Draft
Supplemental Recirculated Environmental Impact Report

SCH# 2014041005

Volume 8
Volume 4 Appendix E.1 (Part 3) through Appendix E.2 of the Previously Circulated DEIR

GRAPEVINE SPECIFIC AND COMMUNITY PLAN (2019)
Tejon Ranchcorp

Specific Plan Amendment No. 157, Map 500
General Plan Amendment No. 9, Map 202
General Plan Amendment No. 10, Map 202
General Plan Amendment No. 4, Map 218R
General Plan Amendment No. 5, Map 218R
General Plan Amendment No. 11, Map 219
General Plan Amendment No. 12, Map 219
Special Plan No. 2, Map 202
Special Plan No. 3, Map 218R
Special Plan No. 3, Map 219
Zone Change Case No. 18, Map 202
Zone Change Case No. 3, Map 218R
Zone Change Case No. 14, Map 219
Agricultural Preserve #19 - Exclusion

Kern County
Planning and Natural Resources Department
Bakersfield, California

August 2019

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Agricultural Preserve #19 - Exclusion

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General Plan Amendment No. 6, Map 202
General Plan Amendment No. 7, Map 202
General Plan Amendment No. 2, Map 218R
General Plan Amendment No. 3, Map 218R
General Plan Amendment No. 8, Map 219
General Plan Amendment No. 9, Map 219
Special Plan No. 1, Map 202
Special Plan No. 2, Map 218R
Special Plan No. 2, Map 219
Zone Change Case No. 16, Map 202
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May 2016

Appendices

NOTE TO REVIEWER OF ELECTRONIC FILES:

To assist you in reviewing this electronic document, "bookmarks" and/or "links" have been provided for easier navigation between sections. When available, bookmarks are located in the panel to the left. Links are highlighted in BLUE in the Table of Contents. Clicking on either the bookmarks or links will take you to the selected item. This document may consist of multiple linked PDF files. If saving this document to your computer, you must save all corresponding files to a directory on your hard drive to maintain the manner in which these PDF documents are linked.

Appendix E.1 Air Quality/Climate Change Study (Part 3)

Air Quality and Greenhouse Gas Emissions Analysis Technical Report:

Appendices C through H

Appendix E.2 Diesel Particulate Matter Health Risk Assessment

APPENDIX C

Operational Emissions – CalEEMod Output and Supplemental Calculations

Grapevine Operational Year 2019 - Planning Area 6A Buildout

Kern-San Joaquin County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Bank (with Drive-Through)	8.00	1000sqft	0.74	8,000.00	0
General Office Building	242.00	1000sqft	22.30	242,000.00	0
Pharmacy/Drugstore w/o Drive Thru	5.00	1000sqft	0.46	5,000.00	0
Research & Development	81.00	1000sqft	6.30	81,000.00	0
Elementary School	994.00	Student	5.00	83,101.75	0
Junior College (2yr)	350.00	1000sqft	27.25	350,000.00	0
General Heavy Industry	52.50	1000sqft	4.09	52,500.00	0
General Light Industry	105.00	1000sqft	8.18	105,000.00	0
Industrial Park	525.00	1000sqft	40.88	525,000.00	0
Manufacturing	52.50	1000sqft	4.09	52,500.00	0
Refrigerated Warehouse-No Rail	105.00	1000sqft	8.18	105,000.00	0
Unrefrigerated Warehouse-No Rail	210.00	1000sqft	16.35	210,000.00	0
Other Asphalt Surfaces	59.00	Acre	59.00	2,570,040.00	0
City Park	5.00	Acre	5.00	217,800.00	0
Fast Food Restaurant with Drive Thru	4.00	1000sqft	0.53	4,000.00	0
High Turnover (Sit Down Restaurant)	8.00	1000sqft	1.07	8,000.00	0
Apartments Low Rise	750.00	Dwelling Unit	75.00	750,000.00	2400
Single Family Housing	585.00	Dwelling Unit	149.00	1,053,000.00	1872
Convenience Market with Gas Pumps	3.00	1000sqft	0.40	3,000.00	0
Regional Shopping Center	49.00	1000sqft	6.53	49,000.00	0
Supermarket	20.00	1000sqft	2.67	20,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	7			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	559.32	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Planning Area 6A. Kern County, San Joaquin Valley Air Basin. CO2 Intensity adjusted based on PG&E 25% Renewables by December 31, 2016.

Land Use - See 1.1 Land Usage. Population based on 3.2 persons per dwelling unit.

Construction Phase - Construction emissions calculated separately.

Vehicle Trips - Modified trip rates to match Trip Generation and VMT factors provided by Fehr & Peers.

Vehicle Emission Factors - Default CalEEMod values.

Woodstoves - No woodstoves and only gas fireplaces assumed

Area Coating - Default CalEEMod VOC content. Modified non-residential interior and exterior area to be coated based on CalEEMod architectural coating surface area equations and adjusted for parking/asphalt surface and park land uses.

Energy Use - Updated Title 24 electricity and natural gas energy intensity to match 2013 Title 24 standards (25% reduction versus 2008 standards).

Water And Wastewater - Water and wastewater consumption and associated emissions calculated separately.

Construction Off-road Equipment Mitigation - Construction emissions calculated separately.

Mobile Land Use Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Project Setting: Suburban Center. Improve Pedestrian Network: Project Site and Connecting Off-Site. Provide Traffic Calming Measures: 100% Streets with Improvement, 100% Intersections with Improvement. Expand Transit Network: 50%.

Mobile Commute Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Voluntary Commute Trip Reduction Program: 50%.

Energy Mitigation - Exceed 2013 Title 24, % Improvement: 25%.

Water Mitigation - Water reductions calculated separately.

Waste Mitigation - Percent Reduction in Waste Disposed: 75%. Waste diversion consistent with Assembly Bill 341 (not mitigation).

Note Regarding Emissions Presented in the Air Quality & Greenhouse Gas Technical Report: Project-generated unmitigated and mitigated emissions in the Technical Report reflect the unmitigated mobile source emissions reported in 2.0 Emissions Summary. No area source mitigation assumed. Unmitigated and mitigated energy source and solid waste emissions reported in the Technical Report as presented in 2.0 Emissions Summary. Water/wastewater and stationary source emissions calculated separately.

Table Name	Column Name	Default Value	New Value
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tblAreaCoating	Area_Nonresidential_Interior	7036413	2854653
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tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	0.49	0.37
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tblEnergyUse	T24NG	10.78	8.09
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tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71

tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	16.95	12.71
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tblEnergyUse	T24NG	5.56	4.17
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tblFireplaces	FireplaceWoodMass	3,078.40	0.00
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tblLandUse	LotAcreage	2.41	8.18
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tblLandUse	LotAcreage	189.94	149.00
tblLandUse	LotAcreage	0.07	0.40
tblLandUse	LotAcreage	1.12	6.53

tblLandUse	LotAcreage	0.46	2.67
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
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tblWater	OutdoorWaterUseRate	77,497.97	0.00
tblWater	OutdoorWaterUseRate	26,361,928.17	0.00
tblWater	OutdoorWaterUseRate	154,995.94	0.00
tblWater	OutdoorWaterUseRate	26,851,201.13	0.00
tblWater	OutdoorWaterUseRate	215,887.57	0.00
tblWater	OutdoorWaterUseRate	2,224,565.08	0.00
tblWater	OutdoorWaterUseRate	24,029,087.93	0.00
tblWater	OutdoorWaterUseRate	76,248.38	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	28.8014	0.1156	9.9915	5.3000e-004		0.0951	0.0951		0.0946	0.0946	0.0000	594.5752	594.5752	0.0271	0.0106	598.4316
Energy	0.3002	2.6591	1.7816	0.0164		0.2074	0.2074		0.2074	0.2074	0.0000	9,778.1263	9,778.1263	0.4099	0.1275	9,826.2552
Mobile	21.9992	132.1270	289.1566	0.8825	42.9958	2.2411	45.2369	11.5855	2.0629	13.6484	0.0000	68,802.0909	68,802.0909	1.6144	0.0000	68,835.9929
Waste						0.0000	0.0000		0.0000	0.0000	699.0055	0.0000	699.0055	41.3100	0.0000	1,566.5163
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**51.1007**	**134.9018**	**300.9298**	**0.8994**	**42.9958**	**2.5435**	**45.5393**	**11.5855**	**2.3649**	**13.9504**	**699.0055**	**79,174.7924**	**79,873.7979**	**43.3615**	**0.1381**	**80,827.1960**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	28.8014	0.1156	9.9915	5.3000e-004		0.0951	0.0951		0.0946	0.0946	0.0000	594.5752	594.5752	0.0271	0.0106	598.4316
Energy	0.2356	2.0856	1.3870	0.0129		0.1628	0.1628		0.1628	0.1628	0.0000	8,862.2221	8,862.2221	0.3833	0.1128	8,905.2398
Mobile	21.3743	125.7338	280.0342	0.8356	40.6663	2.1221	42.7884	10.9579	1.9533	12.9111	0.0000	65,141.2102	65,141.2102	1.5322	0.0000	65,173.3873
Waste						0.0000	0.0000		0.0000	0.0000	174.7514	0.0000	174.7514	10.3275	0.0000	391.6291
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**50.4112**	**127.9350**	**291.4127**	**0.8489**	**40.6663**	**2.3799**	**43.0462**	**10.9579**	**2.2107**	**13.1685**	**174.7514**	**74,598.0075**	**74,772.7588**	**12.2702**	**0.1234**	**75,068.6877**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.35**	**5.16**	**3.16**	**5.61**	**5.42**	**6.43**	**5.47**	**5.42**	**6.52**	**5.60**	**75.00**	**5.78**	**6.39**	**71.70**	**10.64**	**7.12**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

Provide Traffic Calming Measures

Expand Transit Network

Implement Trip Reduction Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	21.3743	125.7338	280.0342	0.8356	40.6663	2.1221	42.7884	10.9579	1.9533	12.9111	0.0000	65,141.2102	65,141.2102	1.5322	0.0000	65,173.3873
Unmitigated	21.9992	132.1270	289.1566	0.8825	42.9958	2.2411	45.2369	11.5855	2.0629	13.6484	0.0000	68,802.0909	68,802.0909	1.6144	0.0000	68,835.9929

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	4,057.50	4,417.50	3742.50	23,106,197	21,854,335
Bank (with Drive-Through)	71.84	41.84	15.52	338,347	320,016
City Park	7.70	7.70	7.70	43,780	41,408
Convenience Market with Gas Pumps	104.28	178.62	145.77	686,984	649,765
Elementary School	1,043.70	0.00	0.00	4,238,674	4,009,029
Fast Food Restaurant with Drive Thru	139.04	202.32	152.08	852,527	806,338
General Heavy Industry	152.25	28.88	10.50	650,300	615,067
General Light Industry	304.50	57.75	29.40	1,307,422	1,236,588
General Office Building	2,173.16	467.06	193.60	9,362,252	8,855,018
High Turnover (Sit Down Restaurant)	278.08	346.32	288.32	1,644,818	1,555,704
Industrial Park	2,919.00	1,044.75	309.75	12,954,822	12,252,947
Junior College (2yr)	1,480.50	605.50	66.50	6,558,432	6,203,105
Manufacturing	152.25	59.33	24.68	686,546	649,350
Other Asphalt Surfaces	0.00	0.00	0.00		
Pharmacy/Drugstore w/o Drive Thru	44.90	44.90	44.90	255,287	241,456
Refrigerated Warehouse-No Rail	304.50	304.50	304.50	1,731,290	1,637,491
Regional Shopping Center	1,703.24	1,982.05	1001.07	9,340,208	8,834,168
Research & Development	727.38	170.10	99.63	3,173,121	3,001,206

Single Family Housing	4,533.75	4,773.60	4153.50	25,663,413	24,273,005
Supermarket	695.20	1,207.40	1131.60	4,723,176	4,467,280
Unrefrigerated Warehouse-No Rail	609.00	609.00	609.00	3,462,579	3,274,981
Total	21,501.77	16,549.11	12,330.52	110,780,175	104,778,258

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Bank (with Drive-Through)	15.62	15.62	15.62	6.60	74.40	19.00	100	0	0
City Park	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Convenience Market with Gas	15.62	15.62	15.62	0.80	80.20	19.00	100	0	0
Elementary School	15.62	15.62	15.62	65.00	30.00	5.00	100	0	0
Fast Food Restaurant with Drive	15.62	15.62	15.62	2.20	78.80	19.00	100	0	0
General Heavy Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Light Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Office Building	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
High Turnover (Sit Down	15.62	15.62	15.62	8.50	72.50	19.00	100	0	0
Industrial Park	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Junior College (2yr)	15.62	15.62	15.62	6.40	88.60	5.00	100	0	0
Manufacturing	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Other Asphalt Surfaces	15.62	15.62	15.62	0.00	0.00	0.00	100	0	0
Pharmacy/Drugstore w/o Drive	15.62	15.62	15.62	7.40	73.60	19.00	100	0	0
Refrigerated Warehouse-No Rail	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0
Regional Shopping Center	15.62	15.62	15.62	16.30	64.70	19.00	100	0	0
Research & Development	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Single Family Housing	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Supermarket	15.62	15.62	15.62	6.50	74.50	19.00	100	0	0
Unrefrigerated Warehouse-No	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.351508	0.055281	0.136890	0.180479	0.057090	0.010414	0.023170	0.172273	0.001509	0.001820	0.005977	0.001077	0.002512

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	6,530.6420	6,530.6420	0.3386	0.0701	6,559.4701
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	6,807.5845	6,807.5845	0.3530	0.0730	6,837.6352
NaturalGas Mitigated	0.2356	2.0856	1.3870	0.0129		0.1628	0.1628		0.1628	0.1628	0.0000	2,331.5801	2,331.5801	0.0447	0.0428	2,345.7697
NaturalGas Unmitigated	0.3002	2.6591	1.7816	0.0164		0.2074	0.2074		0.2074	0.2074	0.0000	2,970.5418	2,970.5418	0.0569	0.0545	2,988.6200

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	13560	7.0000e-005	6.6000e-004	5.6000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.7236	0.7236	1.0000e-005	1.0000e-005	0.7280
Elementary School	710520	3.8300e-003	0.0348	0.0293	2.1000e-004		2.6500e-003	2.6500e-003		2.6500e-003	2.6500e-003	0.0000	37.9161	37.9161	7.3000e-004	7.0000e-004	38.1468
Fast Food Restaurant with Drive Thru	381480	2.0600e-003	0.0187	0.0157	1.1000e-004		1.4200e-003	1.4200e-003		1.4200e-003	1.4200e-003	0.0000	20.3572	20.3572	3.9000e-004	3.7000e-004	20.4811
General Heavy Industry	697200	3.7600e-003	0.0342	0.0287	2.1000e-004		2.6000e-003	2.6000e-003		2.6000e-003	2.6000e-003	0.0000	37.2053	37.2053	7.1000e-004	6.8000e-004	37.4317

General Light Industry	1.3944e+006	7.5200e-003	0.0684	0.0574	4.1000e-004		5.1900e-003	5.1900e-003		5.1900e-003	5.1900e-003	0.0000	74.4105	74.4105	1.4300e-003	1.3600e-003	74.8633
General Office Building	3.33718e+006	0.0180	0.1636	0.1374	9.8000e-004		0.0124	0.0124		0.0124	0.0124	0.0000	178.0846	178.0846	3.4100e-003	3.2600e-003	179.1684
High Turnover (Sit Down Restaurant)	762960	4.1100e-003	0.0374	0.0314	2.2000e-004		2.8400e-003	2.8400e-003		2.8400e-003	2.8400e-003	0.0000	40.7145	40.7145	7.8000e-004	7.5000e-004	40.9622
Industrial Park	7.23975e+006	0.0390	0.3549	0.2981	2.1300e-003		0.0270	0.0270		0.0270	0.0270	0.0000	386.3406	386.3406	7.4000e-003	7.0800e-003	388.6918
Junior College (2yr)	1.4434e+007	0.0778	0.7076	0.5943	4.2500e-003		0.0538	0.0538		0.0538	0.0538	0.0000	770.2532	770.2532	0.0148	0.0141	774.9408
Manufacturing	697200	3.7600e-003	0.0342	0.0287	2.1000e-004		2.6000e-003	2.6000e-003		2.6000e-003	2.6000e-003	0.0000	37.2053	37.2053	7.1000e-004	6.8000e-004	37.4317
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	22600	1.2000e-004	1.1100e-003	9.3000e-004	1.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	1.2060	1.2060	2.0000e-005	2.0000e-005	1.2134
Refrigerated Warehouse-No Rail	763350	4.1200e-003	0.0374	0.0314	2.2000e-004		2.8400e-003	2.8400e-003		2.8400e-003	2.8400e-003	0.0000	40.7353	40.7353	7.8000e-004	7.5000e-004	40.9832
Apartments Low Rise	9.75265e+006	0.0526	0.4494	0.1912	2.8700e-003		0.0363	0.0363		0.0363	0.0363	0.0000	520.4384	520.4384	9.9800e-003	9.5400e-003	523.6057
Bank (with Drive-Through)	106240	5.7000e-004	5.2100e-003	4.3700e-003	3.0000e-005		4.0000e-004	4.0000e-004		4.0000e-004	4.0000e-004	0.0000	5.6694	5.6694	1.1000e-004	1.0000e-004	5.7039
Regional Shopping Center	221480	1.1900e-003	0.0109	9.1200e-003	7.0000e-005		8.3000e-004	8.3000e-004		8.3000e-004	8.3000e-004	0.0000	11.8190	11.8190	2.3000e-004	2.2000e-004	11.8909
Research & Development	1.07568e+006	5.8000e-003	0.0527	0.0443	3.2000e-004		4.0100e-003	4.0100e-003		4.0100e-003	4.0100e-003	0.0000	57.4024	57.4024	1.1000e-003	1.0500e-003	57.7517
Single Family Housing	1.3915e+007	0.0750	0.6412	0.2728	4.0900e-003		0.0518	0.0518		0.0518	0.0518	0.0000	742.5576	742.5576	0.0142	0.0136	747.0766
Supermarket	140600	7.6000e-004	6.8900e-003	5.7900e-003	4.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004	0.0000	7.5030	7.5030	1.4000e-004	1.4000e-004	7.5486
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.3002**	**2.6591**	**1.7817**	**0.0164**		**0.2074**	**0.2074**		**0.2074**	**0.2074**	**0.0000**	**2,970.5418**	**2,970.5418**	**0.0569**	**0.0544**	**2,988.6200**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					

City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	10222.5	6.0000e-005	5.0000e-004	4.2000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.5455	0.5455	1.0000e-005	1.0000e-005	0.5488
Elementary School	542447	2.9200e-003	0.0266	0.0223	1.6000e-004		2.0200e-003	2.0200e-003		2.0200e-003	2.0200e-003	0.0000	28.9470	28.9470	5.5000e-004	5.3000e-004	29.1232
Fast Food Restaurant with Drive Thru	367520	1.9800e-003	0.0180	0.0151	1.1000e-004		1.3700e-003	1.3700e-003		1.3700e-003	1.3700e-003	0.0000	19.6123	19.6123	3.8000e-004	3.6000e-004	19.7316
General Heavy Industry	524475	2.8300e-003	0.0257	0.0216	1.5000e-004		1.9500e-003	1.9500e-003		1.9500e-003	1.9500e-003	0.0000	27.9880	27.9880	5.4000e-004	5.1000e-004	28.1583
General Light Industry	1.04895e+006	5.6600e-003	0.0514	0.0432	3.1000e-004		3.9100e-003	3.9100e-003		3.9100e-003	3.9100e-003	0.0000	55.9760	55.9760	1.0700e-003	1.0300e-003	56.3166
General Office Building	2.56823e+006	0.0139	0.1259	0.1058	7.6000e-004		9.5700e-003	9.5700e-003		9.5700e-003	9.5700e-003	0.0000	137.0503	137.0503	2.6300e-003	2.5100e-003	137.8843
High Turnover (Sit Down Restaurant)	735040	3.9600e-003	0.0360	0.0303	2.2000e-004		2.7400e-003	2.7400e-003		2.7400e-003	2.7400e-003	0.0000	39.2245	39.2245	7.5000e-004	7.2000e-004	39.4633
Industrial Park	5.57156e+006	0.0300	0.2731	0.2294	1.6400e-003		0.0208	0.0208		0.0208	0.0208	0.0000	297.3198	297.3198	5.7000e-003	5.4500e-003	299.1292
Junior College (2yr)	1.08552e+007	0.0585	0.5321	0.4470	3.1900e-003		0.0404	0.0404		0.0404	0.0404	0.0000	579.2775	579.2775	0.0111	0.0106	582.8029
Manufacturing	524475	2.8300e-003	0.0257	0.0216	1.5000e-004		1.9500e-003	1.9500e-003		1.9500e-003	1.9500e-003	0.0000	27.9880	27.9880	5.4000e-004	5.1000e-004	28.1583
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	17037.5	9.0000e-005	8.4000e-004	7.0000e-004	1.0000e-005		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.9092	0.9092	2.0000e-005	2.0000e-005	0.9147
Refrigerated Warehouse-No Rail	653888	3.5300e-003	0.0321	0.0269	1.9000e-004		2.4400e-003	2.4400e-003		2.4400e-003	2.4400e-003	0.0000	34.8939	34.8939	6.7000e-004	6.4000e-004	35.1063
Regional Shopping Center	166968	9.0000e-004	8.1800e-003	6.8800e-003	5.0000e-005		6.2000e-004	6.2000e-004		6.2000e-004	6.2000e-004	0.0000	8.9100	8.9100	1.7000e-004	1.6000e-004	8.9643
Apartments Low Rise	7.78286e+006	0.0420	0.3586	0.1526	2.2900e-003		0.0290	0.0290		0.0290	0.0290	0.0000	415.3231	415.3231	7.9600e-003	7.6100e-003	417.8507
Bank (with Drive-Through)	79920	4.3000e-004	3.9200e-003	3.2900e-003	2.0000e-005		3.0000e-004	3.0000e-004		3.0000e-004	3.0000e-004	0.0000	4.2648	4.2648	8.0000e-005	8.0000e-005	4.2908
Research & Development	809190	4.3600e-003	0.0397	0.0333	2.4000e-004		3.0100e-003	3.0100e-003		3.0100e-003	3.0100e-003	0.0000	43.1815	43.1815	8.3000e-004	7.9000e-004	43.4443
Single Family Housing	1.13239e+007	0.0611	0.5218	0.2220	3.3300e-003		0.0422	0.0422		0.0422	0.0422	0.0000	604.2881	604.2881	0.0116	0.0111	607.9657
Supermarket	110200	5.9000e-004	5.4000e-003	4.5400e-003	3.0000e-005		4.1000e-004	4.1000e-004		4.1000e-004	4.1000e-004	0.0000	5.8807	5.8807	1.1000e-004	1.1000e-004	5.9165
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.2356**	**2.0856**	**1.3870**	**0.0129**		**0.1628**	**0.1628**		**0.1628**	**0.1628**	**0.0000**	**2,331.5801**	**2,331.5801**	**0.0447**	**0.0427**	**2,345.7697**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	2.77916e+006	705.0827	0.0366	7.5600e-003	708.1951
Bank (with Drive-Through)	20160	5.1147	2.7000e-004	5.0000e-005	5.1372
City Park	0	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	31530	7.9993	4.1000e-004	9.0000e-005	8.0346
Elementary School	635728	161.2864	8.3600e-003	1.7300e-003	161.9983
Fast Food Restaurant with Drive Thru	133960	33.9861	1.7600e-003	3.6000e-004	34.1361
General Heavy Industry	132300	33.5649	1.7400e-003	3.6000e-004	33.7131
General Light Industry	264600	67.1299	3.4800e-003	7.2000e-004	67.4262
General Office Building	2.47808e+006	628.6970	0.0326	6.7400e-003	631.4723
High Turnover (Sit Down Restaurant)	267920	67.9722	3.5200e-003	7.3000e-004	68.2722
Industrial Park	5.376e+006	1,363.9089	0.0707	0.0146	1,369.9295
Junior College (2yr)	5.7155e+006	1,450.0411	0.0752	0.0156	1,456.4420
Manufacturing	132300	33.5649	1.7400e-003	3.6000e-004	33.7131
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	52550	13.3321	6.9000e-004	1.4000e-004	13.3910
Refrigerated Warehouse-No Rail	3.06915e+006	778.6534	0.0404	8.3500e-003	782.0906
Regional Shopping Center	514990	130.6547	6.7700e-003	1.4000e-003	131.2314

