
LOS by Move:	C	B	B	* *	*		* C	C		B B	*	
ApproachDel:	21.2			xxxxxx			19.7			13.1		
Delay Adj:	1.00			xxxxx			1.00			1.00		
ApprAdjDel:	21.2			xxxxxx			19.7			13.1		
LOS by Appr:	C			*			C			B		
AllWayAvgQ:	1.7	0.1	0.1	0.0	0.0	0.0	1.9	1.8	1.8	0.5	0.4	0.4

Note: Queue reported is the number of cars per lane.

Traffix 7.9.0415 (c) 2007 Dowling Assoc. Licensed to URBAN CROSSROADS, IRVINE

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing + Ambient + Project + Other Development Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

****

Intersection #100 I-5 SB (NS)/ CALGROVE BLVD. (EW)

****

Average Delay (sec/veh): 11.8 Worst Case Level Of Service: F[99.4]

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 1 0 0 1			0 0 0 1 0			1 0 1 0 0		
Volume Module:												
Base Vol:	0	0	0	83	0	84	0	888	63	111	199	0
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	0	0	0	85	0	87	0	915	65	114	205	0
Added Vol:	0	0	0	0	0	0	0	0	38	0	65	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	85	0	87	0	915	103	114	270	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
PHF Volume:	0	0	0	96	0	97	0	1030	116	129	304	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	96	0	97	0	1030	116	129	304	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	1649	1707	304	xxxx	xxxx	xxxxx	1146	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	110	92	740	xxxx	xxxx	xxxxx	617	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	92	73	740	xxxx	xxxx	xxxxx	617	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	1.04	0.00	0.13	xxxx	xxxx	xxxx	0.21	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	0.5	xxxx	xxxx	xxxxx	0.8	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	10.6	xxxxx	xxxx	xxxxx	12.4	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	B	*	*	*	B	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	92	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	6.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	189.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	F	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			99.4			xxxxxx			xxxxxx		
ApproachLOS:	*			F			*			*		

****

Note: Queue reported is the number of cars per lane.

****

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing + Ambient + Project + Other Development Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

****

Intersection #200 I-5 NB (NS)/ CALGROVE BLVD. (EW)

****

Average Delay (sec/veh): 88.5 Worst Case Level Of Service: F[348.4]

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 1	0	0 1	0 0	0	0 0	1 0	1	0 0	0 0	1	0 1
Volume Module:												
Base Vol:	67 2	270		0 0	0	0	467	497	0	0	194	74
Growth Adj:	1.03 1.03	1.03		1.03 1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	69 2	278		0 0	0	0	481	512	0	0	200	76
Added Vol:	65 0	0		0 0	0	0	0	0	0	0	0	0
PasserByVol:	0 0	0		0 0	0	0	0	0	0	0	0	0
Initial Fut:	134 2	278		0 0	0	0	481	512	0	0	200	76
User Adj:	1.00 1.00	1.00		1.00 1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.91 0.91	0.91		0.91 0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
PHF Volume:	148 2	307		0 0	0	0	532	566	0	0	221	84
Reduct Vol:	0 0	0		0 0	0	0	0	0	0	0	0	0
FinalVolume:	148 2	307		0 0	0	0	532	566	0	0	221	84
Critical Gap Module:												
Critical Gp:	6.4 6.5	6.2		xxxxx xxxx	xxxxx		4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	3.5 4.0	3.3		xxxxx xxxx	xxxxx		2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1892 1934	566		xxxx xxxx	xxxxx		305	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	78 67	528		xxxx xxxx	xxxxx		1267	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	52 39	528		xxxx xxxx	xxxxx		1267	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	2.83 0.06	0.58		xxxx xxxx	xxxx		0.42	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx xxxx	3.7		xxxx xxxx	xxxxx		2.1	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx xxxx	20.9		xxxxx xxxx	xxxxx		9.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	* *	C		* *	*		A	*	*	*	*	*
Movement:	LT - LTR	- RT		LT - LTR	- RT		LT - LTR	- RT		LT - LTR	- RT	
Shared Cap.:	52 xxxx	xxxxx		xxxx xxxx	xxxxx		xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	15.8 xxxx	xxxxx		xxxxx xxxx	xxxxx		xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	1018 xxxx	xxxxx		xxxxx xxxx	xxxxx		xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	F *	*		* *	*		*	*	*	*	*	*
ApproachDel:	348.4			xxxxxx			xxxxxx			xxxxxx		
ApproachLOS:	F			*			*			*		

****

Note: Queue reported is the number of cars per lane.