Research & Development	204120	51.7859	2.6900e-003	5.6000e-004	52.0145
Single Family Housing	4.25941e+006	1,080.6259	0.0560	0.0116	1,085.3961
Supermarket	765400	194.1845	0.0101	2.0800e-003	195.0417
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**6,807.5845**	**0.3530**	**0.0730**	**6,837.6352**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	2.7296e+006	692.5096	0.0359	7.4300e-003	695.5665
Bank (with Drive-Through)	19420	4.9269	2.6000e-004	5.0000e-005	4.9487
City Park	0	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	29355	7.4475	3.9000e-004	8.0000e-005	7.4803
Elementary School	598748	151.9044	7.8800e-003	1.6300e-003	152.5749
Fast Food Restaurant with Drive-Thru	126810	32.1721	1.6700e-003	3.5000e-004	32.3141
General Heavy Industry	127444	32.3329	1.6800e-003	3.5000e-004	32.4756
General Light Industry	254887	64.6658	3.3500e-003	6.9000e-004	64.9513
General Office Building	2.31776e+006	588.0221	0.0305	6.3100e-003	590.6178
High Turnover (Sit Down Restaurant)	253620	64.3442	3.3400e-003	6.9000e-004	64.6283
Industrial Park	5.02819e+006	1,275.6677	0.0661	0.0137	1,281.2989
Junior College (2yr)	5.425e+006	1,376.3403	0.0714	0.0148	1,382.4159

Manufacturing	127444	32.3329	1.6800e-003	3.5000e-004	32.4756
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	48925	12.4124	6.4000e-004	1.3000e-004	12.4672
Refrigerated Warehouse-No Rail	3.05524e+006	775.1238	0.0402	8.3100e-003	778.5454
Regional Shopping Center	479465	121.6419	6.3100e-003	1.3000e-003	122.1788
Research & Development	196627	49.8850	2.5900e-003	5.4000e-004	50.1053
Single Family Housing	4.17563e+006	1,059.3708	0.0549	0.0114	1,064.0472
Supermarket	747100	189.5417	9.8300e-003	2.0300e-003	190.3784
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**6,530.6420**	**0.3386**	**0.0700**	**6,559.4701**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	28.8014	0.1156	9.9915	5.3000e-004		0.0951	0.0951		0.0946	0.0946	0.0000	594.5752	594.5752	0.0271	0.0106	598.4316
Unmitigated	28.8014	0.1156	9.9915	5.3000e-004		0.0951	0.0951		0.0946	0.0946	0.0000	594.5752	594.5752	0.0271	0.0106	598.4316

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.0734					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	25.3621					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0584	0.0000	3.1900e-003	0.0000		0.0404	0.0404		0.0400	0.0400	0.0000	578.3319	578.3319	0.0111	0.0106	581.8515
Landscaping	0.3075	0.1156	9.9883	5.3000e-004		0.0547	0.0547		0.0547	0.0547	0.0000	16.2434	16.2434	0.0160	0.0000	16.5801
Total	**28.8014**	**0.1156**	**9.9915**	**5.3000e-004**		**0.0951**	**0.0951**		**0.0946**	**0.0946**	**0.0000**	**594.5752**	**594.5752**	**0.0271**	**0.0106**	**598.4316**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.0734					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	25.3621					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0584	0.0000	3.1900e-003	0.0000		0.0404	0.0404		0.0400	0.0400	0.0000	578.3319	578.3319	0.0111	0.0106	581.8515
Landscaping	0.3075	0.1156	9.9883	5.3000e-004		0.0547	0.0547		0.0547	0.0547	0.0000	16.2434	16.2434	0.0160	0.0000	16.5801
Total	**28.8014**	**0.1156**	**9.9915**	**5.3000e-004**		**0.0951**	**0.0951**		**0.0946**	**0.0946**	**0.0000**	**594.5752**	**594.5752**	**0.0271**	**0.0106**	**598.4316**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	0 / 0	0.0000	0.0000	0.0000	0.0000
Bank (with Drive-Through)	0 / 0	0.0000	0.0000	0.0000	0.0000
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	0 / 0	0.0000	0.0000	0.0000	0.0000
Elementary School	0 / 0	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant with Drive-Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
General Heavy Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	0 / 0	0.0000	0.0000	0.0000	0.0000

Industrial Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Junior College (2yr)	0 / 0	0.0000	0.0000	0.0000	0.0000
Manufacturing	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0 / 0	0.0000	0.0000	0.0000	0.0000
Research & Development	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Supermarket	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	0 / 0	0.0000	0.0000	0.0000	0.0000
Bank (with Drive-Through)	0 / 0	0.0000	0.0000	0.0000	0.0000
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	0 / 0	0.0000	0.0000	0.0000	0.0000
Elementary School	0 / 0	0.0000	0.0000	0.0000	0.0000

Fast Food Restaurant with Drive Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
General Heavy Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	0 / 0	0.0000	0.0000	0.0000	0.0000
Industrial Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Junior College (2yr)	0 / 0	0.0000	0.0000	0.0000	0.0000
Manufacturing	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0 / 0	0.0000	0.0000	0.0000	0.0000
Research & Development	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Supermarket	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Unmitigated	699.0055	41.3100	0.0000	1,566.5163
Mitigated	174.7514	10.3275	0.0000	391.6291

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	345	70.0319	4.1388	0.0000	156.9460
Bank (with Drive-Through)	7.46	1.5143	0.0895	0.0000	3.3937
City Park	0.43	0.0873	5.1600e-003	0.0000	0.1956
Convenience Market with Gas Pumps	9.02	1.8310	0.1082	0.0000	4.1033
Elementary School	181.41	36.8246	2.1763	0.0000	82.5263
Fast Food Restaurant with Drive-Thru	46.08	9.3538	0.5528	0.0000	20.9625
General Heavy Industry	65.1	13.2147	0.7810	0.0000	29.6150
General Light Industry	130.2	26.4294	1.5619	0.0000	59.2300
General Office Building	225.06	45.6852	2.6999	0.0000	102.3834
High Turnover (Sit Down Restaurant)	95.2	19.3247	1.1421	0.0000	43.3080

Industrial Park	651	132.1471	7.8097	0.0000	296.1502
Junior College (2yr)	455	92.3609	5.4584	0.0000	206.9867
Manufacturing	65.1	13.2147	0.7810	0.0000	29.6150
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	15.03	3.0510	0.1803	0.0000	6.8374
Refrigerated Warehouse-No Rail	98.7	20.0352	1.1841	0.0000	44.9002
Regional Shopping Center	51.45	10.4439	0.6172	0.0000	23.4054
Research & Development	6.16	1.2504	0.0739	0.0000	2.8023
Single Family Housing	685.93	139.2376	8.2287	0.0000	312.0404
Supermarket	112.8	22.8974	1.3532	0.0000	51.3145
Unrefrigerated Warehouse-No Rail	197.4	40.0704	2.3681	0.0000	89.8004
Total		**699.0055**	**41.3101**	**0.0000**	**1,566.5163**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	86.25	17.5080	1.0347	0.0000	39.2365
Bank (with Drive-Through)	1.865	0.3786	0.0224	0.0000	0.8484
City Park	0.1075	0.0218	1.2900e-003	0.0000	0.0489
Convenience Market with Gas Pumps	2.255	0.4577	0.0271	0.0000	1.0258
Elementary School	45.3525	9.2062	0.5441	0.0000	20.6316

Fast Food Restaurant with Drive Thru	11.52	2.3385	0.1382	0.0000	5.2406
General Heavy Industry	16.275	3.3037	0.1952	0.0000	7.4038
General Light Industry	32.55	6.6074	0.3905	0.0000	14.8075
General Office Building	56.265	11.4213	0.6750	0.0000	25.5958
High Turnover (Sit Down Restaurant)	23.8	4.8312	0.2855	0.0000	10.8270
Industrial Park	162.75	33.0368	1.9524	0.0000	74.0376
Junior College (2yr)	113.75	23.0902	1.3646	0.0000	51.7467
Manufacturing	16.275	3.3037	0.1952	0.0000	7.4038
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	3.7575	0.7627	0.0451	0.0000	1.7094
Refrigerated Warehouse-No Rail	24.675	5.0088	0.2960	0.0000	11.2251
Regional Shopping Center	12.8625	2.6110	0.1543	0.0000	5.8514
Research & Development	1.54	0.3126	0.0185	0.0000	0.7006
Single Family Housing	171.482	34.8094	2.0572	0.0000	78.0101
Supermarket	28.2	5.7244	0.3383	0.0000	12.8286
Unrefrigerated Warehouse-No Rail	49.35	10.0176	0.5920	0.0000	22.4501
Total		**174.7514**	**10.3275**	**0.0000**	**391.6291**

9.0 Operational Offroad

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

10.0 Vegetation

Grapevine Operational Year 2019 - Planning Area 6A Buildout

Kern-San Joaquin County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Bank (with Drive-Through)	8.00	1000sqft	0.74	8,000.00	0
General Office Building	242.00	1000sqft	22.30	242,000.00	0
Pharmacy/Drugstore w/o Drive Thru	5.00	1000sqft	0.46	5,000.00	0
Research & Development	81.00	1000sqft	6.30	81,000.00	0
Elementary School	994.00	Student	5.00	83,101.75	0
Junior College (2yr)	350.00	1000sqft	27.25	350,000.00	0
General Heavy Industry	52.50	1000sqft	4.09	52,500.00	0
General Light Industry	105.00	1000sqft	8.18	105,000.00	0
Industrial Park	525.00	1000sqft	40.88	525,000.00	0
Manufacturing	52.50	1000sqft	4.09	52,500.00	0
Refrigerated Warehouse-No Rail	105.00	1000sqft	8.18	105,000.00	0
Unrefrigerated Warehouse-No Rail	210.00	1000sqft	16.35	210,000.00	0
Other Asphalt Surfaces	59.00	Acre	59.00	2,570,040.00	0
City Park	5.00	Acre	5.00	217,800.00	0
Fast Food Restaurant with Drive Thru	4.00	1000sqft	0.53	4,000.00	0
High Turnover (Sit Down Restaurant)	8.00	1000sqft	1.07	8,000.00	0
Apartments Low Rise	750.00	Dwelling Unit	75.00	750,000.00	2400
Single Family Housing	585.00	Dwelling Unit	149.00	1,053,000.00	1872
Convenience Market with Gas Pumps	3.00	1000sqft	0.40	3,000.00	0
Regional Shopping Center	49.00	1000sqft	6.53	49,000.00	0
Supermarket	20.00	1000sqft	2.67	20,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	7			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	559.32	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Planning Area 6A. Kern County, San Joaquin Valley Air Basin. CO2 Intensity adjusted based on PG&E 25% Renewables by December 31, 2016.

Land Use - See 1.1 Land Usage. Population based on 3.2 persons per dwelling unit.

Construction Phase - Construction emissions calculated separately.

Vehicle Trips - Modified trip rates to match Trip Generation and VMT factors provided by Fehr & Peers.

Vehicle Emission Factors - Default CalEEMod values.

Woodstoves - No woodstoves and only gas fireplaces assumed

Area Coating - Default CalEEMod VOC content. Modified non-residential interior and exterior area to be coated based on CalEEMod architectural coating surface area equations and adjusted for parking/asphalt surface and park land uses.

Energy Use - Updated Title 24 electricity and natural gas energy intensity to match 2013 Title 24 standards (25% reduction versus 2008 standards).

Water And Wastewater - Water and wastewater consumption and associated emissions calculated separately.

Construction Off-road Equipment Mitigation - Construction emissions calculated separately.

Mobile Land Use Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Project Setting: Suburban Center. Improve Pedestrian Network: Project Site and Connecting Off-Site. Provide Traffic Calming Measures: 100% Streets with Improvement, 100% Intersections with Improvement. Expand Transit Network: 50%.

Mobile Commute Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Voluntary Commute Trip Reduction Program: 50%.

Energy Mitigation - Exceed 2013 Title 24, % Improvement: 25%.

Water Mitigation - Water reductions calculated separately.

Waste Mitigation - Percent Reduction in Waste Disposed: 75%. Waste diversion consistent with Assembly Bill 341 (not mitigation).

Note Regarding Emissions Presented in the Air Quality & Greenhouse Gas Technical Report: Project-generated unmitigated and mitigated emissions in the Technical Report reflect the unmitigated mobile source emissions reported in 2.0 Emissions Summary. No area source mitigation assumed. Unmitigated and mitigated energy source and solid waste emissions reported in the Technical Report as presented in 2.0 Emissions Summary. Water/wastewater and stationary source emissions calculated separately.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	2345471	1118246
tblAreaCoating	Area_Nonresidential_Interior	7036413	2854653
tblConstructionPhase	NumDays	7,750.00	5.00
tblEnergyUse	T24E	352.42	264.31
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	4.43	3.32
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.70	0.53
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	763.80	572.85
tblEnergyUse	T24E	4.88	3.66
tblEnergyUse	T24NG	14,007.38	10,505.53
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71

tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	54.53	40.90
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	5.56	4.17
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	23,622.31	17,716.73
tblEnergyUse	T24NG	8.10	6.08
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblLandUse	LotAcreage	0.18	0.74
tblLandUse	LotAcreage	5.56	22.30
tblLandUse	LotAcreage	0.11	0.46
tblLandUse	LotAcreage	1.86	6.30
tblLandUse	LotAcreage	1.91	5.00
tblLandUse	LotAcreage	8.03	27.25
tblLandUse	LotAcreage	1.21	4.09
tblLandUse	LotAcreage	2.41	8.18
tblLandUse	LotAcreage	12.05	40.88
tblLandUse	LotAcreage	1.21	4.09
tblLandUse	LotAcreage	2.41	8.18
tblLandUse	LotAcreage	4.82	16.35
tblLandUse	LotAcreage	0.09	0.53
tblLandUse	LotAcreage	0.18	1.07
tblLandUse	LotAcreage	46.88	75.00
tblLandUse	LotAcreage	189.94	149.00
tblLandUse	LotAcreage	0.07	0.40
tblLandUse	LotAcreage	1.12	6.53

tblLandUse	LotAcreage	0.46	2.67
tblLandUse	Population	2,145.00	2,400.00
tblLandUse	Population	1,673.00	1,872.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	559.32
tblProjectCharacteristics	OperationalYear	2014	2019
tblTripsAndVMT	VendorTripNumber	912.00	0.00
tblTripsAndVMT	WorkerTripNumber	2,680.00	0.00
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
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tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62

tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
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tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CW_TL	9.50	15.62
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tblVehicleTrips	CW_TL	9.50	15.62
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tblVehicleTrips	CW_TL	9.50	15.62
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tblVehicleTrips	CW_TL	9.50	15.62
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tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	26.00	0.00
tblVehicleTrips	DV_TP	28.00	0.00
tblVehicleTrips	DV_TP	21.00	0.00
tblVehicleTrips	DV_TP	25.00	0.00
tblVehicleTrips	DV_TP	21.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	20.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	7.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	6.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	35.00	0.00
tblVehicleTrips	DV_TP	15.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	30.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	HO_TL	7.50	15.62

tblVehicleTrips	HO_TL	7.50	15.62
tblVehicleTrips	HS_TL	7.30	15.62
tblVehicleTrips	HS_TL	7.30	15.62
tblVehicleTrips	HW_TL	10.80	15.62
tblVehicleTrips	HW_TL	10.80	15.62
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	47.00	0.00
tblVehicleTrips	PB_TP	6.00	0.00
tblVehicleTrips	PB_TP	65.00	0.00
tblVehicleTrips	PB_TP	12.00	0.00
tblVehicleTrips	PB_TP	50.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PB_TP	43.00	0.00
tblVehicleTrips	PB_TP	2.00	0.00
tblVehicleTrips	PB_TP	1.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	53.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	11.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	36.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	27.00	100.00
tblVehicleTrips	PR_TP	66.00	100.00
tblVehicleTrips	PR_TP	14.00	100.00
tblVehicleTrips	PR_TP	63.00	100.00

tblVehicleTrips	PR_TP	29.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	PR_TP	37.00	100.00
tblVehicleTrips	PR_TP	79.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	PR_TP	41.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	54.00	100.00
tblVehicleTrips	PR_TP	82.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	34.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	7.16	5.89
tblVehicleTrips	ST_TR	86.32	5.23
tblVehicleTrips	ST_TR	1.59	1.54
tblVehicleTrips	ST_TR	1,448.33	59.54
tblVehicleTrips	ST_TR	722.03	50.58
tblVehicleTrips	ST_TR	1.50	0.55
tblVehicleTrips	ST_TR	1.32	0.55
tblVehicleTrips	ST_TR	2.37	1.93
tblVehicleTrips	ST_TR	158.37	43.29
tblVehicleTrips	ST_TR	2.49	1.99
tblVehicleTrips	ST_TR	11.23	1.73
tblVehicleTrips	ST_TR	1.49	1.13
tblVehicleTrips	ST_TR	90.06	8.98
tblVehicleTrips	ST_TR	2.59	2.90

tblVehicleTrips	ST_TR	49.97	40.45
tblVehicleTrips	ST_TR	1.90	2.10
tblVehicleTrips	ST_TR	10.08	8.16
tblVehicleTrips	ST_TR	177.59	60.37
tblVehicleTrips	ST_TR	2.59	2.90
tblVehicleTrips	SU_TR	6.07	4.99
tblVehicleTrips	SU_TR	31.90	1.94
tblVehicleTrips	SU_TR	1.59	1.54
tblVehicleTrips	SU_TR	1,182.08	48.59
tblVehicleTrips	SU_TR	542.72	38.02
tblVehicleTrips	SU_TR	1.50	0.20
tblVehicleTrips	SU_TR	0.68	0.28
tblVehicleTrips	SU_TR	0.98	0.80
tblVehicleTrips	SU_TR	131.84	36.04
tblVehicleTrips	SU_TR	0.73	0.59
tblVehicleTrips	SU_TR	1.21	0.19
tblVehicleTrips	SU_TR	0.62	0.47
tblVehicleTrips	SU_TR	90.06	8.98
tblVehicleTrips	SU_TR	2.59	2.90
tblVehicleTrips	SU_TR	25.24	20.43
tblVehicleTrips	SU_TR	1.11	1.23
tblVehicleTrips	SU_TR	8.77	7.10
tblVehicleTrips	SU_TR	166.44	56.58
tblVehicleTrips	SU_TR	2.59	2.90
tblVehicleTrips	WD_TR	6.59	5.41
tblVehicleTrips	WD_TR	148.15	8.98
tblVehicleTrips	WD_TR	1.59	1.54
tblVehicleTrips	WD_TR	845.60	34.76
tblVehicleTrips	WD_TR	1.29	1.05
tblVehicleTrips	WD_TR	496.12	34.76

tblVehicleTrips	WD_TR	1.50	2.90
tblVehicleTrips	WD_TR	6.97	2.90
tblVehicleTrips	WD_TR	11.01	8.98
tblVehicleTrips	WD_TR	127.15	34.76
tblVehicleTrips	WD_TR	6.96	5.56
tblVehicleTrips	WD_TR	27.49	4.23
tblVehicleTrips	WD_TR	3.82	2.90
tblVehicleTrips	WD_TR	90.06	8.98
tblVehicleTrips	WD_TR	2.59	2.90
tblVehicleTrips	WD_TR	42.94	34.76
tblVehicleTrips	WD_TR	8.11	8.98
tblVehicleTrips	WD_TR	9.57	7.75
tblVehicleTrips	WD_TR	102.24	34.76
tblVehicleTrips	WD_TR	2.59	2.90
tblWater	IndoorWaterUseRate	48,865,519.22	0.00
tblWater	IndoorWaterUseRate	316,983.35	0.00
tblWater	IndoorWaterUseRate	222,217.56	0.00
tblWater	IndoorWaterUseRate	2,409,694.56	0.00
tblWater	IndoorWaterUseRate	1,214,134.85	0.00
tblWater	IndoorWaterUseRate	12,140,625.00	0.00
tblWater	IndoorWaterUseRate	24,281,250.00	0.00
tblWater	IndoorWaterUseRate	43,011,567.01	0.00
tblWater	IndoorWaterUseRate	2,428,269.70	0.00
tblWater	IndoorWaterUseRate	121,406,250.00	0.00
tblWater	IndoorWaterUseRate	17,167,161.38	0.00
tblWater	IndoorWaterUseRate	12,140,625.00	0.00
tblWater	IndoorWaterUseRate	352,237.62	0.00
tblWater	IndoorWaterUseRate	24,281,250.00	0.00
tblWater	IndoorWaterUseRate	3,629,553.55	0.00
tblWater	IndoorWaterUseRate	39,827,209.72	0.00

tblWater	IndoorWaterUseRate	38,115,104.99	0.00
tblWater	IndoorWaterUseRate	2,465,364.30	0.00
tblWater	IndoorWaterUseRate	48,562,500.00	0.00
tblWater	OutdoorWaterUseRate	30,806,522.98	0.00
tblWater	OutdoorWaterUseRate	194,280.12	0.00
tblWater	OutdoorWaterUseRate	5,957,406.75	0.00
tblWater	OutdoorWaterUseRate	136,197.86	0.00
tblWater	OutdoorWaterUseRate	6,196,357.44	0.00
tblWater	OutdoorWaterUseRate	77,497.97	0.00
tblWater	OutdoorWaterUseRate	26,361,928.17	0.00
tblWater	OutdoorWaterUseRate	154,995.94	0.00
tblWater	OutdoorWaterUseRate	26,851,201.13	0.00
tblWater	OutdoorWaterUseRate	215,887.57	0.00
tblWater	OutdoorWaterUseRate	2,224,565.08	0.00
tblWater	OutdoorWaterUseRate	24,029,087.93	0.00
tblWater	OutdoorWaterUseRate	76,248.38	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	160.6522	1.2849	111.0591	5.8400e-003		1.5923	1.5923		1.5819	1.5819	0.0000	15,747.7707	15,747.7707	0.4944	0.2851	15,846.5220
Energy	1.6447	14.5705	9.7624	0.0897		1.1363	1.1363		1.1363	1.1363		17,942.2564	17,942.2564	0.3439	0.3289	18,051.4500
Mobile	149.8628	885.3878	2,118.2769	5.6404	285.2921	14.6447	299.9367	76.7487	13.4799	90.2287		485,606.0028	485,606.0028	11.6248		485,850.1236

Total	**312.1597**	**901.2431**	**2,239.0985**	**5.7360**	**285.2921**	**17.3733**	**302.6654**	**76.7487**	**16.1982**	**92.9469**	**0.0000**	**519,296.0299**	**519,296.0299**	**12.4631**	**0.6140**	**519,748.0956**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	160.6522	1.2849	111.0591	5.8400e-003		1.5923	1.5923		1.5819	1.5819	0.0000	15,747.7707	15,747.7707	0.4944	0.2851	15,846.5220
Energy	1.2909	11.4278	7.5999	0.0704		0.8919	0.8919		0.8919	0.8919		14,082.8883	14,082.8883	0.2699	0.2582	14,168.5945
Mobile	145.8140	842.4928	2,060.9037	5.3408	269.8354	13.8682	283.7036	72.5906	12.7653	85.3558		459,751.7868	459,751.7868	11.0343		459,983.5072
Total	**307.7571**	**855.2055**	**2,179.5628**	**5.4171**	**269.8354**	**16.3525**	**286.1878**	**72.5906**	**15.2391**	**87.8297**	**0.0000**	**489,582.4459**	**489,582.4459**	**11.7986**	**0.5433**	**489,998.6237**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.41**	**5.11**	**2.66**	**5.56**	**5.42**	**5.88**	**5.44**	**5.42**	**5.92**	**5.51**	**0.00**	**5.72**	**5.72**	**5.33**	**11.52**	**5.72**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

Provide Traffic Calming Measures

Expand Transit Network

Implement Trip Reduction Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	145.8140	842.4928	2,060.9037	5.3408	269.8354	13.8682	283.7036	72.5906	12.7653	85.3558		459,751.7868	459,751.7868	11.0343		459,983.5072
Unmitigated	149.8628	885.3878	2,118.2769	5.6404	285.2921	14.6447	299.9367	76.7487	13.4799	90.2287		485,606.0028	485,606.0028	11.6248		485,850.1236

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	4,057.50	4,417.50	3742.50	23,106,197	21,854,335
Bank (with Drive-Through)	71.84	41.84	15.52	338,347	320,016
City Park	7.70	7.70	7.70	43,780	41,408
Convenience Market with Gas Pumps	104.28	178.62	145.77	686,984	649,765
Elementary School	1,043.70	0.00	0.00	4,238,674	4,009,029
Fast Food Restaurant with Drive Thru	139.04	202.32	152.08	852,527	806,338
General Heavy Industry	152.25	28.88	10.50	650,300	615,067
General Light Industry	304.50	57.75	29.40	1,307,422	1,236,588
General Office Building	2,173.16	467.06	193.60	9,362,252	8,855,018
High Turnover (Sit Down Restaurant)	278.08	346.32	288.32	1,644,818	1,555,704
Industrial Park	2,919.00	1,044.75	309.75	12,954,822	12,252,947
Junior College (2yr)	1,480.50	605.50	66.50	6,558,432	6,203,105
Manufacturing	152.25	59.33	24.68	686,546	649,350
Other Asphalt Surfaces	0.00	0.00	0.00		
Pharmacy/Drugstore w/o Drive Thru	44.90	44.90	44.90	255,287	241,456
Refrigerated Warehouse-No Rail	304.50	304.50	304.50	1,731,290	1,637,491
Regional Shopping Center	1,703.24	1,982.05	1001.07	9,340,208	8,834,168
Research & Development	727.38	170.10	99.63	3,173,121	3,001,206
Single Family Housing	4,533.75	4,773.60	4153.50	25,663,413	24,273,005
Supermarket	695.20	1,207.40	1131.60	4,723,176	4,467,280
Unrefrigerated Warehouse-No Rail	609.00	609.00	609.00	3,462,579	3,274,981
Total	21,501.77	16,549.11	12,330.52	110,780,175	104,778,258

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0

Bank (with Drive-Through)	15.62	15.62	15.62	6.60	74.40	19.00	100	0	0
City Park	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Convenience Market with Gas	15.62	15.62	15.62	0.80	80.20	19.00	100	0	0
Elementary School	15.62	15.62	15.62	65.00	30.00	5.00	100	0	0
Fast Food Restaurant with Drive	15.62	15.62	15.62	2.20	78.80	19.00	100	0	0
General Heavy Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Light Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Office Building	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
High Turnover (Sit Down	15.62	15.62	15.62	8.50	72.50	19.00	100	0	0
Industrial Park	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Junior College (2yr)	15.62	15.62	15.62	6.40	88.60	5.00	100	0	0
Manufacturing	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Other Asphalt Surfaces	15.62	15.62	15.62	0.00	0.00	0.00	100	0	0
Pharmacy/Drugstore w/o Drive	15.62	15.62	15.62	7.40	73.60	19.00	100	0	0
Refrigerated Warehouse-No Rail	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0
Regional Shopping Center	15.62	15.62	15.62	16.30	64.70	19.00	100	0	0
Research & Development	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Single Family Housing	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Supermarket	15.62	15.62	15.62	6.50	74.50	19.00	100	0	0
Unrefrigerated Warehouse-No	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.351508	0.055281	0.136890	0.180479	0.057090	0.010414	0.023170	0.172273	0.001509	0.001820	0.005977	0.001077	0.002512

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	1.2909	11.4278	7.5999	0.0704		0.8919	0.8919		0.8919	0.8919		14,082.8883	14,082.8883	0.2699	0.2582	14,168.5945
NaturalGas Unmitigated	1.6447	14.5705	9.7624	0.0897		1.1363	1.1363		1.1363	1.1363		17,942.2564	17,942.2564	0.3439	0.3289	18,051.4500

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Bank (with Drive-Through)	291.068	3.1400e-003	0.0285	0.0240	1.7000e-004		2.1700e-003	2.1700e-003		2.1700e-003	2.1700e-003		34.2434	34.2434	6.6000e-004	6.3000e-004	34.4518
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	37.1507	4.0000e-004	3.6400e-003	3.0600e-003	2.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		4.3707	4.3707	8.0000e-005	8.0000e-005	4.3973
Elementary School	1946.63	0.0210	0.1909	0.1603	1.1500e-003		0.0145	0.0145		0.0145	0.0145		229.0153	229.0153	4.3900e-003	4.2000e-003	230.4091
Fast Food Restaurant with Drive-Thru	1045.15	0.0113	0.1025	0.0861	6.1000e-004		7.7900e-003	7.7900e-003		7.7900e-003	7.7900e-003		122.9589	122.9589	2.3600e-003	2.2500e-003	123.7072
General Heavy Industry	1910.14	0.0206	0.1873	0.1573	1.1200e-003		0.0142	0.0142		0.0142	0.0142		224.7220	224.7220	4.3100e-003	4.1200e-003	226.0896
General Light Industry	3820.27	0.0412	0.3745	0.3146	2.2500e-003		0.0285	0.0285		0.0285	0.0285		449.4440	449.4440	8.6100e-003	8.2400e-003	452.1792
General Office Building	9142.96	0.0986	0.8964	0.7530	5.3800e-003		0.0681	0.0681		0.0681	0.0681		1,075.6422	1,075.6422	0.0206	0.0197	1,082.1884
High Turnover (Sit Down Restaurant)	2090.3	0.0225	0.2049	0.1721	1.2300e-003		0.0156	0.0156		0.0156	0.0156		245.9178	245.9178	4.7100e-003	4.5100e-003	247.4144
Industrial Park	19834.9	0.2139	1.9446	1.6335	0.0117		0.1478	0.1478		0.1478	0.1478		2,333.5214	2,333.5214	0.0447	0.0428	2,347.7228
Junior College (2yr)	39545.2	0.4265	3.8770	3.2567	0.0233		0.2947	0.2947		0.2947	0.2947		4,652.3771	4,652.3771	0.0892	0.0853	4,680.6907
Manufacturing	1910.14	0.0206	0.1873	0.1573	1.1200e-003		0.0142	0.0142		0.0142	0.0142		224.7220	224.7220	4.3100e-003	4.1200e-003	226.0896

Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	61.9178	6.7000e-004	6.0700e-003	5.1000e-003	4.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004		7.2845	7.2845	1.4000e-004	1.3000e-004	7.3288
Refrigerated Warehouse-No Rail	2091.37	0.0226	0.2050	0.1722	1.2300e-003		0.0156	0.0156		0.0156	0.0156		246.0435	246.0435	4.7200e-003	4.5100e-003	247.5409
Apartments Low Rise	26719.6	0.2882	2.4624	1.0478	0.0157		0.1991	0.1991		0.1991	0.1991		3,143.4803	3,143.4803	0.0603	0.0576	3,162.6110
Regional Shopping Center	606.795	6.5400e-003	0.0595	0.0500	3.6000e-004		4.5200e-003	4.5200e-003		4.5200e-003	4.5200e-003		71.3876	71.3876	1.3700e-003	1.3100e-003	71.8220
Research & Development	2947.07	0.0318	0.2889	0.2427	1.7300e-003		0.0220	0.0220		0.0220	0.0220		346.7139	346.7139	6.6500e-003	6.3600e-003	348.8240
Single Family Housing	38123.3	0.4111	3.5133	1.4950	0.0224		0.2841	0.2841		0.2841	0.2841		4,485.0937	4,485.0937	0.0860	0.0822	4,512.3892
Supermarket	385.205	4.1500e-003	0.0378	0.0317	2.3000e-004		2.8700e-003	2.8700e-003		2.8700e-003	2.8700e-003		45.3183	45.3183	8.7000e-004	8.3000e-004	45.5941
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.6447**	**14.5705**	**9.7624**	**0.0897**		**1.1363**	**1.1363**		**1.1363**	**1.1363**		**17,942.2564**	**17,942.2564**	**0.3439**	**0.3289**	**18,051.4500**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	0.0280068	3.0000e-004	2.7500e-003	2.3100e-003	2.0000e-005		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004		3.2949	3.2949	6.0000e-005	6.0000e-005	3.3150
Elementary School	1.48616	0.0160	0.1457	0.1224	8.7000e-004		0.0111	0.0111		0.0111	0.0111		174.8418	174.8418	3.3500e-003	3.2100e-003	175.9059
Fast Food Restaurant with Drive Thru	1.0069	0.0109	0.0987	0.0829	5.9000e-004		7.5000e-003	7.5000e-003		7.5000e-003	7.5000e-003		118.4593	118.4593	2.2700e-003	2.1700e-003	119.1802
General Heavy Industry	1.43692	0.0155	0.1409	0.1183	8.5000e-004		0.0107	0.0107		0.0107	0.0107		169.0492	169.0492	3.2400e-003	3.1000e-003	170.0780
General Light Industry	2.87384	0.0310	0.2818	0.2367	1.6900e-003		0.0214	0.0214		0.0214	0.0214		338.0983	338.0983	6.4800e-003	6.2000e-003	340.1559
General Office Building	7.03623	0.0759	0.6898	0.5795	4.1400e-003		0.0524	0.0524		0.0524	0.0524		827.7921	827.7921	0.0159	0.0152	832.8299

High Turnover (Sit Down Restaurant)	2.01381	0.0217	0.1974	0.1658	1.1800e-003		0.0150	0.0150		0.0150	0.0150		236.9186	236.9186	4.5400e-003	4.3400e-003	238.3605
Industrial Park	15.2646	0.1646	1.4965	1.2571	8.9800e-003		0.1137	0.1137		0.1137	0.1137		1,795.8300	1,795.8300	0.0344	0.0329	1,806.7591
Junior College (2yr)	29.7404	0.3207	2.9157	2.4492	0.0175		0.2216	0.2216		0.2216	0.2216		3,498.8719	3,498.8719	0.0671	0.0642	3,520.1654
Manufacturing	1.43692	0.0155	0.1409	0.1183	8.5000e-004		0.0107	0.0107		0.0107	0.0107		169.0492	169.0492	3.2400e-003	3.1000e-003	170.0780
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	0.0466781	5.0000e-004	4.5800e-003	3.8400e-003	3.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004		5.4915	5.4915	1.1000e-004	1.0000e-004	5.5250
Refrigerated Warehouse-No Rail	1.79147	0.0193	0.1756	0.1475	1.0500e-003		0.0134	0.0134		0.0134	0.0134		210.7615	210.7615	4.0400e-003	3.8600e-003	212.0441
Regional Shopping Center	0.457445	4.9300e-003	0.0449	0.0377	2.7000e-004		3.4100e-003	3.4100e-003		3.4100e-003	3.4100e-003		53.8171	53.8171	1.0300e-003	9.9000e-004	54.1446
Apartments Low Rise	21.3229	0.2300	1.9651	0.8362	0.0125		0.1589	0.1589		0.1589	0.1589		2,508.5772	2,508.5772	0.0481	0.0460	2,523.8439
Bank (with Drive-Through)	0.218959	2.3600e-003	0.0215	0.0180	1.3000e-004		1.6300e-003	1.6300e-003		1.6300e-003	1.6300e-003		25.7599	25.7599	4.9000e-004	4.7000e-004	25.9166
Research & Development	2.21696	0.0239	0.2174	0.1826	1.3000e-003		0.0165	0.0165		0.0165	0.0165		260.8187	260.8187	5.0000e-003	4.7800e-003	262.4060
Single Family Housing	31.0245	0.3346	2.8591	1.2167	0.0183		0.2312	0.2312		0.2312	0.2312		3,649.9376	3,649.9376	0.0700	0.0669	3,672.1505
Supermarket	0.301918	3.2600e-003	0.0296	0.0249	1.8000e-004		2.2500e-003	2.2500e-003		2.2500e-003	2.2500e-003		35.5197	35.5197	6.8000e-004	6.5000e-004	35.7359
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.2909**	**11.4278**	**7.5999**	**0.0704**		**0.8919**	**0.8919**		**0.8919**	**0.8919**		**14,082.8883**	**14,082.8883**	**0.2699**	**0.2582**	**14,168.5945**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Mitigated	160.6522	1.2849	111.0591	5.8400e-003		1.5923	1.5923		1.5819	1.5819	0.0000	15,747.7707	15,747.7707	0.4944	0.2851	15,846.5220
Unmitigated	160.6522	1.2849	111.0591	5.8400e-003		1.5923	1.5923		1.5819	1.5819	0.0000	15,747.7707	15,747.7707	0.4944	0.2851	15,846.5220

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	16.8403					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	138.9704					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.4253	6.0000e-005	0.0777	0.0000		0.9848	0.9848		0.9744	0.9744	0.0000	15,548.8235	15,548.8235	0.2980	0.2851	15,643.4511
Landscaping	3.4163	1.2848	110.9814	5.8400e-003		0.6076	0.6076		0.6076	0.6076		198.9472	198.9472	0.1964		203.0710
Total	**160.6522**	**1.2848**	**111.0591**	**5.8400e-003**		**1.5923**	**1.5923**		**1.5819**	**1.5819**	**0.0000**	**15,747.7707**	**15,747.7707**	**0.4944**	**0.2851**	**15,846.5220**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	16.8403					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	138.9704					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.4253	6.0000e-005	0.0777	0.0000		0.9848	0.9848		0.9744	0.9744	0.0000	15,548.8235	15,548.8235	0.2980	0.2851	15,643.4511

Landscaping	3.4163	1.2848	110.9814	5.8400e-003		0.6076	0.6076		0.6076	0.6076		198.9472	198.9472	0.1964		203.0710
Total	**160.6522**	**1.2848**	**111.0591**	**5.8400e-003**		**1.5923**	**1.5923**		**1.5819**	**1.5819**	**0.0000**	**15,747.7707**	**15,747.7707**	**0.4944**	**0.2851**	**15,846.5220**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Vegetation

Grapevine Operational Year 2019 - Planning Area 6A Buildout

Kern-San Joaquin County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Bank (with Drive-Through)	8.00	1000sqft	0.74	8,000.00	0
General Office Building	242.00	1000sqft	22.30	242,000.00	0
Pharmacy/Drugstore w/o Drive Thru	5.00	1000sqft	0.46	5,000.00	0
Research & Development	81.00	1000sqft	6.30	81,000.00	0
Elementary School	994.00	Student	5.00	83,101.75	0
Junior College (2yr)	350.00	1000sqft	27.25	350,000.00	0
General Heavy Industry	52.50	1000sqft	4.09	52,500.00	0
General Light Industry	105.00	1000sqft	8.18	105,000.00	0
Industrial Park	525.00	1000sqft	40.88	525,000.00	0
Manufacturing	52.50	1000sqft	4.09	52,500.00	0
Refrigerated Warehouse-No Rail	105.00	1000sqft	8.18	105,000.00	0
Unrefrigerated Warehouse-No Rail	210.00	1000sqft	16.35	210,000.00	0
Other Asphalt Surfaces	59.00	Acre	59.00	2,570,040.00	0
City Park	5.00	Acre	5.00	217,800.00	0
Fast Food Restaurant with Drive Thru	4.00	1000sqft	0.53	4,000.00	0
High Turnover (Sit Down Restaurant)	8.00	1000sqft	1.07	8,000.00	0
Apartments Low Rise	750.00	Dwelling Unit	75.00	750,000.00	2400
Single Family Housing	585.00	Dwelling Unit	149.00	1,053,000.00	1872
Convenience Market with Gas Pumps	3.00	1000sqft	0.40	3,000.00	0
Regional Shopping Center	49.00	1000sqft	6.53	49,000.00	0
Supermarket	20.00	1000sqft	2.67	20,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	7			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	559.32	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Planning Area 6A. Kern County, San Joaquin Valley Air Basin. CO2 Intensity adjusted based on PG&E 25% Renewables by December 31, 2016.

Land Use - See 1.1 Land Usage. Population based on 3.2 persons per dwelling unit.

Construction Phase - Construction emissions calculated separately.

Vehicle Trips - Modified trip rates to match Trip Generation and VMT factors provided by Fehr & Peers.

Vehicle Emission Factors - Default CalEEMod values.

Woodstoves - No woodstoves and only gas fireplaces assumed

Area Coating - Default CalEEMod VOC content. Modified non-residential interior and exterior area to be coated based on CalEEMod architectural coating surface area equations and adjusted for parking/asphalt surface and park land uses.

Energy Use - Updated Title 24 electricity and natural gas energy intensity to match 2013 Title 24 standards (25% reduction versus 2008 standards).

Water And Wastewater - Water and wastewater consumption and associated emissions calculated separately.

Construction Off-road Equipment Mitigation - Construction emissions calculated separately.

Mobile Land Use Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Project Setting: Suburban Center. Improve Pedestrian Network: Project Site and Connecting Off-Site. Provide Traffic Calming Measures: 100% Streets with Improvement, 100% Intersections with Improvement. Expand Transit Network: 50%.

Mobile Commute Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Voluntary Commute Trip Reduction Program: 50%.

Energy Mitigation - Exceed 2013 Title 24, % Improvement: 25%.

Water Mitigation - Water reductions calculated separately.

Waste Mitigation - Percent Reduction in Waste Disposed: 75%. Waste diversion consistent with Assembly Bill 341 (not mitigation).