****

Traffix 7.9.0415 (c) 2007 Dowling Assoc. Licensed to URBAN CROSSROADS, IRVINE

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing + Ambient + Project + Other Development Conditions
PM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #300 WILEY CANYON RD. (NS)/ LYONS AVENUE (EW)

Cycle (sec):	100	Critical Vol./Cap.(X):	0.773
Loss Time (sec):	10 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	61	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Ovl			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	2	0 1	1 0	1	0 1	2 0	2	0 1	1 0	2	1 0
Volume Module:												
Base Vol:	167	355	224	160	256	232	345	967	133	135	782	111
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	172	366	231	165	264	239	355	996	137	139	805	114
Added Vol:	0	0	0	0	0	0	0	31	0	0	53	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	172	366	231	165	264	239	355	1027	137	139	858	114
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	186	396	250	178	285	259	385	1111	148	150	929	124
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	186	396	250	178	285	259	385	1111	148	150	929	124
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	186	396	250	178	285	259	385	1111	148	150	929	124
OvlAdjVol:						66						
Saturation Flow Module:												
Sat/Lane:	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	2.65	0.35
Final Sat.:	1750	3500	1750	1750	1750	1750	3500	3500	1750	1750	4633	617
Capacity Analysis Module:												
Vol/Sat:	0.11	0.11	0.14	0.10	0.16	0.15	0.11	0.32	0.08	0.09	0.20	0.20
OvlAdjV/S:						0.04						
Crit Moves:	****				****			****		****		

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing + Ambient + Project + Other Development Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #400 WILEY CANYON RD. (NS)/ CALGROVE BLVD. (EW)

Average Delay (sec/veh): 48.5 Worst Case Level Of Service: F[470.5]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Ignore			Include			Include		
Lanes:	0 0 1! 0 0			0 1 0 0 1			1 0 1 0 1			1 0 1 0 1		
Volume Module:												
Base Vol:	6	5	1	77	6	199	554	145	6	0	79	55
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	6	5	1	79	6	205	571	149	6	0	81	57
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	6	5	1	79	6	205	571	149	6	0	81	57
User Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.89	0.89	0.89	0.89	0.89	0.00	0.89	0.89	0.89	0.89	0.89	0.89
PHF Volume:	7	6	1	89	7	0	638	167	7	0	91	63
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	7	6	1	89	7	0	638	167	7	0	91	63
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1570	1598	167	1542	1542	91	154	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	91	107	882	95	116	972	1438	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	55	60	882	58	65	972	1438	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	0.13	0.10	0.00	1.54	0.11	0.00	0.44	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	2.3	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	62	xxxxx	58	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.8	xxxxx	8.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	79.4	xxxxx	470.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	F	*	F	*	*	*	*	*	*	*	*
ApproachDel:		79.4			470.5			xxxxxx			xxxxxx	
ApproachLOS:		F			F			*			*	

Note: Queue reported is the number of cars per lane.

ALISO CANYON TURBINE REPLACEMENT TRAFFIC IMPACT ANALYSIS (JN 06677)
Existing + Ambient + Project + Other Development Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #500 Tampa Ave. (NS)/ Sesnon Boulevard (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.363
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): 9.9
Optimal Cycle: 0 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 1	0 1	0	0 1	0 1	0	0 1	0 1	0	0 1	0 1	0
Volume Module:												
Base Vol:	120	3	40	0	0	3	0	107	100	43	89	0
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	124	3	41	0	0	3	0	110	103	44	92	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	75	0	0	0	0	0	0	0	75	0	0	0
Initial Fut:	199	3	41	0	0	3	0	110	178	44	92	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	208	3	43	0	0	3	0	115	186	46	96	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	208	3	43	0	0	3	0	115	186	46	96	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	208	3	43	0	0	3	0	115	186	46	96	0
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.66	0.34	0.00	1.00	1.00	0.00	1.00	1.00	0.65	1.35	0.00
Final Sat.:	572	425	218	0	567	638	0	643	736	384	827	0
Capacity Analysis Module:												
Vol/Sat:	0.36	0.01	0.20	xxxx	0.00	0.01	xxxx	0.18	0.25	0.12	0.12	xxxx
Crit Moves:	****					****			****	****		
Delay/Veh:	12.0	8.4	8.4	0.0	0.0	7.9	0.0	9.3	8.9	9.4	9.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	12.0	8.4	8.4	0.0	0.0	7.9	0.0	9.3	8.9	9.4	9.0	0.0
LOS by Move:	B	A	A	*	*	A	*	A	A	A	A	*
ApproachDel:		11.3			7.9			9.1			9.1	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		11.3			7.9			9.1			9.1	
LOS by Appr:		B			A			A			A	
AllWayAvgQ:	0.5	0.1	0.1	0.0	0.0	0.0	0.2	0.3	0.3	0.1	0.1	0.1

Note: Queue reported is the number of cars per lane.