Note Regarding Emissions Presented in the Air Quality & Greenhouse Gas Technical Report: Project-generated unmitigated and mitigated emissions in the Technical Report reflect the unmitigated mobile source emissions reported in 2.0 Emissions Summary. No area source mitigation assumed. Unmitigated and mitigated energy source and solid waste emissions reported in the Technical Report as presented in 2.0 Emissions Summary. Water/wastewater and stationary source emissions calculated separately.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	2345471	1118246
tblAreaCoating	Area_Nonresidential_Interior	7036413	2854653
tblConstructionPhase	NumDays	7,750.00	5.00
tblEnergyUse	T24E	352.42	264.31
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	4.43	3.32
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.70	0.53
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	763.80	572.85
tblEnergyUse	T24E	4.88	3.66
tblEnergyUse	T24NG	14,007.38	10,505.53
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71

tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	54.53	40.90
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	5.56	4.17
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	23,622.31	17,716.73
tblEnergyUse	T24NG	8.10	6.08
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblLandUse	LotAcreage	0.18	0.74
tblLandUse	LotAcreage	5.56	22.30
tblLandUse	LotAcreage	0.11	0.46
tblLandUse	LotAcreage	1.86	6.30
tblLandUse	LotAcreage	1.91	5.00
tblLandUse	LotAcreage	8.03	27.25
tblLandUse	LotAcreage	1.21	4.09
tblLandUse	LotAcreage	2.41	8.18
tblLandUse	LotAcreage	12.05	40.88
tblLandUse	LotAcreage	1.21	4.09
tblLandUse	LotAcreage	2.41	8.18
tblLandUse	LotAcreage	4.82	16.35
tblLandUse	LotAcreage	0.09	0.53
tblLandUse	LotAcreage	0.18	1.07
tblLandUse	LotAcreage	46.88	75.00
tblLandUse	LotAcreage	189.94	149.00
tblLandUse	LotAcreage	0.07	0.40
tblLandUse	LotAcreage	1.12	6.53

tblLandUse	LotAcreage	0.46	2.67
tblLandUse	Population	2,145.00	2,400.00
tblLandUse	Population	1,673.00	1,872.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	559.32
tblProjectCharacteristics	OperationalYear	2014	2019
tblTripsAndVMT	VendorTripNumber	912.00	0.00
tblTripsAndVMT	WorkerTripNumber	2,680.00	0.00
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
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tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62

tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
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tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
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tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
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tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62

tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62
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tblVehicleTrips	CW_TL	9.50	15.62
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tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	26.00	0.00
tblVehicleTrips	DV_TP	28.00	0.00
tblVehicleTrips	DV_TP	21.00	0.00
tblVehicleTrips	DV_TP	25.00	0.00
tblVehicleTrips	DV_TP	21.00	0.00
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tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	20.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	7.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	6.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	35.00	0.00
tblVehicleTrips	DV_TP	15.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	30.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	HO_TL	7.50	15.62

tblVehicleTrips	HO_TL	7.50	15.62
tblVehicleTrips	HS_TL	7.30	15.62
tblVehicleTrips	HS_TL	7.30	15.62
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tblVehicleTrips	PB_TP	6.00	0.00
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tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
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tblVehicleTrips	PB_TP	2.00	0.00
tblVehicleTrips	PB_TP	1.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	53.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	11.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	36.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
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tblVehicleTrips	PR_TP	27.00	100.00
tblVehicleTrips	PR_TP	66.00	100.00
tblVehicleTrips	PR_TP	14.00	100.00
tblVehicleTrips	PR_TP	63.00	100.00

tblVehicleTrips	PR_TP	29.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
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tblVehicleTrips	PR_TP	79.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
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tblVehicleTrips	PR_TP	54.00	100.00
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tblVehicleTrips	PR_TP	34.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
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tblVehicleTrips	ST_TR	86.32	5.23
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tblVehicleTrips	ST_TR	1,448.33	59.54
tblVehicleTrips	ST_TR	722.03	50.58
tblVehicleTrips	ST_TR	1.50	0.55
tblVehicleTrips	ST_TR	1.32	0.55
tblVehicleTrips	ST_TR	2.37	1.93
tblVehicleTrips	ST_TR	158.37	43.29
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tblVehicleTrips	ST_TR	11.23	1.73
tblVehicleTrips	ST_TR	1.49	1.13
tblVehicleTrips	ST_TR	90.06	8.98
tblVehicleTrips	ST_TR	2.59	2.90

tblVehicleTrips	ST_TR	49.97	40.45
tblVehicleTrips	ST_TR	1.90	2.10
tblVehicleTrips	ST_TR	10.08	8.16
tblVehicleTrips	ST_TR	177.59	60.37
tblVehicleTrips	ST_TR	2.59	2.90
tblVehicleTrips	SU_TR	6.07	4.99
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tblVehicleTrips	SU_TR	1,182.08	48.59
tblVehicleTrips	SU_TR	542.72	38.02
tblVehicleTrips	SU_TR	1.50	0.20
tblVehicleTrips	SU_TR	0.68	0.28
tblVehicleTrips	SU_TR	0.98	0.80
tblVehicleTrips	SU_TR	131.84	36.04
tblVehicleTrips	SU_TR	0.73	0.59
tblVehicleTrips	SU_TR	1.21	0.19
tblVehicleTrips	SU_TR	0.62	0.47
tblVehicleTrips	SU_TR	90.06	8.98
tblVehicleTrips	SU_TR	2.59	2.90
tblVehicleTrips	SU_TR	25.24	20.43
tblVehicleTrips	SU_TR	1.11	1.23
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tblVehicleTrips	SU_TR	166.44	56.58
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tblVehicleTrips	WD_TR	148.15	8.98
tblVehicleTrips	WD_TR	1.59	1.54
tblVehicleTrips	WD_TR	845.60	34.76
tblVehicleTrips	WD_TR	1.29	1.05
tblVehicleTrips	WD_TR	496.12	34.76

tblVehicleTrips	WD_TR	1.50	2.90
tblVehicleTrips	WD_TR	6.97	2.90
tblVehicleTrips	WD_TR	11.01	8.98
tblVehicleTrips	WD_TR	127.15	34.76
tblVehicleTrips	WD_TR	6.96	5.56
tblVehicleTrips	WD_TR	27.49	4.23
tblVehicleTrips	WD_TR	3.82	2.90
tblVehicleTrips	WD_TR	90.06	8.98
tblVehicleTrips	WD_TR	2.59	2.90
tblVehicleTrips	WD_TR	42.94	34.76
tblVehicleTrips	WD_TR	8.11	8.98
tblVehicleTrips	WD_TR	9.57	7.75
tblVehicleTrips	WD_TR	102.24	34.76
tblVehicleTrips	WD_TR	2.59	2.90
tblWater	IndoorWaterUseRate	48,865,519.22	0.00
tblWater	IndoorWaterUseRate	316,983.35	0.00
tblWater	IndoorWaterUseRate	222,217.56	0.00
tblWater	IndoorWaterUseRate	2,409,694.56	0.00
tblWater	IndoorWaterUseRate	1,214,134.85	0.00
tblWater	IndoorWaterUseRate	12,140,625.00	0.00
tblWater	IndoorWaterUseRate	24,281,250.00	0.00
tblWater	IndoorWaterUseRate	43,011,567.01	0.00
tblWater	IndoorWaterUseRate	2,428,269.70	0.00
tblWater	IndoorWaterUseRate	121,406,250.00	0.00
tblWater	IndoorWaterUseRate	17,167,161.38	0.00
tblWater	IndoorWaterUseRate	12,140,625.00	0.00
tblWater	IndoorWaterUseRate	352,237.62	0.00
tblWater	IndoorWaterUseRate	24,281,250.00	0.00
tblWater	IndoorWaterUseRate	3,629,553.55	0.00
tblWater	IndoorWaterUseRate	39,827,209.72	0.00

tblWater	IndoorWaterUseRate	38,115,104.99	0.00
tblWater	IndoorWaterUseRate	2,465,364.30	0.00
tblWater	IndoorWaterUseRate	48,562,500.00	0.00
tblWater	OutdoorWaterUseRate	30,806,522.98	0.00
tblWater	OutdoorWaterUseRate	194,280.12	0.00
tblWater	OutdoorWaterUseRate	5,957,406.75	0.00
tblWater	OutdoorWaterUseRate	136,197.86	0.00
tblWater	OutdoorWaterUseRate	6,196,357.44	0.00
tblWater	OutdoorWaterUseRate	77,497.97	0.00
tblWater	OutdoorWaterUseRate	26,361,928.17	0.00
tblWater	OutdoorWaterUseRate	154,995.94	0.00
tblWater	OutdoorWaterUseRate	26,851,201.13	0.00
tblWater	OutdoorWaterUseRate	215,887.57	0.00
tblWater	OutdoorWaterUseRate	2,224,565.08	0.00
tblWater	OutdoorWaterUseRate	24,029,087.93	0.00
tblWater	OutdoorWaterUseRate	76,248.38	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	160.6522	1.2849	111.0591	5.8400e-003		1.5923	1.5923		1.5819	1.5819	0.0000	15,747.7707	15,747.7707	0.4944	0.2851	15,846.5220
Energy	1.6447	14.5705	9.7624	0.0897		1.1363	1.1363		1.1363	1.1363		17,942.2564	17,942.2564	0.3439	0.3289	18,051.4500
Mobile	149.8481	818.9836	1,861.5773	6.0501	285.2921	14.5943	299.8864	76.7487	13.4336	90.1823		516,948.0859	516,948.0859	11.5914		517,191.5052
Total	**312.1451**	**834.8389**	**1,982.3988**	**6.1457**	**285.2921**	**17.3230**	**302.6150**	**76.7487**	**16.1519**	**92.9006**	**0.0000**	**550,638.1131**	**550,638.1131**	**12.4297**	**0.6140**	**551,089.4772**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	160.6522	1.2849	111.0591	5.8400e-003		1.5923	1.5923		1.5819	1.5819	0.0000	15,747.7707	15,747.7707	0.4944	0.2851	15,846.5220
Energy	1.2909	11.4278	7.5999	0.0704		0.8919	0.8919		0.8919	0.8919		14,082.8883	14,082.8883	0.2699	0.2582	14,168.5945
Mobile	145.6367	779.5308	1,792.2708	5.7284	269.8354	13.8179	283.6532	72.5906	12.7189	85.3095		489,437.8653	489,437.8653	11.0009		489,668.8842
Total	**307.5798**	**792.2434**	**1,910.9298**	**5.8046**	**269.8354**	**16.3021**	**286.1375**	**72.5906**	**15.1928**	**87.7834**	**0.0000**	**519,268.5244**	**519,268.5244**	**11.7652**	**0.5433**	**519,684.0007**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.46**	**5.10**	**3.61**	**5.55**	**5.42**	**5.89**	**5.45**	**5.42**	**5.94**	**5.51**	**0.00**	**5.70**	**5.70**	**5.35**	**11.52**	**5.70**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

Provide Traffic Calming Measures

Expand Transit Network

Implement Trip Reduction Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	145.6367	779.5308	1,792.2708	5.7284	269.8354	13.8179	283.6532	72.5906	12.7189	85.3095		489,437.8653	489,437.8653	11.0009		489,668.8842
Unmitigated	149.8481	818.9836	1,861.5773	6.0501	285.2921	14.5943	299.8864	76.7487	13.4336	90.1823		516,948.0859	516,948.0859	11.5914		517,191.5052

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	4,057.50	4,417.50	3742.50	23,106,197	21,854,335
Bank (with Drive-Through)	71.84	41.84	15.52	338,347	320,016
City Park	7.70	7.70	7.70	43,780	41,408
Convenience Market with Gas Pumps	104.28	178.62	145.77	686,984	649,765
Elementary School	1,043.70	0.00	0.00	4,238,674	4,009,029
Fast Food Restaurant with Drive Thru	139.04	202.32	152.08	852,527	806,338
General Heavy Industry	152.25	28.88	10.50	650,300	615,067
General Light Industry	304.50	57.75	29.40	1,307,422	1,236,588
General Office Building	2,173.16	467.06	193.60	9,362,252	8,855,018
High Turnover (Sit Down Restaurant)	278.08	346.32	288.32	1,644,818	1,555,704
Industrial Park	2,919.00	1,044.75	309.75	12,954,822	12,252,947
Junior College (2yr)	1,480.50	605.50	66.50	6,558,432	6,203,105
Manufacturing	152.25	59.33	24.68	686,546	649,350
Other Asphalt Surfaces	0.00	0.00	0.00		
Pharmacy/Drugstore w/o Drive Thru	44.90	44.90	44.90	255,287	241,456

Refrigerated Warehouse-No Rail	304.50	304.50	304.50	1,731,290	1,637,491
Regional Shopping Center	1,703.24	1,982.05	1001.07	9,340,208	8,834,168
Research & Development	727.38	170.10	99.63	3,173,121	3,001,206
Single Family Housing	4,533.75	4,773.60	4153.50	25,663,413	24,273,005
Supermarket	695.20	1,207.40	1131.60	4,723,176	4,467,280
Unrefrigerated Warehouse-No Rail	609.00	609.00	609.00	3,462,579	3,274,981
Total	21,501.77	16,549.11	12,330.52	110,780,175	104,778,258

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Bank (with Drive-Through)	15.62	15.62	15.62	6.60	74.40	19.00	100	0	0
City Park	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Convenience Market with Gas	15.62	15.62	15.62	0.80	80.20	19.00	100	0	0
Elementary School	15.62	15.62	15.62	65.00	30.00	5.00	100	0	0
Fast Food Restaurant with Drive	15.62	15.62	15.62	2.20	78.80	19.00	100	0	0
General Heavy Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Light Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Office Building	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
High Turnover (Sit Down	15.62	15.62	15.62	8.50	72.50	19.00	100	0	0
Industrial Park	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Junior College (2yr)	15.62	15.62	15.62	6.40	88.60	5.00	100	0	0
Manufacturing	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Other Asphalt Surfaces	15.62	15.62	15.62	0.00	0.00	0.00	100	0	0
Pharmacy/Drugstore w/o Drive	15.62	15.62	15.62	7.40	73.60	19.00	100	0	0
Refrigerated Warehouse-No Rail	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0
Regional Shopping Center	15.62	15.62	15.62	16.30	64.70	19.00	100	0	0
Research & Development	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Single Family Housing	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Supermarket	15.62	15.62	15.62	6.50	74.50	19.00	100	0	0
Unrefrigerated Warehouse-No	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.351508	0.055281	0.136890	0.180479	0.057090	0.010414	0.023170	0.172273	0.001509	0.001820	0.005977	0.001077	0.002512

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	1.2909	11.4278	7.5999	0.0704		0.8919	0.8919		0.8919	0.8919		14,082.8883	14,082.8883	0.2699	0.2582	14,168.5945
NaturalGas Unmitigated	1.6447	14.5705	9.7624	0.0897		1.1363	1.1363		1.1363	1.1363		17,942.2564	17,942.2564	0.3439	0.3289	18,051.4500

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	37.1507	4.0000e-004	3.6400e-003	3.0600e-003	2.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004		4.3707	4.3707	8.0000e-005	8.0000e-005	4.3973
Elementary School	1946.63	0.0210	0.1909	0.1603	1.1500e-003		0.0145	0.0145		0.0145	0.0145		229.0153	229.0153	4.3900e-003	4.2000e-003	230.4091
Fast Food Restaurant with Drive Thru	1045.15	0.0113	0.1025	0.0861	6.1000e-004		7.7900e-003	7.7900e-003		7.7900e-003	7.7900e-003		122.9589	122.9589	2.3600e-003	2.2500e-003	123.7072
General Heavy Industry	1910.14	0.0206	0.1873	0.1573	1.1200e-003		0.0142	0.0142		0.0142	0.0142		224.7220	224.7220	4.3100e-003	4.1200e-003	226.0896

General Light Industry	3820.27	0.0412	0.3745	0.3146	2.2500e-003		0.0285	0.0285		0.0285	0.0285		449.4440	449.4440	8.6100e-003	8.2400e-003	452.1792
General Office Building	9142.96	0.0986	0.8964	0.7530	5.3800e-003		0.0681	0.0681		0.0681	0.0681		1,075.6422	1,075.6422	0.0206	0.0197	1,082.1884
High Turnover (Sit Down Restaurant)	2090.3	0.0225	0.2049	0.1721	1.2300e-003		0.0156	0.0156		0.0156	0.0156		245.9178	245.9178	4.7100e-003	4.5100e-003	247.4144
Industrial Park	19834.9	0.2139	1.9446	1.6335	0.0117		0.1478	0.1478		0.1478	0.1478		2,333.5214	2,333.5214	0.0447	0.0428	2,347.7228
Junior College (2yr)	39545.2	0.4265	3.8770	3.2567	0.0233		0.2947	0.2947		0.2947	0.2947		4,652.3771	4,652.3771	0.0892	0.0853	4,680.6907
Manufacturing	1910.14	0.0206	0.1873	0.1573	1.1200e-003		0.0142	0.0142		0.0142	0.0142		224.7220	224.7220	4.3100e-003	4.1200e-003	226.0896
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	61.9178	6.7000e-004	6.0700e-003	5.1000e-003	4.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004		7.2845	7.2845	1.4000e-004	1.3000e-004	7.3288
Refrigerated Warehouse-No Rail	2091.37	0.0226	0.2050	0.1722	1.2300e-003		0.0156	0.0156		0.0156	0.0156		246.0435	246.0435	4.7200e-003	4.5100e-003	247.5409
Apartments Low Rise	26719.6	0.2882	2.4624	1.0478	0.0157		0.1991	0.1991		0.1991	0.1991		3,143.4803	3,143.4803	0.0603	0.0576	3,162.6110
Bank (with Drive-Through)	291.068	3.1400e-003	0.0285	0.0240	1.7000e-004		2.1700e-003	2.1700e-003		2.1700e-003	2.1700e-003		34.2434	34.2434	6.6000e-004	6.3000e-004	34.4518
Regional Shopping Center	606.795	6.5400e-003	0.0595	0.0500	3.6000e-004		4.5200e-003	4.5200e-003		4.5200e-003	4.5200e-003		71.3876	71.3876	1.3700e-003	1.3100e-003	71.8220
Research & Development	2947.07	0.0318	0.2889	0.2427	1.7300e-003		0.0220	0.0220		0.0220	0.0220		346.7139	346.7139	6.6500e-003	6.3600e-003	348.8240
Single Family Housing	38123.3	0.4111	3.5133	1.4950	0.0224		0.2841	0.2841		0.2841	0.2841		4,485.0937	4,485.0937	0.0860	0.0822	4,512.3892
Supermarket	385.205	4.1500e-003	0.0378	0.0317	2.3000e-004		2.8700e-003	2.8700e-003		2.8700e-003	2.8700e-003		45.3183	45.3183	8.7000e-004	8.3000e-004	45.5941
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.6447**	**14.5705**	**9.7624**	**0.0897**		**1.1363**	**1.1363**		**1.1363**	**1.1363**		**17,942.2564**	**17,942.2564**	**0.3439**	**0.3289**	**18,051.4500**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					

City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	0.0280068	3.0000e-004	2.7500e-003	2.3100e-003	2.0000e-005		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004		3.2949	3.2949	6.0000e-005	6.0000e-005	3.3150
Elementary School	1.48616	0.0160	0.1457	0.1224	8.7000e-004		0.0111	0.0111		0.0111	0.0111		174.8418	174.8418	3.3500e-003	3.2100e-003	175.9059
Fast Food Restaurant with Drive Thru	1.0069	0.0109	0.0987	0.0829	5.9000e-004		7.5000e-003	7.5000e-003		7.5000e-003	7.5000e-003		118.4593	118.4593	2.2700e-003	2.1700e-003	119.1802
General Heavy Industry	1.43692	0.0155	0.1409	0.1183	8.5000e-004		0.0107	0.0107		0.0107	0.0107		169.0492	169.0492	3.2400e-003	3.1000e-003	170.0780
General Light Industry	2.87384	0.0310	0.2818	0.2367	1.6900e-003		0.0214	0.0214		0.0214	0.0214		338.0983	338.0983	6.4800e-003	6.2000e-003	340.1559
General Office Building	7.03623	0.0759	0.6898	0.5795	4.1400e-003		0.0524	0.0524		0.0524	0.0524		827.7921	827.7921	0.0159	0.0152	832.8299
High Turnover (Sit Down Restaurant)	2.01381	0.0217	0.1974	0.1658	1.1800e-003		0.0150	0.0150		0.0150	0.0150		236.9186	236.9186	4.5400e-003	4.3400e-003	238.3605
Industrial Park	15.2646	0.1646	1.4965	1.2571	8.9800e-003		0.1137	0.1137		0.1137	0.1137		1,795.8300	1,795.8300	0.0344	0.0329	1,806.7591
Junior College (2yr)	29.7404	0.3207	2.9157	2.4492	0.0175		0.2216	0.2216		0.2216	0.2216		3,498.8719	3,498.8719	0.0671	0.0642	3,520.1654
Manufacturing	1.43692	0.0155	0.1409	0.1183	8.5000e-004		0.0107	0.0107		0.0107	0.0107		169.0492	169.0492	3.2400e-003	3.1000e-003	170.0780
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	0.0466781	5.0000e-004	4.5800e-003	3.8400e-003	3.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004		5.4915	5.4915	1.1000e-004	1.0000e-004	5.5250
Refrigerated Warehouse-No Rail	1.79147	0.0193	0.1756	0.1475	1.0500e-003		0.0134	0.0134		0.0134	0.0134		210.7615	210.7615	4.0400e-003	3.8600e-003	212.0441
Regional Shopping Center	0.457445	4.9300e-003	0.0449	0.0377	2.7000e-004		3.4100e-003	3.4100e-003		3.4100e-003	3.4100e-003		53.8171	53.8171	1.0300e-003	9.9000e-004	54.1446
Apartments Low Rise	21.3229	0.2300	1.9651	0.8362	0.0125		0.1589	0.1589		0.1589	0.1589		2,508.5772	2,508.5772	0.0481	0.0460	2,523.8439
Bank (with Drive-Through)	0.218959	2.3600e-003	0.0215	0.0180	1.3000e-004		1.6300e-003	1.6300e-003		1.6300e-003	1.6300e-003		25.7599	25.7599	4.9000e-004	4.7000e-004	25.9166
Research & Development	2.21696	0.0239	0.2174	0.1826	1.3000e-003		0.0165	0.0165		0.0165	0.0165		260.8187	260.8187	5.0000e-003	4.7800e-003	262.4060
Single Family Housing	31.0245	0.3346	2.8591	1.2167	0.0183		0.2312	0.2312		0.2312	0.2312		3,649.9376	3,649.9376	0.0700	0.0669	3,672.1505
Supermarket	0.301918	3.2600e-003	0.0296	0.0249	1.8000e-004		2.2500e-003	2.2500e-003		2.2500e-003	2.2500e-003		35.5197	35.5197	6.8000e-004	6.5000e-004	35.7359
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.2909**	**11.4278**	**7.5999**	**0.0704**		**0.8919**	**0.8919**		**0.8919**	**0.8919**		**14,082.8883**	**14,082.8883**	**0.2699**	**0.2582**	**14,168.5945**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	160.6522	1.2849	111.0591	5.8400e-003		1.5923	1.5923		1.5819	1.5819	0.0000	15,747.7707	15,747.7707	0.4944	0.2851	15,846.5220
Unmitigated	160.6522	1.2849	111.0591	5.8400e-003		1.5923	1.5923		1.5819	1.5819	0.0000	15,747.7707	15,747.7707	0.4944	0.2851	15,846.5220

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	16.8403					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	138.9704					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.4253	6.0000e-005	0.0777	0.0000		0.9848	0.9848		0.9744	0.9744	0.0000	15,548.8235	15,548.8235	0.2980	0.2851	15,643.4511
Landscaping	3.4163	1.2848	110.9814	5.8400e-003		0.6076	0.6076		0.6076	0.6076		198.9472	198.9472	0.1964		203.0710
Total	**160.6522**	**1.2848**	**111.0591**	**5.8400e-003**		**1.5923**	**1.5923**		**1.5819**	**1.5819**	**0.0000**	**15,747.7707**	**15,747.7707**	**0.4944**	**0.2851**	**15,846.5220**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	16.8403					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	138.9704					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.4253	6.0000e-005	0.0777	0.0000		0.9848	0.9848		0.9744	0.9744	0.0000	15,548.8235	15,548.8235	0.2980	0.2851	15,643.4511
Landscaping	3.4163	1.2848	110.9814	5.8400e-003		0.6076	0.6076		0.6076	0.6076		198.9472	198.9472	0.1964		203.0710
Total	**160.6522**	**1.2848**	**111.0591**	**5.8400e-003**		**1.5923**	**1.5923**		**1.5819**	**1.5819**	**0.0000**	**15,747.7707**	**15,747.7707**	**0.4944**	**0.2851**	**15,846.5220**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Vegetation

CalEEMod Version: CalEEMod.2013.2.2

Date: 10/23/2015 10:56 AM

Grapevine Operational Year 2019 - Planning Area 6A Buildout

Kern-San Joaquin County, Mitigation Report

Operational Percent Reduction Summary

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.07	4.07	4.06	4.08	4.07
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	2.84	4.84	3.15	5.31	5.31	5.31	0.00	5.32	5.32	5.09	0.00	5.32
Natural Gas	21.51	21.57	22.15	21.44	21.50	21.50	0.00	21.51	21.51	21.52	21.47	21.51
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting: Suburban Center

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value 3
No	Land Use	Increase Density	0.00	0.00	0.00	
No	Land Use	Increase Diversity	0.30	0.73		

No	Land Use	Improve Walkability Design	0.00	0.00		
No	Land Use	Improve Destination Accessibility	0.00	0.00		
No	Land Use	Increase Transit Accessibility	0.25	0.00		
No	Land Use	Integrate Below Market Rate Housing	0.00	0.00		
	Land Use	Land Use SubTotal	0.00			
Yes	Neighborhood Enhancements	Improve Pedestrian Network	2.00	Project Site and Connecting Off-Site		
Yes	Neighborhood Enhancements	Provide Traffic Calming Measures	1.00	100.00	100.00	
No	Neighborhood Enhancements	Implement NEV Network	0.01			
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.05			
No	Parking Policy Pricing	Limit Parking Supply	0.00	0.00		
No	Parking Policy Pricing	Unbundle Parking Costs	0.00	0.00		
No	Parking Policy Pricing	On-street Market Pricing	0.00	0.00		
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00			
No	Transit Improvements	Provide BRT System	0.00	0.00		
Yes	Transit Improvements	Expand Transit Network	0.00	50.00		
No	Transit Improvements	Increase Transit Frequency	0.00		0.00	
	Transit Improvements	Transit Improvements Subtotal	0.00			
		Land Use and Site Enhancement Subtotal	0.05			
Yes	Commute	Implement Trip Reduction Program	0.00	50.00	Voluntary	
No	Commute	Transit Subsidy	0.00	0.00		
No	Commute	Implement Employee Parking "Cash Out"	0.00	0.00		
No	Commute	Workplace Parking Charge	0.00	0.00		
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00	0.00	0.00	0.00
No	Commute	Market Commute Trip Reduction Option	0.00	0.00		

No	Commute	Employee Vanpool/Shuttle	0.00	0.00	2.00	
No	Commute	Provide Ride Sharing Program	0.00	0.00		
	Commute	Commute Subtotal	0.00			
No	School Trip	Implement School Bus Program	0.00	0.00		
		Total VMT Reduction	0.05			

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	150.00
No	Use Low VOC Paint (Residential Exterior)	150.00
No	Use Low VOC Paint (Non-residential Interior)	150.00
No	Use Low VOC Paint (Non-residential Exterior)	150.00
No	% Electric Lawnmower	
No	% Electric Leafblower	
No	% Electric Chainsaw	

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
Yes	Exceed Title 24	25.00	
No	Install High Efficiency Lighting	0.00	
No	On-site Renewable	0.00	0.00

Appliance Type	Land Use Subtype	% Improvement

ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy	0.00	0.00
No	Use Reclaimed Water	0.00	0.00
No	Use Grey Water	0.00	
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction	0.00	
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape	0.00	0.00

Solid Waste Mitigation

Mitigation Measures	Input Value
Institute Recycling and Composting Services	75.00
Percent Reduction in Waste Disposed	

Grapevine Operational Year 2023 - Planning Areas 6A, 2 Buildout

Kern-San Joaquin County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Bank (with Drive-Through)	16.00	1000sqft	1.46	16,000.00	0
General Office Building	680.80	1000sqft	61.68	680,800.00	0
Medical Office Building	300.00	1000sqft	22.69	300,000.00	0
Pharmacy/Drugstore w/o Drive Thru	13.00	1000sqft	1.18	13,000.00	0
Research & Development	225.00	1000sqft	17.19	225,000.00	0
Elementary School	1,988.00	Student	10.00	166,203.50	0
High School	1,500.00	Student	5.00	198,991.47	0
Junior College (2yr)	350.00	1000sqft	27.25	350,000.00	0
Junior High School	840.00	Student	20.00	98,751.81	0
General Heavy Industry	52.50	1000sqft	4.09	52,500.00	0
General Light Industry	105.00	1000sqft	8.18	105,000.00	0
Industrial Park	525.00	1000sqft	40.88	525,000.00	0
Manufacturing	52.50	1000sqft	4.09	52,500.00	0
Refrigerated Warehouse-No Rail	105.00	1000sqft	8.18	105,000.00	0
Unrefrigerated Warehouse-No Rail	210.00	1000sqft	16.35	210,000.00	0
Other Asphalt Surfaces	151.00	Acre	151.00	6,577,560.00	0
City Park	63.00	Acre	63.00	2,744,280.00	0
Fast Food Restaurant with Drive Thru	12.00	1000sqft	1.57	12,000.00	0
High Turnover (Sit Down Restaurant)	16.00	1000sqft	2.10	16,000.00	0
Apartments Low Rise	1,730.00	Dwelling Unit	173.00	1,730,000.00	5536
Single Family Housing	2,365.00	Dwelling Unit	604.00	4,257,000.00	7568
Convenience Market with Gas Pumps	9.00	1000sqft	1.17	9,000.00	0
Regional Shopping Center	328.20	1000sqft	42.55	328,200.00	0
Supermarket	80.00	1000sqft	10.41	80,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	7			**Operational Year**	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	499.66	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Planning Areas 6A, 2. Kern County, San Joaquin Valley Air Basin. CO2 Intensity adjusted based on PG&E 33% Renewables by 2020.
Land Use - See 1.1 Land Usage. Population based on 3.2 persons per dwelling unit.

Construction Phase - Construction emissions calculated separately.

Vehicle Trips - Modified trip rates to match Trip Generation and VMT factors provided by Fehr & Peers.

Vehicle Emission Factors - Default CalEEMod values.

Woodstoves - No woodstoves and only gas fireplaces assumed

Area Coating - Default CalEEMod VOC content. Modified non-residential interior and exterior area to be coated based on CalEEMod architectural coating surface area equations and adjusted for parking/asphalt surface and park land uses.

Energy Use - Updated Title 24 electricity and natural gas energy intensity to match 2013 Title 24 standards (25% reduction versus 2008 standards).

Water And Wastewater - Water and wastewater consumption and associated emissions calculated separately.

Construction Off-road Equipment Mitigation - Construction emissions calculated separately.

Mobile Land Use Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Project Setting: Suburban Center. Improve Pedestrian Network: Project Site and Connecting Off-Site. Provide Traffic Calming Measures: 100% Streets with Improvement, 100% Intersections with Improvement. Expand Transit Network: 50%.
Mobile Commute Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Voluntary Commute Trip Reduction Program: 50%

Energy Mitigation - Exceed 2013 Title 24, % Improvement: 25%.

Water Mitigation - Water reductions calculated separately.

Waste Mitigation - Percent Reduction in Waste Disposed: 75%. Waste diversion consistent with Assembly Bill 341 (not mitigation).

Note Regarding Emissions Presented in the Air Quality & Greenhouse Gas Technical Report: Project-generated unmitigated and mitigated emissions in the Technical Report reflect the unmitigated mobile source emissions reported in 2.0 Emissions Summary. No area source mitigation assumed. Unmitigated and mitigated energy source and solid waste emissions reported in the Technical Report as presented in 2.0 Emissions Summary. Water/wastewater and stationary source emissions calculated separately.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	6432893	2330709
tblAreaCoating	Area_Nonresidential_Interior	19298680	5315920
tblConstructionPhase	NumDays	155,000.00	5.00
tblEnergyUse	T24E	352.42	264.31
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	4.43	3.32
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.70	0.53
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	763.80	572.85
tblEnergyUse	T24E	4.88	3.66
tblEnergyUse	T24NG	14,007.38	10,505.53
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	18.61	13.96

tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	54.53	40.90
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	5.56	4.17
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	23,622.31	17,716.73
tblEnergyUse	T24NG	8.10	6.08
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblLandUse	LotAcreage	0.37	1.46
tblLandUse	LotAcreage	15.63	61.68
tblLandUse	LotAcreage	6.89	22.69
tblLandUse	LotAcreage	0.30	1.18
tblLandUse	LotAcreage	5.17	17.19
tblLandUse	LotAcreage	3.82	10.00
tblLandUse	LotAcreage	4.57	5.00
tblLandUse	LotAcreage	8.03	27.25
tblLandUse	LotAcreage	2.27	20.00
tblLandUse	LotAcreage	1.21	4.09
tblLandUse	LotAcreage	2.41	8.18
tblLandUse	LotAcreage	12.05	40.88

tblLandUse	LotAcreage	1.21	4.09
tblLandUse	LotAcreage	2.41	8.18
tblLandUse	LotAcreage	4.82	16.35
tblLandUse	LotAcreage	0.28	1.57
tblLandUse	LotAcreage	0.37	2.10
tblLandUse	LotAcreage	108.13	173.00
tblLandUse	LotAcreage	767.86	604.00
tblLandUse	LotAcreage	0.21	1.17
tblLandUse	LotAcreage	7.53	42.55
tblLandUse	LotAcreage	1.84	10.41
tblLandUse	Population	4,948.00	5,536.00
tblLandUse	Population	6,764.00	7,568.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	499.66
tblProjectCharacteristics	OperationalYear	2014	2023
tblTripsAndVMT	VendorTripNumber	2,546.00	0.00
tblTripsAndVMT	WorkerTripNumber	7,335.00	0.00
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62

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tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
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tblVehicleTrips	CNW_TL	7.30	15.62
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tblVehicleTrips	DV_TP	15.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	30.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	HO_TL	7.50	15.62
tblVehicleTrips	HO_TL	7.50	15.62
tblVehicleTrips	HS_TL	7.30	15.62
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tblVehicleTrips	HW_TL	10.80	15.62
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	47.00	0.00
tblVehicleTrips	PB_TP	6.00	0.00
tblVehicleTrips	PB_TP	65.00	0.00

tblVehicleTrips	PB_TP	12.00	0.00
tblVehicleTrips	PB_TP	50.00	0.00
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tblVehicleTrips	PB_TP	6.00	0.00
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tblVehicleTrips	PB_TP	10.00	0.00
tblVehicleTrips	PB_TP	53.00	0.00
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tblVehicleTrips	PB_TP	11.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	36.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	27.00	100.00
tblVehicleTrips	PR_TP	66.00	100.00
tblVehicleTrips	PR_TP	14.00	100.00
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tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	PR_TP	75.00	100.00
tblVehicleTrips	PR_TP	37.00	100.00

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tblVehicleTrips	PR_TP	92.00	100.00
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tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	60.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	PR_TP	41.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	54.00	100.00
tblVehicleTrips	PR_TP	82.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	34.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	7.16	5.89
tblVehicleTrips	ST_TR	86.32	5.23
tblVehicleTrips	ST_TR	1.59	1.54
tblVehicleTrips	ST_TR	1,448.33	59.54
tblVehicleTrips	ST_TR	722.03	50.58
tblVehicleTrips	ST_TR	1.50	0.55
tblVehicleTrips	ST_TR	1.32	0.55
tblVehicleTrips	ST_TR	2.37	1.93
tblVehicleTrips	ST_TR	0.61	0.50
tblVehicleTrips	ST_TR	158.37	43.29
tblVehicleTrips	ST_TR	2.49	1.99
tblVehicleTrips	ST_TR	11.23	1.73
tblVehicleTrips	ST_TR	1.49	1.13
tblVehicleTrips	ST_TR	8.96	2.23
tblVehicleTrips	ST_TR	90.06	8.98
tblVehicleTrips	ST_TR	2.59	2.90
tblVehicleTrips	ST_TR	49.97	40.45

tblVehicleTrips	ST_TR	1.90	2.10
tblVehicleTrips	ST_TR	10.08	8.16
tblVehicleTrips	ST_TR	177.59	60.37
tblVehicleTrips	ST_TR	2.59	2.90
tblVehicleTrips	SU_TR	6.07	4.99
tblVehicleTrips	SU_TR	31.90	1.94
tblVehicleTrips	SU_TR	1.59	1.54
tblVehicleTrips	SU_TR	1,182.08	48.59
tblVehicleTrips	SU_TR	542.72	38.02
tblVehicleTrips	SU_TR	1.50	0.20
tblVehicleTrips	SU_TR	0.68	0.28
tblVehicleTrips	SU_TR	0.98	0.80
tblVehicleTrips	SU_TR	0.25	0.20
tblVehicleTrips	SU_TR	131.84	36.04
tblVehicleTrips	SU_TR	0.73	0.59
tblVehicleTrips	SU_TR	1.21	0.19
tblVehicleTrips	SU_TR	0.62	0.47
tblVehicleTrips	SU_TR	1.55	0.38
tblVehicleTrips	SU_TR	90.06	8.98
tblVehicleTrips	SU_TR	2.59	2.90
tblVehicleTrips	SU_TR	25.24	20.43
tblVehicleTrips	SU_TR	1.11	1.23
tblVehicleTrips	SU_TR	8.77	7.10
tblVehicleTrips	SU_TR	166.44	56.58
tblVehicleTrips	SU_TR	2.59	2.90
tblVehicleTrips	WD_TR	6.59	5.41
tblVehicleTrips	WD_TR	148.15	8.98
tblVehicleTrips	WD_TR	1.59	1.54
tblVehicleTrips	WD_TR	845.60	34.76
tblVehicleTrips	WD_TR	1.29	1.05

tblVehicleTrips	WD_TR	496.12	34.76
tblVehicleTrips	WD_TR	1.50	2.90
tblVehicleTrips	WD_TR	6.97	2.90
tblVehicleTrips	WD_TR	11.01	8.98
tblVehicleTrips	WD_TR	1.71	1.39
tblVehicleTrips	WD_TR	127.15	34.76
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tblVehicleTrips	WD_TR	27.49	4.23
tblVehicleTrips	WD_TR	1.62	1.32
tblVehicleTrips	WD_TR	3.82	2.90
tblVehicleTrips	WD_TR	36.13	8.98
tblVehicleTrips	WD_TR	90.06	8.98
tblVehicleTrips	WD_TR	2.59	2.90
tblVehicleTrips	WD_TR	42.94	34.76
tblVehicleTrips	WD_TR	8.11	8.98
tblVehicleTrips	WD_TR	9.57	7.75
tblVehicleTrips	WD_TR	102.24	34.76
tblVehicleTrips	WD_TR	2.59	2.90
tblWater	IndoorWaterUseRate	112,716,464.33	0.00
tblWater	IndoorWaterUseRate	633,966.70	0.00
tblWater	IndoorWaterUseRate	666,652.69	0.00
tblWater	IndoorWaterUseRate	4,819,389.12	0.00
tblWater	IndoorWaterUseRate	3,642,404.55	0.00
tblWater	IndoorWaterUseRate	12,140,625.00	0.00
tblWater	IndoorWaterUseRate	24,281,250.00	0.00
tblWater	IndoorWaterUseRate	121,001,135.63	0.00
tblWater	IndoorWaterUseRate	6,607,440.00	0.00
tblWater	IndoorWaterUseRate	4,856,539.40	0.00
tblWater	IndoorWaterUseRate	121,406,250.00	0.00
tblWater	IndoorWaterUseRate	17,167,161.38	0.00

tblWater	IndoorWaterUseRate	2,036,361.60	0.00
tblWater	IndoorWaterUseRate	12,140,625.00	0.00
tblWater	IndoorWaterUseRate	37,644,161.27	0.00
tblWater	IndoorWaterUseRate	915,817.80	0.00
tblWater	IndoorWaterUseRate	24,281,250.00	0.00
tblWater	IndoorWaterUseRate	24,310,601.55	0.00
tblWater	IndoorWaterUseRate	110,631,138.12	0.00
tblWater	IndoorWaterUseRate	154,089,270.59	0.00
tblWater	IndoorWaterUseRate	9,861,457.19	0.00
tblWater	IndoorWaterUseRate	48,562,500.00	0.00
tblWater	OutdoorWaterUseRate	71,060,379.68	0.00
tblWater	OutdoorWaterUseRate	388,560.24	0.00
tblWater	OutdoorWaterUseRate	75,063,325.03	0.00
tblWater	OutdoorWaterUseRate	408,593.59	0.00
tblWater	OutdoorWaterUseRate	12,392,714.88	0.00
tblWater	OutdoorWaterUseRate	232,493.91	0.00
tblWater	OutdoorWaterUseRate	74,161,986.36	0.00
tblWater	OutdoorWaterUseRate	16,990,560.00	0.00
tblWater	OutdoorWaterUseRate	309,991.88	0.00
tblWater	OutdoorWaterUseRate	26,851,201.13	0.00
tblWater	OutdoorWaterUseRate	5,236,358.40	0.00
tblWater	OutdoorWaterUseRate	7,170,316.43	0.00
tblWater	OutdoorWaterUseRate	561,307.68	0.00
tblWater	OutdoorWaterUseRate	14,900,046.11	0.00
tblWater	OutdoorWaterUseRate	97,143,235.81	0.00
tblWater	OutdoorWaterUseRate	304,993.52	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	83.0090	0.3512	30.4924	1.6100e-003		0.2924	0.2924		0.2911	0.2911	0.0000	1,823.7879	1,823.7879	0.0821	0.0325	1,835.5946
Energy	0.6982	6.1157	3.6332	0.0381		0.4824	0.4824		0.4824	0.4824	0.0000	20,553.6341	20,553.6341	0.9243	0.2905	20,663.1051
Mobile	57.2038	244.3261	749.7136	2.7380	133.7811	6.1674	139.9485	36.0482	5.6788	41.7271	0.0000	203,632.5979	203,632.5979	4.1965	0.0000	203,720.7243
Waste						0.0000	0.0000		0.0000	0.0000	2,257.7812	0.0000	2,257.7812	133.4311	0.0000	5,059.8332
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**140.9110**	**250.7930**	**783.8392**	**2.7777**	**133.7811**	**6.9422**	**140.7233**	**36.0482**	**6.4523**	**42.5006**	**2,257.7812**	**226,010.0199**	**228,267.8011**	**138.6340**	**0.3230**	**231,279.2571**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	83.0090	0.3512	30.4924	1.6100e-003		0.2924	0.2924		0.2911	0.2911	0.0000	1,823.7879	1,823.7879	0.0821	0.0325	1,835.5946
Energy	0.5552	4.8597	2.8650	0.0303		0.3836	0.3836		0.3836	0.3836	0.0000	18,598.8038	18,598.8038	0.8659	0.2581	18,696.9954
Mobile	55.5426	233.0834	726.8782	2.5925	126.5330	5.8398	132.3728	34.0952	5.3772	39.4724	0.0000	192,799.4282	192,799.4282	3.9830	0.0000	192,883.0703
Waste						0.0000	0.0000		0.0000	0.0000	564.4453	0.0000	564.4453	33.3578	0.0000	1,264.9583
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**139.1068**	**238.2944**	**760.2357**	**2.6244**	**126.5330**	**6.5158**	**133.0488**	**34.0952**	**6.0519**	**40.1471**	**564.4453**	**213,222.0199**	**213,786.4652**	**38.2887**	**0.2906**	**214,680.6186**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.28**	**4.98**	**3.01**	**5.52**	**5.42**	**6.14**	**5.45**	**5.42**	**6.21**	**5.54**	**75.00**	**5.66**	**6.34**	**72.38**	**10.04**	**7.18**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

Provide Traffic Calming Measures

Expand Transit Network

Implement Trip Reduction Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	55.5426	233.0834	726.8782	2.5925	126.5330	5.8398	132.3728	34.0952	5.3772	39.4724	0.0000	192,799.4282	192,799.4282	3.9830	0.0000	192,883.0703
Unmitigated	57.2038	244.3261	749.7136	2.7380	133.7811	6.1674	139.9485	36.0482	5.6788	41.7271	0.0000	203,632.5979	203,632.5979	4.1965	0.0000	203,720.7243

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	9,359.30	10,189.70	8632.70	53,298,295	50,410,667
Bank (with Drive-Through)	143.68	83.68	31.04	676,693	640,031
City Park	97.02	97.02	97.02	551,625	521,738
Convenience Market with Gas Pumps	312.84	535.86	437.31	2,060,953	1,949,294
Elementary School	2,087.40	0.00	0.00	8,477,349	8,018,058
Fast Food Restaurant with Drive Thru	417.12	606.96	456.24	2,557,581	2,419,015
General Heavy Industry	152.25	28.88	10.50	650,300	615,067
General Light Industry	304.50	57.75	29.40	1,307,422	1,236,588
General Office Building	6,113.58	1,313.94	544.64	26,338,104	24,911,141
High School	2,085.00	750.00	300.00	9,320,454	8,815,485
High Turnover (Sit Down Restaurant)	556.16	692.64	576.64	3,289,637	3,111,409
Industrial Park	2,919.00	1,044.75	309.75	12,954,822	12,252,947
Junior College (2yr)	1,480.50	605.50	66.50	6,558,432	6,203,105
Junior High School	1,108.80	0.00	0.00	4,503,059	4,259,089
Manufacturing	152.25	59.33	24.68	686,546	649,350
Medical Office Building	2,694.00	669.00	114.00	11,576,857	10,949,639
Other Asphalt Surfaces	0.00	0.00	0.00		
Pharmacy/Drugstore w/o Drive Thru	116.74	116.74	116.74	663,746	627,785
Refrigerated Warehouse-No Rail	304.50	304.50	304.50	1,731,290	1,637,491
Regional Shopping Center	11,408.23	13,275.69	6705.13	62,560,330	59,170,897
Research & Development	2,020.50	472.50	276.75	8,814,225	8,336,683
Single Family Housing	18,328.75	19,298.40	16791.50	103,750,380	98,129,327
Supermarket	2,780.80	4,829.60	4526.40	18,892,702	17,869,122
Unrefrigerated Warehouse-No Rail	609.00	609.00	609.00	3,462,579	3,274,981
Total	65,551.93	55,641.43	40,960.43	344,683,381	326,008,910

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Bank (with Drive-Through)	15.62	15.62	15.62	6.60	74.40	19.00	100	0	0
City Park	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Convenience Market with Gas	15.62	15.62	15.62	0.80	80.20	19.00	100	0	0
Elementary School	15.62	15.62	15.62	65.00	30.00	5.00	100	0	0
Fast Food Restaurant with Drive	15.62	15.62	15.62	2.20	78.80	19.00	100	0	0
General Heavy Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Light Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Office Building	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
High School	15.62	15.62	15.62	77.80	17.20	5.00	100	0	0
High Turnover (Sit Down	15.62	15.62	15.62	8.50	72.50	19.00	100	0	0
Industrial Park	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Junior College (2yr)	15.62	15.62	15.62	6.40	88.60	5.00	100	0	0
Junior High School	15.62	15.62	15.62	72.80	22.20	5.00	100	0	0
Manufacturing	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Medical Office Building	15.62	15.62	15.62	29.60	51.40	19.00	100	0	0
Other Asphalt Surfaces	15.62	15.62	15.62	0.00	0.00	0.00	100	0	0
Pharmacy/Drugstore w/o Drive	15.62	15.62	15.62	7.40	73.60	19.00	100	0	0
Refrigerated Warehouse-No Rail	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0
Regional Shopping Center	15.62	15.62	15.62	16.30	64.70	19.00	100	0	0
Research & Development	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Single Family Housing	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Supermarket	15.62	15.62	15.62	6.50	74.50	19.00	100	0	0
Unrefrigerated Warehouse-No	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.353192	0.054020	0.135333	0.181010	0.057090	0.010432	0.023385	0.172599	0.001500	0.001840	0.006039	0.001025	0.002534