Appendix C CEQA Checklist

Appendix C CEQA Checklist

This appendix presents a completed California Environmental Quality Act (CEQA) Initial Study Checklist for the proposed Aliso Canyon Turbine Replacement Project. The CEQA Checklist has been completed based on the methodology and conclusion of the environmental impact analysis represented and contained in this PEA. The CEQA Checklist is provided for completeness of CEQA documentation.

1. Project title:

Aliso Canyon Turbine Replacement Project

2. Lead agency name and address:

California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102-3298

3. Contact person and phone number:

Larry Sasadeusz, Project Manager
Southern California Gas Company
555 W. 5th St.
ML GT23H5
Los Angeles, CA 90013

213-244-4434

4. Project location:

The proposed Aliso Canyon Turbine Replacement Project (ACTR) originates at the Aliso Canyon Gas Storage Field, located in unincorporated Los Angeles County, at 12801 Tampa Avenue in Northridge, CA. The project includes electrical transmission and natural gas injection. The new compressor station that will provide increased injection capacity to the storage field will be located at the Plant Station site. The transmission upgrade originates in the City of Newhall, a community within the City of Santa Clarita. The transmission system extends south through Chatsworth and Sylmar, communities within unincorporated Los Angeles County. The alignment will interconnect to the new compressor station via a new substation, proposed to be located within the property boundary of the storage field. Substations to be upgraded include the Newhall substation, located near the intersection of Wiley Canyon Road and Lyons Avenue, in the City of Santa Clarita, the San Fernando Substation, located near the intersection of San Fernando Mission Boulevard and San Fernando Road, in the City of San Fernando, and the Chatsworth Substation, located near the Chatsworth reservoir near Plummer Street and Valley Circle, in unincorporated Los Angeles County. The locations of the proposed project components are represented in Figure 3.2-1 in the PEA, and Figure A-1 in the Appendix.

5. Project Sponsor:

Southern California Gas Company
12801 Tampa Avenue
Northridge, CA 91326

6. General Plan Designations

Refer to Section 4.9 Land Use and Planning, of this PEA.

7. Zoning

Refer to Section 4.9 Land Use and Planning, of this PEA.

8. Description of Project

The Proposed Project components include a proposed Central Compressor Station with three new VFD motors, relocation of the existing office trailers and guard house, a proposed PPL line interconnected to the proposed Central Compressor Station, a proposed SCE Natural Substation, and related off-site modifications to two existing SCE 66 kV sub-transmission lines and three existing SCE substations. SoCalGas is the Proponent of the Proposed Project; therefore, they will work extensively with SCE to license and implement the modifications to the SCE facilities needed to provide electrical services to the Proposed Project.

Construction of the proposed Central Compressor Station, proposed PPL, and relocation of office trailer facilities and guard house will be conducted by the Proponent. The installation of the new VFD compressor trains will not affect the existing system including the storage reservoir, wells, pressure, field lines, and other Storage Field parameters; they will be constructed to operate using the existing system without modification. The proposed Central Compressor Station will be connected to the suction, discharge and blowdown headers from the existing TDC station. Additional piping is proposed to connect the suction and discharge header at the proposed Central Compressor Station, and to connect the new compression facility to the existing emergency shutdown system; however, there are no new pipelines or wells planned as part of the Proposed Project. The TDCs will be retired in accordance with public utility retirement processes typically implemented by the Proponent. This includes maintaining the existing TDC station for at least one field cycle of tested reliable service using the VFDs in order to verify reliable and efficient operations using the new equipment.

The proposed PPL will be designed to San Diego Gas and Electric (SDG&E) Standards and constructed by the Proponent with four circuits to provide three (3) phase four (4) wire electrical services to the proposed Central Compressor Station and other existing site load. The proposed PPL will be interconnected from the proposed SCE Natural Substation to the proposed Central Compressor Station. The alignment of the PPL will be determined from several available options upon final engineering and design considerations for the proposed SCE Natural Substation. The trailer facilities relocation will remove the existing office trailers from service and place new office facilities within a designated location. The guard house will be relocated approximately 500 feet north of the existing guard house along the existing access road. The existing guard house will remain in place for security and signage purposes. The guard house relocation will provide additional staging area for incoming trucks helping to reduce associated city street congestion.