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	13,104.3483	13,104.3483	0.7606	0.1574	13,169.1016
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	13,643.8322	13,643.8322	0.7919	0.1638	13,711.2512
NaturalGas Mitigated	0.5552	4.8597	2.8650	0.0303		0.3836	0.3836		0.3836	0.3836	0.0000	5,494.4555	5,494.4555	0.1053	0.1007	5,527.8939
NaturalGas Unmitigated	0.6982	6.1157	3.6332	0.0381		0.4824	0.4824		0.4824	0.4824	0.0000	6,909.8020	6,909.8020	0.1324	0.1267	6,951.8539

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas	40680	2.2000e-004	1.9900e-003	1.6800e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	2.1708	2.1708	4.0000e-005	4.0000e-005	2.1841
Elementary School	1.42104e+006	7.6600e-003	0.0697	0.0585	4.2000e-004		5.2900e-003	5.2900e-003		5.2900e-003	5.2900e-003	0.0000	75.8321	75.8321	1.4500e-003	1.3900e-003	76.2936
Fast Food Restaurant with Drive Thru	1.14444e+006	6.1700e-003	0.0561	0.0471	3.4000e-004		4.2600e-003	4.2600e-003		4.2600e-003	4.2600e-003	0.0000	61.0717	61.0717	1.1700e-003	1.1200e-003	61.4434
General Heavy Industry	697200	3.7600e-003	0.0342	0.0287	2.1000e-004		2.6000e-003	2.6000e-003		2.6000e-003	2.6000e-003	0.0000	37.2053	37.2053	7.1000e-004	6.8000e-004	37.4317

General Light Industry	1.3944e+006	7.5200e-003	0.0684	0.0574	4.1000e-004		5.1900e-003	5.1900e-003		5.1900e-003	5.1900e-003	0.0000	74.4105	74.4105	1.4300e-003	1.3600e-003	74.8633
General Office Building	9.38823e+006	0.0506	0.4602	0.3866	2.7600e-003		0.0350	0.0350		0.0350	0.0350	0.0000	500.9918	500.9918	9.6000e-003	9.1800e-003	504.0408
High School	1.70138e+006	9.1700e-003	0.0834	0.0701	5.0000e-004		6.3400e-003	6.3400e-003		6.3400e-003	6.3400e-003	0.0000	90.7920	90.7920	1.7400e-003	1.6600e-003	91.3445
High Turnover (Sit Down Restaurant)	1.52592e+006	8.2300e-003	0.0748	0.0628	4.5000e-004		5.6800e-003	5.6800e-003		5.6800e-003	5.6800e-003	0.0000	81.4289	81.4289	1.5600e-003	1.4900e-003	81.9245
Industrial Park	7.23975e+006	0.0390	0.3549	0.2981	2.1300e-003		0.0270	0.0270		0.0270	0.0270	0.0000	386.3406	386.3406	7.4000e-003	7.0800e-003	388.6918
Junior College (2yr)	1.4434e+007	0.0778	0.7076	0.5943	4.2500e-003		0.0538	0.0538		0.0538	0.0538	0.0000	770.2532	770.2532	0.0148	0.0141	774.9408
Junior High School	844328	4.5500e-003	0.0414	0.0348	2.5000e-004		3.1500e-003	3.1500e-003		3.1500e-003	3.1500e-003	0.0000	45.0566	45.0566	8.6000e-004	8.3000e-004	45.3308
Manufacturing	697200	3.7600e-003	0.0342	0.0287	2.1000e-004		2.6000e-003	2.6000e-003		2.6000e-003	2.6000e-003	0.0000	37.2053	37.2053	7.1000e-004	6.8000e-004	37.4317
Medical Office Building	4.137e+006	0.0223	0.2028	0.1704	1.2200e-003		0.0154	0.0154		0.0154	0.0154	0.0000	220.7661	220.7661	4.2300e-003	4.0500e-003	222.1096
Apartments Low Rise	2.24961e+007	0.1213	1.0366	0.4411	6.6200e-003		0.0838	0.0838		0.0838	0.0838	0.0000	1,200.4779	1,200.4779	0.0230	0.0220	1,207.7838
Bank (with Drive-Through)	212480	1.1500e-003	0.0104	8.7500e-003	6.0000e-005		7.9000e-004	7.9000e-004		7.9000e-004	7.9000e-004	0.0000	11.3387	11.3387	2.2000e-004	2.1000e-004	11.4078
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	58760	3.2000e-004	2.8800e-003	2.4200e-003	2.0000e-005		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	3.1357	3.1357	6.0000e-005	6.0000e-005	3.1547
Refrigerated Warehouse-No Rail	763350	4.1200e-003	0.0374	0.0314	2.2000e-004		2.8400e-003	2.8400e-003		2.8400e-003	2.8400e-003	0.0000	40.7353	40.7353	7.8000e-004	7.5000e-004	40.9832
Regional Shopping Center	1.48346e+006	8.0000e-003	0.0727	0.0611	4.4000e-004		5.5300e-003	5.5300e-003		5.5300e-003	5.5300e-003	0.0000	79.1633	79.1633	1.5200e-003	1.4500e-003	79.6451
Research & Development	2.988e+006	0.0161	0.1465	0.1230	8.8000e-004		0.0111	0.0111		0.0111	0.0111	0.0000	159.4511	159.4511	3.0600e-003	2.9200e-003	160.4215
Single Family Housing	5.62547e+007	0.3033	2.5921	1.1030	0.0166		0.2096	0.2096		0.2096	0.2096	0.0000	3,001.9635	3,001.9635	0.0575	0.0550	3,020.2329
Supermarket	562400	3.0300e-003	0.0276	0.0232	1.7000e-004		2.1000e-003	2.1000e-003		2.1000e-003	2.1000e-003	0.0000	30.0118	30.0118	5.8000e-004	5.5000e-004	30.1945
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.6982**	**6.1157**	**3.6332**	**0.0381**		**0.4824**	**0.4824**		**0.4824**	**0.4824**	**0.0000**	**6,909.8020**	**6,909.8020**	**0.1324**	**0.1267**	**6,951.8538**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	30667.5	1.7000e-004	1.5000e-003	1.2600e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	1.6365	1.6365	3.0000e-005	3.0000e-005	1.6465
Elementary School	1.08489e+006	5.8500e-003	0.0532	0.0447	3.2000e-004		4.0400e-003	4.0400e-003		4.0400e-003	4.0400e-003	0.0000	57.8940	57.8940	1.1100e-003	1.0600e-003	58.2464
Fast Food Restaurant with Drive Thru	1.10256e+006	5.9500e-003	0.0541	0.0454	3.2000e-004		4.1100e-003	4.1100e-003		4.1100e-003	4.1100e-003	0.0000	58.8368	58.8368	1.1300e-003	1.0800e-003	59.1949
General Heavy Industry	524475	2.8300e-003	0.0257	0.0216	1.5000e-004		1.9500e-003	1.9500e-003		1.9500e-003	1.9500e-003	0.0000	27.9880	27.9880	5.4000e-004	5.1000e-004	28.1583
General Light Industry	1.04895e+006	5.6600e-003	0.0514	0.0432	3.1000e-004		3.9100e-003	3.9100e-003		3.9100e-003	3.9100e-003	0.0000	55.9760	55.9760	1.0700e-003	1.0300e-003	56.3166
General Office Building	7.22499e+006	0.0390	0.3542	0.2975	2.1200e-003		0.0269	0.0269		0.0269	0.0269	0.0000	385.5530	385.5530	7.3900e-003	7.0700e-003	387.8994
High School	1.29892e+006	7.0000e-003	0.0637	0.0535	3.8000e-004		4.8400e-003	4.8400e-003		4.8400e-003	4.8400e-003	0.0000	69.3152	69.3152	1.3300e-003	1.2700e-003	69.7370
High Turnover (Sit Down Restaurant)	1.47008e+006	7.9300e-003	0.0721	0.0605	4.3000e-004		5.4800e-003	5.4800e-003		5.4800e-003	5.4800e-003	0.0000	78.4491	78.4491	1.5000e-003	1.4400e-003	78.9265
Industrial Park	5.57156e+006	0.0300	0.2731	0.2294	1.6400e-003		0.0208	0.0208		0.0208	0.0208	0.0000	297.3198	297.3198	5.7000e-003	5.4500e-003	299.1292
Junior College (2yr)	1.08552e+007	0.0585	0.5321	0.4470	3.1900e-003		0.0404	0.0404		0.0404	0.0404	0.0000	579.2775	579.2775	0.0111	0.0106	582.8029
Junior High School	644602	3.4800e-003	0.0316	0.0265	1.9000e-004		2.4000e-003	2.4000e-003		2.4000e-003	2.4000e-003	0.0000	34.3984	34.3984	6.6000e-004	6.3000e-004	34.6078
Manufacturing	524475	2.8300e-003	0.0257	0.0216	1.5000e-004		1.9500e-003	1.9500e-003		1.9500e-003	1.9500e-003	0.0000	27.9880	27.9880	5.4000e-004	5.1000e-004	28.1583
Medical Office Building	3.18375e+006	0.0172	0.1561	0.1311	9.4000e-004		0.0119	0.0119		0.0119	0.0119	0.0000	169.8970	169.8970	3.2600e-003	3.1100e-003	170.9310
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Apartments Low Rise	1.79525e+007	0.0968	0.8272	0.3520	5.2800e-003		0.0669	0.0669		0.0669	0.0669	0.0000	958.0119	958.0119	0.0184	0.0176	963.8422
Bank (with Drive-Through)	159840	8.6000e-004	7.8400e-003	6.5800e-003	5.0000e-005		6.0000e-004	6.0000e-004		6.0000e-004	6.0000e-004	0.0000	8.5297	8.5297	1.6000e-004	1.6000e-004	8.5816
Pharmacy/Drugstore w/o Drive Thru	44297.5	2.4000e-004	2.1700e-003	1.8200e-003	1.0000e-005		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	2.3639	2.3639	5.0000e-005	4.0000e-005	2.3783
Refrigerated Warehouse-No Rail	653888	3.5300e-003	0.0321	0.0269	1.9000e-004		2.4400e-003	2.4400e-003		2.4400e-003	2.4400e-003	0.0000	34.8939	34.8939	6.7000e-004	6.4000e-004	35.1063

Regional Shopping Center	1.11834e+006	6.0300e-003	0.0548	0.0461	3.3000e-004		4.1700e-003	4.1700e-003		4.1700e-003	4.1700e-003	0.0000	59.6790	59.6790	1.1400e-003	1.0900e-003	60.0422
Research & Development	2.24775e+006	0.0121	0.1102	0.0926	6.6000e-004		8.3700e-003	8.3700e-003		8.3700e-003	8.3700e-003	0.0000	119.9485	119.9485	2.3000e-003	2.2000e-003	120.6785
Single Family Housing	4.57797e+007	0.2469	2.1095	0.8976	0.0135		0.1706	0.1706		0.1706	0.1706	0.0000	2,442.9767	2,442.9767	0.0468	0.0448	2,457.8442
Supermarket	440800	2.3800e-003	0.0216	0.0182	1.3000e-004		1.6400e-003	1.6400e-003		1.6400e-003	1.6400e-003	0.0000	23.5228	23.5228	4.5000e-004	4.3000e-004	23.6659
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.5552**	**4.8597**	**2.8650**	**0.0303**		**0.3836**	**0.3836**		**0.3836**	**0.3836**	**0.0000**	**5,494.4555**	**5,494.4555**	**0.1053**	**0.1007**	**5,527.8939**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	6.4106e+006	1,452.9113	0.0843	0.0175	1,460.0907
Bank (with Drive-Through)	40320	9.1382	5.3000e-004	1.1000e-004	9.1834
City Park	0	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	94590	21.4381	1.2400e-003	2.6000e-004	21.5440
Elementary School	1.27146e+006	288.1655	0.0167	3.4600e-003	289.5894
Fast Food Restaurant with Drive-Thru	401880	91.0829	5.2900e-003	1.0900e-003	91.5330
General Heavy Industry	132300	29.9847	1.7400e-003	3.6000e-004	30.1329
General Light Industry	264600	59.9695	3.4800e-003	7.2000e-004	60.2658
General Office Building	6.97139e+006	1,580.0100	0.0917	0.0190	1,587.8174
High School	1.52228e+006	345.0136	0.0200	4.1400e-003	346.7184
High Turnover (Sit Down Restaurant)	535840	121.4438	7.0500e-003	1.4600e-003	122.0439

Industrial Park	5.376e+006	1,218.4272	0.0707	0.0146	1,224.4479
Junior College (2yr)	5.7155e+006	1,295.3721	0.0752	0.0156	1,301.7730
Junior High School	755451	171.2170	9.9400e-003	2.0600e-003	172.0630
Manufacturing	132300	29.9847	1.7400e-003	3.6000e-004	30.1329
Medical Office Building	3.072e+006	696.2441	0.0404	8.3600e-003	699.6845
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	136630	30.9661	1.8000e-003	3.7000e-004	31.1191
Refrigerated Warehouse-No Rail	3.06915e+006	695.5982	0.0404	8.3500e-003	699.0354
Regional Shopping Center	3.44938e+006	781.7747	0.0454	9.3900e-003	785.6377
Research & Development	567000	128.5060	7.4600e-003	1.5400e-003	129.1410
Single Family Housing	1.72197e+007	3,902.6975	0.2265	0.0469	3,921.9821
Supermarket	3.0616e+006	693.8870	0.0403	8.3300e-003	697.3158
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**13,643.8321**	**0.7919**	**0.1638**	**13,711.2513**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	6.29629e+006	1,427.0030	0.0828	0.0171	1,434.0543
Bank (with Drive-Through)	38840	8.8028	5.1000e-004	1.1000e-004	8.8463
City Park	0	0.0000	0.0000	0.0000	0.0000

Convenience Market with Gas Pumping	88065	19.9592	1.1600e-003	2.4000e-004	20.0579
Elementary School	1.1975e+006	271.4029	0.0158	3.2600e-003	272.7440
Fast Food Restaurant with Drive Thru	380430	86.2214	5.0000e-003	1.0400e-003	86.6475
General Heavy Industry	127444	28.8841	1.6800e-003	3.5000e-004	29.0268
General Light Industry	254887	57.7682	3.3500e-003	6.9000e-004	58.0537
General Office Building	6.52036e+006	1,477.7877	0.0858	0.0178	1,485.0899
High School	1.43373e+006	324.9442	0.0189	3.9000e-003	326.5499
High Turnover (Sit Down Restaurant)	507240	114.9619	6.6700e-003	1.3800e-003	115.5299
Industrial Park	5.02819e+006	1,139.5983	0.0661	0.0137	1,145.2295
Junior College (2yr)	5.425e+006	1,229.5327	0.0714	0.0148	1,235.6082
Junior High School	711507	161.2573	9.3600e-003	1.9400e-003	162.0541
Manufacturing	127444	28.8841	1.6800e-003	3.5000e-004	29.0268
Medical Office Building	2.87325e+006	651.1990	0.0378	7.8200e-003	654.4168
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	127205	28.8300	1.6700e-003	3.5000e-004	28.9725
Refrigerated Warehouse-No Rail	3.05524e+006	692.4450	0.0402	8.3100e-003	695.8667
Regional Shopping Center	3.21144e+006	727.8464	0.0422	8.7400e-003	731.4429
Research & Development	546188	123.7890	7.1800e-003	1.4900e-003	124.4007
Single Family Housing	1.6881e+007	3,825.9344	0.2221	0.0459	3,844.8397
Supermarket	2.9884e+006	677.2968	0.0393	8.1300e-003	680.6436
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**13,104.3482**	**0.7606**	**0.1574**	**13,169.1016**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	83.0090	0.3512	30.4924	1.6100e-003		0.2924	0.2924		0.2911	0.2911	0.0000	1,823.7879	1,823.7879	0.0821	0.0325	1,835.5946
Unmitigated	83.0090	0.3512	30.4924	1.6100e-003		0.2924	0.2924		0.2911	0.2911	0.0000	1,823.7879	1,823.7879	0.0821	0.0325	1,835.5946

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	8.2775					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	73.6296					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.1793	1.0000e-005	9.7800e-003	0.0000		0.1239	0.1239		0.1225	0.1225	0.0000	1,773.9843	1,773.9843	0.0340	0.0325	1,784.7805
Landscaping	0.9227	0.3512	30.4827	1.6100e-003		0.1686	0.1686		0.1686	0.1686	0.0000	49.8036	49.8036	0.0481	0.0000	50.8141
Total	**83.0090**	**0.3512**	**30.4924**	**1.6100e-003**		**0.2924**	**0.2924**		**0.2911**	**0.2911**	**0.0000**	**1,823.7879**	**1,823.7879**	**0.0821**	**0.0325**	**1,835.5946**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	8.2775					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	73.6296					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.1793	1.0000e-005	9.7800e-003	0.0000		0.1239	0.1239		0.1225	0.1225	0.0000	1,773.9843	1,773.9843	0.0340	0.0325	1,784.7805
Landscaping	0.9227	0.3512	30.4827	1.6100e-003		0.1686	0.1686		0.1686	0.1686	0.0000	49.8036	49.8036	0.0481	0.0000	50.8141
Total	**83.0090**	**0.3512**	**30.4924**	**1.6100e-003**		**0.2924**	**0.2924**		**0.2911**	**0.2911**	**0.0000**	**1,823.7879**	**1,823.7879**	**0.0821**	**0.0325**	**1,835.5946**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	0 / 0	0.0000	0.0000	0.0000	0.0000
Bank (with Drive-Through)	0 / 0	0.0000	0.0000	0.0000	0.0000
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	0 / 0	0.0000	0.0000	0.0000	0.0000
Elementary School	0 / 0	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant with Drive-Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
General Heavy Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
High School	0 / 0	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	0 / 0	0.0000	0.0000	0.0000	0.0000
Industrial Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Junior College (2yr)	0 / 0	0.0000	0.0000	0.0000	0.0000
Junior High School	0 / 0	0.0000	0.0000	0.0000	0.0000
Manufacturing	0 / 0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0 / 0	0.0000	0.0000	0.0000	0.0000

Research & Development	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Supermarket	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	0 / 0	0.0000	0.0000	0.0000	0.0000
Bank (with Drive-Through)	0 / 0	0.0000	0.0000	0.0000	0.0000
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	0 / 0	0.0000	0.0000	0.0000	0.0000
Elementary School	0 / 0	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant with Drive-Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
General Heavy Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
High School	0 / 0	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	0 / 0	0.0000	0.0000	0.0000	0.0000
Industrial Park	0 / 0	0.0000	0.0000	0.0000	0.0000

Junior College (2yr)	0 / 0	0.0000	0.0000	0.0000	0.0000
Junior High School	0 / 0	0.0000	0.0000	0.0000	0.0000
Manufacturing	0 / 0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0 / 0	0.0000	0.0000	0.0000	0.0000
Research & Development	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Supermarket	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Unmitigated	2,257.7812	133.4311	0.0000	5,059.8332

Mitigated	564.4453	33.3578	0.0000	1,264.9583

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	795.8	161.5402	9.5468	0.0000	362.0220
Bank (with Drive-Through)	14.93	3.0307	0.1791	0.0000	6.7919
City Park	5.42	1.1002	0.0650	0.0000	2.4656
Convenience Market with Gas Pumps	27.05	5.4909	0.3245	0.0000	12.3055
Elementary School	362.81	73.6472	4.3524	0.0000	165.0480
Fast Food Restaurant with Drive-Thru	138.23	28.0594	1.6583	0.0000	62.8830
General Heavy Industry	65.1	13.2147	0.7810	0.0000	29.6150
General Light Industry	130.2	26.4294	1.5619	0.0000	59.2300
General Office Building	633.14	128.5217	7.5954	0.0000	288.0254
High School	273.75	55.5688	3.2840	0.0000	124.5332
High Turnover (Sit Down Restaurant)	190.4	38.6495	2.2841	0.0000	86.6160
Industrial Park	651	132.1471	7.8097	0.0000	296.1502
Junior College (2yr)	455	92.3609	5.4584	0.0000	206.9867
Junior High School	153.3	31.1185	1.8391	0.0000	69.7386
Manufacturing	65.1	13.2147	0.7810	0.0000	29.6150

Medical Office Building	3240	657.6907	38.8684	0.0000	1,473.9273
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	39.09	7.9349	0.4689	0.0000	17.7827
Refrigerated Warehouse-No Rail	98.7	20.0352	1.1841	0.0000	44.9002
Regional Shopping Center	344.61	69.9527	4.1341	0.0000	156.7685
Research & Development	17.1	3.4712	0.2051	0.0000	7.7791
Single Family Housing	2773.24	562.9427	33.2690	0.0000	1,261.5908
Supermarket	451.2	91.5895	5.4128	0.0000	205.2580
Unrefrigerated Warehouse-No Rail	197.4	40.0704	2.3681	0.0000	89.8004
Total		**2,257.7812**	**133.4311**	**0.0000**	**5,059.8332**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	198.95	40.3851	2.3867	0.0000	90.5055
Bank (with Drive-Through)	3.7325	0.7577	0.0448	0.0000	1.6980
City Park	1.355	0.2751	0.0163	0.0000	0.6164
Convenience Market with Gas Pumps	6.7625	1.3727	0.0811	0.0000	3.0764
Elementary School	90.7025	18.4118	1.0881	0.0000	41.2620
Fast Food Restaurant with Drive Thru	34.5575	7.0149	0.4146	0.0000	15.7208
General Heavy Industry	16.275	3.3037	0.1952	0.0000	7.4038

General Light Industry	32.55	6.6074	0.3905	0.0000	14.8075
General Office Building	158.285	32.1304	1.8989	0.0000	72.0064
High School	68.4375	13.8922	0.8210	0.0000	31.1333
High Turnover (Sit Down Restaurant)	47.6	9.6624	0.5710	0.0000	21.6540
Industrial Park	162.75	33.0368	1.9524	0.0000	74.0376
Junior College (2yr)	113.75	23.0902	1.3646	0.0000	51.7467
Junior High School	38.325	7.7796	0.4598	0.0000	17.4347
Manufacturing	16.275	3.3037	0.1952	0.0000	7.4038
Medical Office Building	810	164.4227	9.7171	0.0000	368.4818
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	9.7725	1.9837	0.1172	0.0000	4.4457
Refrigerated Warehouse-No Rail	24.675	5.0088	0.2960	0.0000	11.2251
Regional Shopping Center	86.1525	17.4882	1.0335	0.0000	39.1921
Research & Development	4.275	0.8678	0.0513	0.0000	1.9448
Single Family Housing	693.31	140.7357	8.3172	0.0000	315.3977
Supermarket	112.8	22.8974	1.3532	0.0000	51.3145
Unrefrigerated Warehouse-No Rail	49.35	10.0176	0.5920	0.0000	22.4501
Total		**564.4453**	**33.3578**	**0.0000**	**1,264.9583**

9.0 Operational Offroad

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

10.0 Vegetation

Grapevine Operational Year 2023 - Planning Areas 6A, 2 Buildout

Kern-San Joaquin County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Bank (with Drive-Through)	16.00	1000sqft	1.46	16,000.00	0
General Office Building	680.80	1000sqft	61.68	680,800.00	0
Medical Office Building	300.00	1000sqft	22.69	300,000.00	0
Pharmacy/Drugstore w/o Drive Thru	13.00	1000sqft	1.18	13,000.00	0
Research & Development	225.00	1000sqft	17.19	225,000.00	0
Elementary School	1,988.00	Student	10.00	166,203.50	0
High School	1,500.00	Student	5.00	198,991.47	0
Junior College (2yr)	350.00	1000sqft	27.25	350,000.00	0
Junior High School	840.00	Student	20.00	98,751.81	0
General Heavy Industry	52.50	1000sqft	4.09	52,500.00	0
General Light Industry	105.00	1000sqft	8.18	105,000.00	0
Industrial Park	525.00	1000sqft	40.88	525,000.00	0
Manufacturing	52.50	1000sqft	4.09	52,500.00	0
Refrigerated Warehouse-No Rail	105.00	1000sqft	8.18	105,000.00	0
Unrefrigerated Warehouse-No Rail	210.00	1000sqft	16.35	210,000.00	0
Other Asphalt Surfaces	151.00	Acre	151.00	6,577,560.00	0
City Park	63.00	Acre	63.00	2,744,280.00	0
Fast Food Restaurant with Drive Thru	12.00	1000sqft	1.57	12,000.00	0
High Turnover (Sit Down Restaurant)	16.00	1000sqft	2.10	16,000.00	0
Apartments Low Rise	1,730.00	Dwelling Unit	173.00	1,730,000.00	5536
Single Family Housing	2,365.00	Dwelling Unit	604.00	4,257,000.00	7568
Convenience Market with Gas Pumps	9.00	1000sqft	1.17	9,000.00	0

Regional Shopping Center	328.20	1000sqft	42.55	328,200.00	0
Supermarket	80.00	1000sqft	10.41	80,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	7			**Operational Year**	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	499.66	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Planning Areas 6A, 2. Kern County, San Joaquin Valley Air Basin. CO2 Intensity adjusted based on PG&E 33% Renewables by 2020.
Land Use - See 1.1 Land Usage. Population based on 3.2 persons per dwelling unit.