The proposed SCE Natural Substation, proposed SCE 66 kV sub-transmission line modifications, and proposed modifications at three additional SCE substations will be constructed by SCE. The proposed SCE Natural Substation will be a 56 megavolt ampere (MVA) 66/12 kV customer dedicated

substation, constructed according to SCE design specifications. The proposed SCE Natural Substation will include a communication system, mechanical engineering and electrical room (MEER), substation lighting, new poles, loop-in circuits, cables, conductors, capacitors, and transformers. To tie into the proposed SCE Natural Substation, SCE plans to rebuild a portion of the supporting towers supporting the SCE Chatsworth-MacNeil-Newhall-San Fernando 66 kV line and the SCE MacNeil-Newhall-San Fernando 66 kV existing source lines. These lines are represented on Figure 3.4-1 in the PEA.

9. Surrounding Land Uses and Setting

Existing land uses within the Proposed Project on-site components consist of natural gas storage. Existing land uses in the vicinity of the off-site electrical improvements include solid waste disposal, open space, residential, agricultural, and recreational. The overall region is characterized by canyons, hills, and mountain ranges, which provide an open space greenbelt around the perimeter of the Santa Clarita Valley (City of Santa Clarita 2008). The alignment of the proposed SCE 66 kV sub-transmission modification is located near open spaces such as the Santa Susana Mountains and associated park lands on the western side of I-5.

10. Other Public Agencies Whose Approval Is or May Be Required

- United States Army Corps of Engineers
- State Water Resources Control Board
- California Department of Fish and Game
- Los Angeles County Department of Public Works
- Los Angeles County Planning Department
- City of Los Angeles
- City of Santa Clarita

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

X	Aesthetics	X	Agriculture Resources	X	Air Quality
X	Biological Resources	X	Cultural Resources	X	Geology /Soils
X	Hazards & Hazardous Materials	X	Hydrology / Water Quality	X	Land Use / Planning
X	Mineral Resources	X	Noise	X	Population / Housing
X	Public Services	X	Recreation	X	Transportation/Traffic
X	Utilities / Service Systems	X	Mandatory Findings of Significance		

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
	I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
	I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
	I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature _____ Date _____

Signature _____ Date _____

EVALUATION OF ENVIRONMENTAL IMPACTS:

The CEQA Checklist has been completed based on the methodology and conclusion of the environmental impact analysis represented and contained in this PEA. The following CEQA Checklist is provided for completeness of CEQA documentation.

CEQA CHECKLIST:

ENVIRONMENTAL RESOURCE IMPACT	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
I. AESTHETICS -- Would the project:				
a) Have a substantial adverse effect on a scenic vista?			**X**	
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?			**X**	
c) Substantially degrade the existing visual character or quality of the site and its surroundings?			**X**	
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			**X**	
II. AGRICULTURE RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				**X**
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				**X**
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?				**X**

ENVIRONMENTAL RESOURCE IMPACT	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
III. AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?			X	
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?		X		
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?		X		
d) Expose sensitive receptors to substantial pollutant concentrations?		X		
e) Create objectionable odors affecting a substantial number of people?			X	
IV. BIOLOGICAL RESOURCES -- Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?			X	
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?		X		
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other			X	

ENVIRONMENTAL RESOURCE IMPACT	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
means?				
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?			**X**	
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?			**X**	
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?			**X**	
V. CULTURAL RESOURCES -- Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in '15064.5?			**X**	
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to '15064.5?			**X**	
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?			**X**	
d) Disturb any human remains, including those interred outside of formal cemeteries?			**X**	
VI. GEOLOGY AND SOILS -- Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				**X**
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.			**X**	

ENVIRONMENTAL RESOURCE IMPACT	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
ii) Strong seismic ground shaking?			X	
iii) Seismic-related ground failure, including liquefaction?			X	
iv) Landslides?			X	
b) Result in substantial soil erosion or the loss of topsoil?			X	
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			X	
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?			X	
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?			X	
VII. HAZARDS AND HAZARDOUS MATERIALS B Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			X	
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			X	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			X	
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it			X	

ENVIRONMENTAL RESOURCE IMPACT	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
create a significant hazard to the public or the environment?				
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?			X	
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?			X	
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X	
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?			X	
VIII. HYDROLOGY AND WATER QUALITY -- Would the project:				
a) Violate any water quality standards or waste discharge requirements?			X	
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?			X	
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?			X	

ENVIRONMENTAL RESOURCE IMPACT	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?			X	
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?			X	
f) Otherwise substantially degrade water quality?			X	
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				X
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?			X	
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?			X	
j) Inundation by seiche, tsunami, or mudflow?				X
IX. LAND USE AND PLANNING - Would the project:				
a) Physically divide an established community?				X
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				X