Construction Phase - Construction emissions calculated separately.

Vehicle Trips - Modified trip rates to match Trip Generation and VMT factors provided by Fehr & Peers.

Vehicle Emission Factors - Default CalEEMod values.

Woodstoves - No woodstoves and only gas fireplaces assumed

Area Coating - Default CalEEMod VOC content. Modified non-residential interior and exterior area to be coated based on CalEEMod architectural coating surface area equations and adjusted for parking/asphalt surface and park land uses.

Energy Use - Updated Title 24 electricity and natural gas energy intensity to match 2013 Title 24 standards (25% reduction versus 2008 standards).

Water And Wastewater - Water and wastewater consumption and associated emissions calculated separately.

Construction Off-road Equipment Mitigation - Construction emissions calculated separately.

Mobile Land Use Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Project Setting: Suburban Center. Improve Pedestrian Network: Project Site and Connecting Off-Site. Provide Traffic Calming Measures: 100% Streets with Improvement, 100% Intersections with Improvement. Expand Transit Network: 50%.
Mobile Commute Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Voluntary Commute Trip Reduction Program: 50%

Energy Mitigation - Exceed 2013 Title 24, % Improvement: 25%.

Water Mitigation - Water reductions calculated separately.

Waste Mitigation - Percent Reduction in Waste Disposed: 75%. Waste diversion consistent with Assembly Bill 341 (not mitigation).

Note Regarding Emissions Presented in the Air Quality & Greenhouse Gas Technical Report: Project-generated unmitigated and mitigated emissions in the Technical Report reflect the unmitigated mobile source emissions reported in 2.0 Emissions Summary. No area source mitigation assumed. Unmitigated and mitigated energy source and solid waste emissions reported in the Technical Report as presented in 2.0 Emissions Summary. Water/wastewater and stationary source emissions calculated separately.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	6432893	2330709
tblAreaCoating	Area_Nonresidential_Interior	19298680	5315920
tblConstructionPhase	NumDays	155,000.00	5.00
tblEnergyUse	T24E	352.42	264.31
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	4.43	3.32
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.70	0.53
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	763.80	572.85
tblEnergyUse	T24E	4.88	3.66
tblEnergyUse	T24NG	14,007.38	10,505.53
tblEnergyUse	T24NG	17.55	13.16

tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	54.53	40.90
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	5.56	4.17
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	23,622.31	17,716.73
tblEnergyUse	T24NG	8.10	6.08
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblLandUse	LotAcreage	0.37	1.46
tblLandUse	LotAcreage	15.63	61.68
tblLandUse	LotAcreage	6.89	22.69
tblLandUse	LotAcreage	0.30	1.18
tblLandUse	LotAcreage	5.17	17.19
tblLandUse	LotAcreage	3.82	10.00
tblLandUse	LotAcreage	4.57	5.00
tblLandUse	LotAcreage	8.03	27.25
tblLandUse	LotAcreage	2.27	20.00

tblLandUse	LotAcreage	1.21	4.09
tblLandUse	LotAcreage	2.41	8.18
tblLandUse	LotAcreage	12.05	40.88
tblLandUse	LotAcreage	1.21	4.09
tblLandUse	LotAcreage	2.41	8.18
tblLandUse	LotAcreage	4.82	16.35
tblLandUse	LotAcreage	0.28	1.57
tblLandUse	LotAcreage	0.37	2.10
tblLandUse	LotAcreage	108.13	173.00
tblLandUse	LotAcreage	767.86	604.00
tblLandUse	LotAcreage	0.21	1.17
tblLandUse	LotAcreage	7.53	42.55
tblLandUse	LotAcreage	1.84	10.41
tblLandUse	Population	4,948.00	5,536.00
tblLandUse	Population	6,764.00	7,568.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	499.66
tblProjectCharacteristics	OperationalYear	2014	2023
tblTripsAndVMT	VendorTripNumber	2,546.00	0.00
tblTripsAndVMT	WorkerTripNumber	7,335.00	0.00
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
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tblVehicleTrips	CC_TL	7.30	15.62

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tblVehicleTrips	DV_TP	5.00	0.00
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tblVehicleTrips	HO_TL	7.50	15.62
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tblVehicleTrips	HS_TL	7.30	15.62
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tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	10.00	0.00
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tblVehicleTrips	PR_TP	92.00	100.00

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tblVehicleTrips	ST_TR	7.16	5.89
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tblVehicleTrips	ST_TR	722.03	50.58
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tblVehicleTrips	ST_TR	158.37	43.29
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tblVehicleTrips	SU_TR	1,182.08	48.59
tblVehicleTrips	SU_TR	542.72	38.02
tblVehicleTrips	SU_TR	1.50	0.20
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tblVehicleTrips	SU_TR	0.98	0.80
tblVehicleTrips	SU_TR	0.25	0.20
tblVehicleTrips	SU_TR	131.84	36.04
tblVehicleTrips	SU_TR	0.73	0.59
tblVehicleTrips	SU_TR	1.21	0.19
tblVehicleTrips	SU_TR	0.62	0.47
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tblVehicleTrips	SU_TR	166.44	56.58
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tblVehicleTrips	WD_TR	6.59	5.41
tblVehicleTrips	WD_TR	148.15	8.98

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tblVehicleTrips	WD_TR	845.60	34.76
tblVehicleTrips	WD_TR	1.29	1.05
tblVehicleTrips	WD_TR	496.12	34.76
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tblVehicleTrips	WD_TR	90.06	8.98
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tblVehicleTrips	WD_TR	42.94	34.76
tblVehicleTrips	WD_TR	8.11	8.98
tblVehicleTrips	WD_TR	9.57	7.75
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tblVehicleTrips	WD_TR	2.59	2.90
tblWater	IndoorWaterUseRate	112,716,464.33	0.00
tblWater	IndoorWaterUseRate	633,966.70	0.00
tblWater	IndoorWaterUseRate	666,652.69	0.00
tblWater	IndoorWaterUseRate	4,819,389.12	0.00
tblWater	IndoorWaterUseRate	3,642,404.55	0.00
tblWater	IndoorWaterUseRate	12,140,625.00	0.00
tblWater	IndoorWaterUseRate	24,281,250.00	0.00
tblWater	IndoorWaterUseRate	121,001,135.63	0.00
tblWater	IndoorWaterUseRate	6,607,440.00	0.00

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tblWater	IndoorWaterUseRate	9,861,457.19	0.00
tblWater	IndoorWaterUseRate	48,562,500.00	0.00
tblWater	OutdoorWaterUseRate	71,060,379.68	0.00
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tblWater	OutdoorWaterUseRate	16,990,560.00	0.00
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tblWater	OutdoorWaterUseRate	26,851,201.13	0.00
tblWater	OutdoorWaterUseRate	5,236,358.40	0.00
tblWater	OutdoorWaterUseRate	7,170,316.43	0.00
tblWater	OutdoorWaterUseRate	561,307.68	0.00
tblWater	OutdoorWaterUseRate	14,900,046.11	0.00
tblWater	OutdoorWaterUseRate	97,143,235.81	0.00
tblWater	OutdoorWaterUseRate	304,993.52	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	463.4301	3.9025	338.9346	0.0179		4.8938	4.8938		4.8620	4.8620	0.0000	48,304.6956	48,304.6956	1.5035	0.8744	48,607.3340
Energy	3.8258	33.5105	19.9078	0.2087		2.6433	2.6433		2.6433	2.6433		41,735.6320	41,735.6320	0.7999	0.7652	41,989.6281
Mobile	386.1060	1,640.3147	5,512.5673	17.4850	887.0491	40.2526	927.3017	238.6313	37.0639	275.6952		1,436,955.0635	1,436,955.0635	30.2110		1,437,589.4941
Total	**853.3619**	**1,677.7277**	**5,871.4097**	**17.7116**	**887.0491**	**47.7896**	**934.8387**	**238.6313**	**44.5692**	**283.2005**	**0.0000**	**1,526,995.3912**	**1,526,995.3912**	**32.5144**	**1.6396**	**1,528,186.4562**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	463.4301	3.9025	338.9346	0.0179		4.8938	4.8938		4.8620	4.8620	0.0000	48,304.6956	48,304.6956	1.5035	0.8744	48,607.3340
Energy	3.0421	26.6286	15.6987	0.1659		2.1018	2.1018		2.1018	2.1018		33,186.8519	33,186.8519	0.6361	0.6084	33,388.8216
Mobile	375.3459	1,564.6992	5,369.1753	16.5560	838.9900	38.1177	877.1077	225.7026	35.0983	260.8009		1,360,460.4998	1,360,460.4998	28.6771		1,361,062.7177
Total	**841.8181**	**1,595.2303**	**5,723.8086**	**16.7399**	**838.9900**	**45.1133**	**884.1033**	**225.7026**	**42.0622**	**267.7647**	**0.0000**	**1,441,952.0473**	**1,441,952.0473**	**30.8166**	**1.4828**	**1,443,058.8733**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.35**	**4.92**	**2.51**	**5.49**	**5.42**	**5.60**	**5.43**	**5.42**	**5.63**	**5.45**	**0.00**	**5.57**	**5.57**	**5.22**	**9.56**	**5.57**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

Provide Traffic Calming Measures

Expand Transit Network

Implement Trip Reduction Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	375.3459	1,564.6992	5,369.1753	16.5560	838.9900	38.1177	877.1077	225.7026	35.0983	260.8009		1,360,460.4998	1,360,460.4998	28.6771		1,361,062.7177
Unmitigated	386.1060	1,640.3147	5,512.5673	17.4850	887.0491	40.2526	927.3017	238.6313	37.0639	275.6952		1,436,955.0635	1,436,955.0635	30.2110		1,437,589.4941

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	9,359.30	10,189.70	8632.70	53,298,295	50,410,667
Bank (with Drive-Through)	143.68	83.68	31.04	676,693	640,031
City Park	97.02	97.02	97.02	551,625	521,738
Convenience Market with Gas Pumps	312.84	535.86	437.31	2,060,953	1,949,294
Elementary School	2,087.40	0.00	0.00	8,477,349	8,018,058
Fast Food Restaurant with Drive Thru	417.12	606.96	456.24	2,557,581	2,419,015
General Heavy Industry	152.25	28.88	10.50	650,300	615,067
General Light Industry	304.50	57.75	29.40	1,307,422	1,236,588
General Office Building	6,113.58	1,313.94	544.64	26,338,104	24,911,141
High School	2,085.00	750.00	300.00	9,320,454	8,815,485
High Turnover (Sit Down Restaurant)	556.16	692.64	576.64	3,289,637	3,111,409
Industrial Park	2,919.00	1,044.75	309.75	12,954,822	12,252,947
Junior College (2yr)	1,480.50	605.50	66.50	6,558,432	6,203,105
Junior High School	1,108.80	0.00	0.00	4,503,059	4,259,089
Manufacturing	152.25	59.33	24.68	686,546	649,350
Medical Office Building	2,694.00	669.00	114.00	11,576,857	10,949,639

Other Asphalt Surfaces	0.00	0.00	0.00		
Pharmacy/Drugstore w/o Drive Thru	116.74	116.74	116.74	663,746	627,785
Refrigerated Warehouse-No Rail	304.50	304.50	304.50	1,731,290	1,637,491
Regional Shopping Center	11,408.23	13,275.69	6705.13	62,560,330	59,170,897
Research & Development	2,020.50	472.50	276.75	8,814,225	8,336,683
Single Family Housing	18,328.75	19,298.40	16791.50	103,750,380	98,129,327
Supermarket	2,780.80	4,829.60	4526.40	18,892,702	17,869,122
Unrefrigerated Warehouse-No Rail	609.00	609.00	609.00	3,462,579	3,274,981
Total	65,551.93	55,641.43	40,960.43	344,683,381	326,008,910

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Bank (with Drive-Through)	15.62	15.62	15.62	6.60	74.40	19.00	100	0	0
City Park	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Convenience Market with Gas	15.62	15.62	15.62	0.80	80.20	19.00	100	0	0
Elementary School	15.62	15.62	15.62	65.00	30.00	5.00	100	0	0
Fast Food Restaurant with Drive Th	15.62	15.62	15.62	2.20	78.80	19.00	100	0	0
General Heavy Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Light Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Office Building	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
High School	15.62	15.62	15.62	77.80	17.20	5.00	100	0	0
High Turnover (Sit Down	15.62	15.62	15.62	8.50	72.50	19.00	100	0	0
Industrial Park	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Junior College (2yr)	15.62	15.62	15.62	6.40	88.60	5.00	100	0	0
Junior High School	15.62	15.62	15.62	72.80	22.20	5.00	100	0	0
Manufacturing	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Medical Office Building	15.62	15.62	15.62	29.60	51.40	19.00	100	0	0
Other Asphalt Surfaces	15.62	15.62	15.62	0.00	0.00	0.00	100	0	0
Pharmacy/Drugstore w/o Drive	15.62	15.62	15.62	7.40	73.60	19.00	100	0	0
Refrigerated Warehouse-No Rail	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0
Regional Shopping Center	15.62	15.62	15.62	16.30	64.70	19.00	100	0	0
Research & Development	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Single Family Housing	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Supermarket	15.62	15.62	15.62	6.50	74.50	19.00	100	0	0
Unrefrigerated Warehouse-No	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.353192	0.054020	0.135333	0.181010	0.057090	0.010432	0.023385	0.172599	0.001500	0.001840	0.006039	0.001025	0.002534

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	3.0421	26.6286	15.6987	0.1659		2.1018	2.1018		2.1018	2.1018		33,186.8519	33,186.8519	0.6361	0.6084	33,388.8216
NaturalGas Unmitigated	3.8258	33.5105	19.9078	0.2087		2.6433	2.6433		2.6433	2.6433		41,735.6320	41,735.6320	0.7999	0.7652	41,989.6281

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Bank (with Drive-Through)	582.137	6.2800e-003	0.0571	0.0479	3.4000e-004		4.3400e-003	4.3400e-003		4.3400e-003	4.3400e-003		68.4867	68.4867	1.3100e-003	1.2600e-003	68.9035
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Convenience Market with Gas Pumping	111.452	1.2000e-003	0.0109	9.1800e-003	7.0000e-005		8.3000e-004	8.3000e-004		8.3000e-004	8.3000e-004		13.1120	13.1120	2.5000e-004	2.4000e-004	13.1918
Elementary School	3893.26	0.0420	0.3817	0.3206	2.2900e-003		0.0290	0.0290		0.0290	0.0290		458.0306	458.0306	8.7800e-003	8.4000e-003	460.8181
Fast Food Restaurant with Drive Thru	3135.45	0.0338	0.3074	0.2582	1.8400e-003		0.0234	0.0234		0.0234	0.0234		368.8767	368.8767	7.0700e-003	6.7600e-003	371.1216
General Heavy Industry	1910.14	0.0206	0.1873	0.1573	1.1200e-003		0.0142	0.0142		0.0142	0.0142		224.7220	224.7220	4.3100e-003	4.1200e-003	226.0896
General Light Industry	3820.27	0.0412	0.3745	0.3146	2.2500e-003		0.0285	0.0285		0.0285	0.0285		449.4440	449.4440	8.6100e-003	8.2400e-003	452.1792
General Office Building	25721.2	0.2774	2.5217	2.1182	0.0151		0.1917	0.1917		0.1917	0.1917		3,026.0216	3,026.0216	0.0580	0.0555	3,044.4375
High School	4661.31	0.0503	0.4570	0.3839	2.7400e-003		0.0347	0.0347		0.0347	0.0347		548.3891	548.3891	0.0105	0.0101	551.7265
High Turnover (Sit Down Restaurant)	4180.6	0.0451	0.4099	0.3443	2.4600e-003		0.0312	0.0312		0.0312	0.0312		491.8356	491.8356	9.4300e-003	9.0200e-003	494.8289
Industrial Park	19834.9	0.2139	1.9446	1.6335	0.0117		0.1478	0.1478		0.1478	0.1478		2,333.5214	2,333.5214	0.0447	0.0428	2,347.7228
Junior College (2yr)	39545.2	0.4265	3.8770	3.2567	0.0233		0.2947	0.2947		0.2947	0.2947		4,652.3771	4,652.3771	0.0892	0.0853	4,680.6907
Junior High School	2313.23	0.0250	0.2268	0.1905	1.3600e-003		0.0172	0.0172		0.0172	0.0172		272.1444	272.1444	5.2200e-003	4.9900e-003	273.8006
Manufacturing	1910.14	0.0206	0.1873	0.1573	1.1200e-003		0.0142	0.0142		0.0142	0.0142		224.7220	224.7220	4.3100e-003	4.1200e-003	226.0896
Medical Office Building	11334.2	0.1222	1.1112	0.9334	6.6700e-003		0.0845	0.0845		0.0845	0.0845		1,333.4408	1,333.4408	0.0256	0.0245	1,341.5559
Apartments Low Rise	61633.2	0.6647	5.6799	2.4170	0.0363		0.4592	0.4592		0.4592	0.4592		7,250.9611	7,250.9611	0.1390	0.1329	7,295.0893
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	160.986	1.7400e-003	0.0158	0.0133	9.0000e-005		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003		18.9396	18.9396	3.6000e-004	3.5000e-004	19.0548
Refrigerated Warehouse-No Rail	2091.37	0.0226	0.2050	0.1722	1.2300e-003		0.0156	0.0156		0.0156	0.0156		246.0435	246.0435	4.7200e-003	4.5100e-003	247.5409
Regional Shopping Center	4064.28	0.0438	0.3985	0.3347	2.3900e-003		0.0303	0.0303		0.0303	0.0303		478.1512	478.1512	9.1600e-003	8.7700e-003	481.0611
Research & Development	8186.3	0.0883	0.8026	0.6742	4.8200e-003		0.0610	0.0610		0.0610	0.0610		963.0943	963.0943	0.0185	0.0177	968.9555
Single Family Housing	154122	1.6621	14.2034	6.0440	0.0907		1.1484	1.1484		1.1484	1.1484		18,132.0453	18,132.0453	0.3475	0.3324	18,242.3939
Supermarket	1540.82	0.0166	0.1511	0.1269	9.1000e-004		0.0115	0.0115		0.0115	0.0115		181.2732	181.2732	3.4700e-003	3.3200e-003	182.3764
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Total		**3.8258**	**33.5106**	**19.9079**	**0.2087**		**2.6433**	**2.6433**		**2.6433**	**2.6433**		**41,735.6320**	**41,735.6320**	**0.7999**	**0.7652**	**41,989.6281**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	0.0840205	9.1000e-004	8.2400e-003	6.9200e-003	5.0000e-005		6.3000e-004	6.3000e-004		6.3000e-004	6.3000e-004		9.8848	9.8848	1.9000e-004	1.8000e-004	9.9449
Elementary School	2.97231	0.0321	0.2914	0.2448	1.7500e-003		0.0222	0.0222		0.0222	0.0222		349.6836	349.6836	6.7000e-003	6.4100e-003	351.8117
Fast Food Restaurant with Drive-Thru	3.02071	0.0326	0.2962	0.2488	1.7800e-003		0.0225	0.0225		0.0225	0.0225		355.3779	355.3779	6.8100e-003	6.5200e-003	357.5407
General Heavy Industry	1.43692	0.0155	0.1409	0.1183	8.5000e-004		0.0107	0.0107		0.0107	0.0107		169.0492	169.0492	3.2400e-003	3.1000e-003	170.0780
General Light Industry	2.87384	0.0310	0.2818	0.2367	1.6900e-003		0.0214	0.0214		0.0214	0.0214		338.0983	338.0983	6.4800e-003	6.2000e-003	340.1559
General Office Building	19.7945	0.2135	1.9406	1.6301	0.0116		0.1475	0.1475		0.1475	0.1475		2,328.7639	2,328.7639	0.0446	0.0427	2,342.9364
High School	3.55868	0.0384	0.3489	0.2931	2.0900e-003		0.0265	0.0265		0.0265	0.0265		418.6678	418.6678	8.0200e-003	7.6800e-003	421.2157
High Turnover (Sit Down Restaurant)	4.02762	0.0434	0.3949	0.3317	2.3700e-003		0.0300	0.0300		0.0300	0.0300		473.8372	473.8372	9.0800e-003	8.6900e-003	476.7209
Industrial Park	15.2646	0.1646	1.4965	1.2571	8.9800e-003		0.1137	0.1137		0.1137	0.1137		1,795.8300	1,795.8300	0.0344	0.0329	1,806.7591
Junior College (2yr)	29.7404	0.3207	2.9157	2.4492	0.0175		0.2216	0.2216		0.2216	0.2216		3,498.8719	3,498.8719	0.0671	0.0642	3,520.1654
Junior High School	1.76603	0.0191	0.1731	0.1454	1.0400e-003		0.0132	0.0132		0.0132	0.0132		207.7687	207.7687	3.9800e-003	3.8100e-003	209.0332
Manufacturing	1.43692	0.0155	0.1409	0.1183	8.5000e-004		0.0107	0.0107		0.0107	0.0107		169.0492	169.0492	3.2400e-003	3.1000e-003	170.0780
Medical Office Building	8.7226	0.0941	0.8552	0.7183	5.1300e-003		0.0650	0.0650		0.0650	0.0650		1,026.1886	1,026.1886	0.0197	0.0188	1,032.4338
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Apartments Low Rise	49.1848	0.5304	4.5327	1.9288	0.0289		0.3665	0.3665		0.3665	0.3665		5,786.4513	5,786.4513	0.1109	0.1061	5,821.6667