ENVIRONMENTAL RESOURCE IMPACT	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?			**X**	
X. MINERAL RESOURCES - Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				**X**
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				**X**
XI. NOISE - Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			**X**	
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?			**X**	
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?			**X**	
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?			**X**	
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				**X**
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?				**X**

ENVIRONMENTAL RESOURCE IMPACT	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XII. POPULATION AND HOUSING -- Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				X
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				X
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				X
XIII. PUBLIC SERVICES -- Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?				X
Police protection?				X
Schools?				X
Parks?				X
Other public facilities?				X
XIV. RECREATION -- Would the project:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?			X	
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				X
XV. TRANSPORTATION/TRAFFIC -- Would the project:				
a) Cause an increase in traffic which is substantial in relation to the existing traffic			X	

ENVIRONMENTAL RESOURCE IMPACT	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?				
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?			X	
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?				X
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			X	
e) Result in inadequate emergency access?			X	
f) Result in inadequate parking capacity?			X	
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?				X
XVI. UTILITIES AND SERVICE SYSTEMS B Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?				X
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X

ENVIRONMENTAL RESOURCE IMPACT	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?				**X**
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project=s projected demand in addition to the providers existing commitments?				**X**
f) Be served by a landfill with sufficient permitted capacity to accommodate the projects solid waste disposal needs?				**X**
g) Comply with federal, state, and local statutes and regulations related to solid waste?				**X**
XVII. MANDATORY FINDINGS OF SIGNIFICANCE -- Would the project:				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		**X**		
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?			**X**	
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			**X**	

Appendix D List of Preparers

APPENDIX D List of Preparers

Consultants

Resources Area	Resource Lead	Company
Aesthetics	Anne Pietro, Senior Program Manager	AECOM
	Nathan Counts, Associate	AECOM
	Greg Wolffe, Senior Program Manager	AECOM
	Steve Heisler, Ph.D., Vice President	AECOM
	Charanaya Varadarajan, Ph.D., Air Quality Engineer	AECOM
Air Quality	Sarah Sullivan, Air Quality Specialist	AECOM
Agricultural Resources	Stephanie Klock, Environmental Planner	EDAW
	Kim Christiansen, Senior Associate Planner	EDAW
Biological Resources	Manju Venkat, Senior Biologist	AECOM
	Rocky Brown, Project Specialist	AECOM
Cultural Resources	Christopher Doolittle	AECOM
Geology, Soils and Seismicity	Anthonny Lizzi, Professional Geologist	AECOM
	Geoff Knight, Senior Project Manage	AECOM
	Ken Patton	AECOM
Hazards and Hazardous Materials	Geoff Knight, Senior Project Manager	AECOM
Hydrology and Water Quality	Roy Hauger,	AECOM
	Ken Patton, AECOM	AECOM
Land Use and Planning	Stephanie Klock, Environmental Planner	EDAW
	Kim Christiansen, Senior Associate Planner	EDAW

Mineral Resources	Anthonny Lizzi, Professional Geologist	AECOM
	Ken Patton	AECOM
Noise	William Maddux	AECOM
	Greg Wolffe, Senior Project Manager	AECOM
Population and Housing	Anne Pietro, Senior Program Manager,	AECOM
	Hallie Rulnick, Environmental Associate	AECOM
Public Services	Anne Pietro, Senior Program Manager	AECOM
	Hallie Rulnick, Environmental Associate	AECOM
	Nathan Counts, Associate	AECOM
Recreation	Anne Pietro, Senior Program Manager	AECOM
	Hallie Rulnick, Environmental Associate	AECOM
	Nathan Counts, Associate	AECOM
Transportation and Traffic	Scott Sato	Urban Crossroads
	Michael Benner, Vice President	AECOM
Utilities	Anne Pietro, Senior Program Manager	AECOM
	Hallie Rulnick, Environmental Associate	AECOM
	Nathan Counts, Associate	AECOM
Cumulative Impact Analysis	Michael Benner, Vice President	AECOM
	Nathan Counts, Associate	AECOM
Growth-Inducing Impacts	Jerry Flores	AECOM

Technical Support	Peter Jonas, GIS Specialist	AECOM
	Hans Mayer, GIS Technician	AECOM

Contributors

Southern California Gas Company

Larry Saseduesz. Engineering Analysis Manager

Estella de Llanos, Legal Counsel

James Strader, Project and Construction Manager

Don Houston, Environmental Manager

Southern California Edison Company

Albert Garcia

Jack Haggenmiller, P.E., Project Manager

Kendra Heinicke, Transmission Estimator

Jeffrey Miller

Christine MacLoed, Regulatory Affairs Manager

Leanne Swanson, P.E., Project Manager

Chris May, Environmental Coordinator