Bank (with Drive-Through)	0.437918	4.7200e-003	0.0429	0.0361	2.6000e-004		3.2600e-003	3.2600e-003		3.2600e-003	3.2600e-003		51.5197	51.5197	9.9000e-004	9.4000e-004	51.8333
Pharmacy/Drugstore w/o Drive Thru	0.121363	1.3100e-003	0.0119	9.9900e-003	7.0000e-005		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004		14.2780	14.2780	2.7000e-004	2.6000e-004	14.3649
Refrigerated Warehouse-No Rail	1.79147	0.0193	0.1756	0.1475	1.0500e-003		0.0134	0.0134		0.0134	0.0134		210.7615	210.7615	4.0400e-003	3.8600e-003	212.0441
Regional Shopping Center	3.06395	0.0330	0.3004	0.2523	1.8000e-003		0.0228	0.0228		0.0228	0.0228		360.4646	360.4646	6.9100e-003	6.6100e-003	362.6584
Research & Development	6.15822	0.0664	0.6038	0.5072	3.6200e-003		0.0459	0.0459		0.0459	0.0459		724.4964	724.4964	0.0139	0.0133	728.9055
Single Family Housing	125.424	1.3526	11.5587	4.9186	0.0738		0.9345	0.9345		0.9345	0.9345		14,755.7305	14,755.7305	0.2828	0.2705	14,845.5314
Supermarket	1.20767	0.0130	0.1184	0.0995	7.1000e-004		9.0000e-003	9.0000e-003		9.0000e-003	9.0000e-003		142.0790	142.0790	2.7200e-003	2.6000e-003	142.9436
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**3.0421**	**26.6286**	**15.6987**	**0.1659**		**2.1019**	**2.1019**		**2.1019**	**2.1019**		**33,186.8519**	**33,186.8519**	**0.6361**	**0.6084**	**33,388.8216**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	463.4301	3.9025	338.9346	0.0179		4.8938	4.8938		4.8620	4.8620	0.0000	48,304.6956	48,304.6956	1.5035	0.8744	48,607.3340
Unmitigated	463.4301	3.9025	338.9346	0.0179		4.8938	4.8938		4.8620	4.8620	0.0000	48,304.6956	48,304.6956	1.5035	0.8744	48,607.3340

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	45.3561					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	403.4496					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	4.3720	2.0000e-004	0.2385	0.0000		3.0207	3.0207		2.9889	2.9889	0.0000	47,694.7059	47,694.7059	0.9142	0.8744	47,984.9679
Landscaping	10.2524	3.9023	338.6961	0.0179		1.8731	1.8731		1.8731	1.8731		609.9898	609.9898	0.5894		622.3661
Total	**463.4301**	**3.9025**	**338.9346**	**0.0179**		**4.8938**	**4.8938**		**4.8620**	**4.8620**	**0.0000**	**48,304.6956**	**48,304.6956**	**1.5035**	**0.8744**	**48,607.3340**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	45.3561					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	403.4496					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	4.3720	2.0000e-004	0.2385	0.0000		3.0207	3.0207		2.9889	2.9889	0.0000	47,694.7059	47,694.7059	0.9142	0.8744	47,984.9679
Landscaping	10.2524	3.9023	338.6961	0.0179		1.8731	1.8731		1.8731	1.8731		609.9898	609.9898	0.5894		622.3661
Total	**463.4301**	**3.9025**	**338.9346**	**0.0179**		**4.8938**	**4.8938**		**4.8620**	**4.8620**	**0.0000**	**48,304.6956**	**48,304.6956**	**1.5035**	**0.8744**	**48,607.3340**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Vegetation

Grapevine Operational Year 2023 - Planning Areas 6A, 2 Buildout

Kern-San Joaquin County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	YTB	Floor Surface Area	Population
Bank (with Drive-Through)	16.00	1000sqft	1.46	16,000.00	0
General Office Building	680.80	1000sqft	61.68	680,800.00	0
Medical Office Building	300.00	1000sqft	22.69	300,000.00	0
Pharmacy/Drugstore w/o Drive Thru	13.00	1000sqft	1.18	13,000.00	0
Research & Development	225.00	1000sqft	17.19	225,000.00	0
Elementary School	1,988.00	Student	10.00	166,203.50	0
High School	1,500.00	Student	5.00	198,991.47	0
Junior College (2yr)	350.00	1000sqft	27.25	350,000.00	0
Junior High School	840.00	Student	20.00	98,751.81	0
General Heavy Industry	52.50	1000sqft	4.09	52,500.00	0
General Light Industry	105.00	1000sqft	8.18	105,000.00	0
Industrial Park	525.00	1000sqft	40.88	525,000.00	0
Manufacturing	52.50	1000sqft	4.09	52,500.00	0
Refrigerated Warehouse-No Rail	105.00	1000sqft	8.18	105,000.00	0
Unrefrigerated Warehouse-No Rail	210.00	1000sqft	16.35	210,000.00	0
Other Asphalt Surfaces	151.00	Acre	151.00	6,577,560.00	0
City Park	63.00	Acre	63.00	2,744,280.00	0
Fast Food Restaurant with Drive Thru	12.00	1000sqft	1.57	12,000.00	0
High Turnover (Sit Down Restaurant)	16.00	1000sqft	2.10	16,000.00	0
Apartments Low Rise	1,730.00	Dwelling Unit	173.00	1,730,000.00	5536
Single Family Housing	2,365.00	Dwelling Unit	604.00	4,257,000.00	7568
Convenience Market with Gas Pumps	9.00	1000sqft	1.17	9,000.00	0

Regional Shopping Center	328.20	1000sqft	42.55	328,200.00	0
Supermarket	80.00	1000sqft	10.41	80,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	7			**Operational Year**	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	499.66	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Planning Areas 6A, 2. Kern County, San Joaquin Valley Air Basin. CO2 Intensity adjusted based on PG&E 33% Renewables by 2020.
Land Use - See 1.1 Land Usage. Population based on 3.2 persons per dwelling unit.

Construction Phase - Construction emissions calculated separately.

Vehicle Trips - Modified trip rates to match Trip Generation and VMT factors provided by Fehr & Peers.

Vehicle Emission Factors - Default CalEEMod values.

Woodstoves - No woodstoves and only gas fireplaces assumed

Area Coating - Default CalEEMod VOC content. Modified non-residential interior and exterior area to be coated based on CalEEMod architectural coating surface area equations and adjusted for parking/asphalt surface and park land uses.

Energy Use - Updated Title 24 electricity and natural gas energy intensity to match 2013 Title 24 standards (25% reduction versus 2008 standards).

Water And Wastewater - Water and wastewater consumption and associated emissions calculated separately.

Construction Off-road Equipment Mitigation - Construction emissions calculated separately.

Mobile Land Use Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Project Setting: Suburban Center. Improve Pedestrian Network: Project Site and Connecting Off-Site. Provide Traffic Calming Measures: 100% Streets with Improvement, 100% Intersections with Improvement. Expand Transit Network: 50%.
Mobile Commute Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Voluntary Commute Trip Reduction Program: 50%

Energy Mitigation - Exceed 2013 Title 24, % Improvement: 25%.

Water Mitigation - Water reductions calculated separately.

Waste Mitigation - Percent Reduction in Waste Disposed: 75%. Waste diversion consistent with Assembly Bill 341 (not mitigation).

Note Regarding Emissions Presented in the Air Quality & Greenhouse Gas Technical Report: Project-generated unmitigated and mitigated emissions in the Technical Report reflect the unmitigated mobile source emissions reported in 2.0 Emissions Summary. No area source mitigation assumed. Unmitigated and mitigated energy source and solid waste emissions reported in the Technical Report as presented in 2.0 Emissions Summary. Water/wastewater and stationary source emissions calculated separately.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	6432893	2330709
tblAreaCoating	Area_Nonresidential_Interior	19298680	5315920
tblConstructionPhase	NumDays	155,000.00	5.00
tblEnergyUse	T24E	352.42	264.31
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	4.43	3.32
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.70	0.53
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	763.80	572.85
tblEnergyUse	T24E	4.88	3.66
tblEnergyUse	T24NG	14,007.38	10,505.53
tblEnergyUse	T24NG	17.55	13.16

tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	54.53	40.90
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	5.56	4.17
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	23,622.31	17,716.73
tblEnergyUse	T24NG	8.10	6.08
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblLandUse	LotAcreage	0.37	1.46
tblLandUse	LotAcreage	15.63	61.68
tblLandUse	LotAcreage	6.89	22.69
tblLandUse	LotAcreage	0.30	1.18
tblLandUse	LotAcreage	5.17	17.19
tblLandUse	LotAcreage	3.82	10.00
tblLandUse	LotAcreage	4.57	5.00
tblLandUse	LotAcreage	8.03	27.25
tblLandUse	LotAcreage	2.27	20.00

tblLandUse	LotAcreage	1.21	4.09
tblLandUse	LotAcreage	2.41	8.18
tblLandUse	LotAcreage	12.05	40.88
tblLandUse	LotAcreage	1.21	4.09
tblLandUse	LotAcreage	2.41	8.18
tblLandUse	LotAcreage	4.82	16.35
tblLandUse	LotAcreage	0.28	1.57
tblLandUse	LotAcreage	0.37	2.10
tblLandUse	LotAcreage	108.13	173.00
tblLandUse	LotAcreage	767.86	604.00
tblLandUse	LotAcreage	0.21	1.17
tblLandUse	LotAcreage	7.53	42.55
tblLandUse	LotAcreage	1.84	10.41
tblLandUse	Population	4,948.00	5,536.00
tblLandUse	Population	6,764.00	7,568.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	499.66
tblProjectCharacteristics	OperationalYear	2014	2023
tblTripsAndVMT	VendorTripNumber	2,546.00	0.00
tblTripsAndVMT	WorkerTripNumber	7,335.00	0.00
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
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tblVehicleTrips	CC_TL	7.30	15.62
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tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
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tblVehicleTrips	DV_TP	15.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
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tblVehicleTrips	HO_TL	7.50	15.62
tblVehicleTrips	HS_TL	7.30	15.62
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tblVehicleTrips	HW_TL	10.80	15.62
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tblVehicleTrips	PB_TP	12.00	0.00
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tblVehicleTrips	PB_TP	3.00	0.00
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tblVehicleTrips	PR_TP	66.00	100.00
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tblVehicleTrips	PR_TP	92.00	100.00

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tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	PR_TP	41.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	54.00	100.00
tblVehicleTrips	PR_TP	82.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	34.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	7.16	5.89
tblVehicleTrips	ST_TR	86.32	5.23
tblVehicleTrips	ST_TR	1.59	1.54
tblVehicleTrips	ST_TR	1,448.33	59.54
tblVehicleTrips	ST_TR	722.03	50.58
tblVehicleTrips	ST_TR	1.50	0.55
tblVehicleTrips	ST_TR	1.32	0.55
tblVehicleTrips	ST_TR	2.37	1.93
tblVehicleTrips	ST_TR	0.61	0.50
tblVehicleTrips	ST_TR	158.37	43.29
tblVehicleTrips	ST_TR	2.49	1.99
tblVehicleTrips	ST_TR	11.23	1.73
tblVehicleTrips	ST_TR	1.49	1.13
tblVehicleTrips	ST_TR	8.96	2.23

tblVehicleTrips	ST_TR	90.06	8.98
tblVehicleTrips	ST_TR	2.59	2.90
tblVehicleTrips	ST_TR	49.97	40.45
tblVehicleTrips	ST_TR	1.90	2.10
tblVehicleTrips	ST_TR	10.08	8.16
tblVehicleTrips	ST_TR	177.59	60.37
tblVehicleTrips	ST_TR	2.59	2.90
tblVehicleTrips	SU_TR	6.07	4.99
tblVehicleTrips	SU_TR	31.90	1.94
tblVehicleTrips	SU_TR	1.59	1.54
tblVehicleTrips	SU_TR	1,182.08	48.59
tblVehicleTrips	SU_TR	542.72	38.02
tblVehicleTrips	SU_TR	1.50	0.20
tblVehicleTrips	SU_TR	0.68	0.28
tblVehicleTrips	SU_TR	0.98	0.80
tblVehicleTrips	SU_TR	0.25	0.20
tblVehicleTrips	SU_TR	131.84	36.04
tblVehicleTrips	SU_TR	0.73	0.59
tblVehicleTrips	SU_TR	1.21	0.19
tblVehicleTrips	SU_TR	0.62	0.47
tblVehicleTrips	SU_TR	1.55	0.38
tblVehicleTrips	SU_TR	90.06	8.98
tblVehicleTrips	SU_TR	2.59	2.90
tblVehicleTrips	SU_TR	25.24	20.43
tblVehicleTrips	SU_TR	1.11	1.23
tblVehicleTrips	SU_TR	8.77	7.10
tblVehicleTrips	SU_TR	166.44	56.58
tblVehicleTrips	SU_TR	2.59	2.90
tblVehicleTrips	WD_TR	6.59	5.41
tblVehicleTrips	WD_TR	148.15	8.98

tblVehicleTrips	WD_TR	1.59	1.54
tblVehicleTrips	WD_TR	845.60	34.76
tblVehicleTrips	WD_TR	1.29	1.05
tblVehicleTrips	WD_TR	496.12	34.76
tblVehicleTrips	WD_TR	1.50	2.90
tblVehicleTrips	WD_TR	6.97	2.90
tblVehicleTrips	WD_TR	11.01	8.98
tblVehicleTrips	WD_TR	1.71	1.39
tblVehicleTrips	WD_TR	127.15	34.76
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tblVehicleTrips	WD_TR	1.62	1.32
tblVehicleTrips	WD_TR	3.82	2.90
tblVehicleTrips	WD_TR	36.13	8.98
tblVehicleTrips	WD_TR	90.06	8.98
tblVehicleTrips	WD_TR	2.59	2.90
tblVehicleTrips	WD_TR	42.94	34.76
tblVehicleTrips	WD_TR	8.11	8.98
tblVehicleTrips	WD_TR	9.57	7.75
tblVehicleTrips	WD_TR	102.24	34.76
tblVehicleTrips	WD_TR	2.59	2.90
tblWater	IndoorWaterUseRate	112,716,464.33	0.00
tblWater	IndoorWaterUseRate	633,966.70	0.00
tblWater	IndoorWaterUseRate	666,652.69	0.00
tblWater	IndoorWaterUseRate	4,819,389.12	0.00
tblWater	IndoorWaterUseRate	3,642,404.55	0.00
tblWater	IndoorWaterUseRate	12,140,625.00	0.00
tblWater	IndoorWaterUseRate	24,281,250.00	0.00
tblWater	IndoorWaterUseRate	121,001,135.63	0.00
tblWater	IndoorWaterUseRate	6,607,440.00	0.00

tblWater	IndoorWaterUseRate	4,856,539.40	0.00
tblWater	IndoorWaterUseRate	121,406,250.00	0.00
tblWater	IndoorWaterUseRate	17,167,161.38	0.00
tblWater	IndoorWaterUseRate	2,036,361.60	0.00
tblWater	IndoorWaterUseRate	12,140,625.00	0.00
tblWater	IndoorWaterUseRate	37,644,161.27	0.00
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tblWater	IndoorWaterUseRate	24,281,250.00	0.00
tblWater	IndoorWaterUseRate	24,310,601.55	0.00
tblWater	IndoorWaterUseRate	110,631,138.12	0.00
tblWater	IndoorWaterUseRate	154,089,270.59	0.00
tblWater	IndoorWaterUseRate	9,861,457.19	0.00
tblWater	IndoorWaterUseRate	48,562,500.00	0.00
tblWater	OutdoorWaterUseRate	71,060,379.68	0.00
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tblWater	OutdoorWaterUseRate	408,593.59	0.00
tblWater	OutdoorWaterUseRate	12,392,714.88	0.00
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tblWater	OutdoorWaterUseRate	74,161,986.36	0.00
tblWater	OutdoorWaterUseRate	16,990,560.00	0.00
tblWater	OutdoorWaterUseRate	309,991.88	0.00
tblWater	OutdoorWaterUseRate	26,851,201.13	0.00
tblWater	OutdoorWaterUseRate	5,236,358.40	0.00
tblWater	OutdoorWaterUseRate	7,170,316.43	0.00
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tblWater	OutdoorWaterUseRate	14,900,046.11	0.00
tblWater	OutdoorWaterUseRate	97,143,235.81	0.00
tblWater	OutdoorWaterUseRate	304,993.52	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	463.4301	3.9025	338.9346	0.0179		4.8938	4.8938		4.8620	4.8620	0.0000	48,304.6956	48,304.6956	1.5035	0.8744	48,607.3340
Energy	3.8258	33.5105	19.9078	0.2087		2.6433	2.6433		2.6433	2.6433		41,735.6320	41,735.6320	0.7999	0.7652	41,989.6281
Mobile	390.2738	1,514.5902	4,773.9754	18.7621	887.0491	40.1481	927.1972	238.6313	36.9678	275.5990		1,526,920.0399	1,526,920.0399	30.0989		1,527,552.1163
Total	**857.5297**	**1,552.0032**	**5,132.8178**	**18.9887**	**887.0491**	**47.6851**	**934.7342**	**238.6313**	**44.4730**	**283.1043**	**0.0000**	**1,616,960.3676**	**1,616,960.3676**	**32.4023**	**1.6396**	**1,618,149.0784**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	463.4301	3.9025	338.9346	0.0179		4.8938	4.8938		4.8620	4.8620	0.0000	48,304.6956	48,304.6956	1.5035	0.8744	48,607.3340
Energy	3.0421	26.6286	15.6987	0.1659		2.1018	2.1018		2.1018	2.1018		33,186.8519	33,186.8519	0.6361	0.6084	33,388.8216
Mobile	379.1579	1,445.3109	4,601.1261	17.7642	838.9900	38.0132	877.0032	225.7026	35.0022	260.7047		1,445,679.6943	1,445,679.6943	28.5649		1,446,279.5580
Total	**845.6301**	**1,475.8420**	**4,955.7593**	**17.9480**	**838.9900**	**45.0088**	**883.9988**	**225.7026**	**41.9660**	**267.6686**	**0.0000**	**1,527,171.2418**	**1,527,171.2418**	**30.7045**	**1.4828**	**1,528,275.7136**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.39**	**4.91**	**3.45**	**5.48**	**5.42**	**5.61**	**5.43**	**5.42**	**5.64**	**5.45**	**0.00**	**5.55**	**5.55**	**5.24**	**9.56**	**5.55**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

Provide Traffic Calming Measures

Expand Transit Network

Implement Trip Reduction Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	379.1579	1,445.3109	4,601.1261	17.7642	838.9900	38.0132	877.0032	225.7026	35.0022	260.7047		1,445,679.6943	1,445,679.6943	28.5649		1,446,279.5580
Unmitigated	390.2738	1,514.5902	4,773.9754	18.7621	887.0491	40.1481	927.1972	238.6313	36.9678	275.5990		1,526,920.0399	1,526,920.0399	30.0989		1,527,552.1163

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	9,359.30	10,189.70	8632.70	53,298,295	50,410,667
Bank (with Drive-Through)	143.68	83.68	31.04	676,693	640,031
City Park	97.02	97.02	97.02	551,625	521,738
Convenience Market with Gas Pumps	312.84	535.86	437.31	2,060,953	1,949,294
Elementary School	2,087.40	0.00	0.00	8,477,349	8,018,058
Fast Food Restaurant with Drive Thru	417.12	606.96	456.24	2,557,581	2,419,015
General Heavy Industry	152.25	28.88	10.50	650,300	615,067
General Light Industry	304.50	57.75	29.40	1,307,422	1,236,588
General Office Building	6,113.58	1,313.94	544.64	26,338,104	24,911,141
High School	2,085.00	750.00	300.00	9,320,454	8,815,485
High Turnover (Sit Down Restaurant)	556.16	692.64	576.64	3,289,637	3,111,409
Industrial Park	2,919.00	1,044.75	309.75	12,954,822	12,252,947

Junior College (2yr)	1,480.50	605.50	66.50	6,558,432	6,203,105
Junior High School	1,108.80	0.00	0.00	4,503,059	4,259,089
Manufacturing	152.25	59.33	24.68	686,546	649,350
Medical Office Building	2,694.00	669.00	114.00	11,576,857	10,949,639
Other Asphalt Surfaces	0.00	0.00	0.00		
Pharmacy/Drugstore w/o Drive Thru	116.74	116.74	116.74	663,746	627,785
Refrigerated Warehouse-No Rail	304.50	304.50	304.50	1,731,290	1,637,491
Regional Shopping Center	11,408.23	13,275.69	6705.13	62,560,330	59,170,897
Research & Development	2,020.50	472.50	276.75	8,814,225	8,336,683
Single Family Housing	18,328.75	19,298.40	16791.50	103,750,380	98,129,327
Supermarket	2,780.80	4,829.60	4526.40	18,892,702	17,869,122
Unrefrigerated Warehouse-No Rail	609.00	609.00	609.00	3,462,579	3,274,981
Total	65,551.93	55,641.43	40,960.43	344,683,381	326,008,910

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Bank (with Drive-Through)	15.62	15.62	15.62	6.60	74.40	19.00	100	0	0
City Park	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Convenience Market with Gas	15.62	15.62	15.62	0.80	80.20	19.00	100	0	0
Elementary School	15.62	15.62	15.62	65.00	30.00	5.00	100	0	0
Fast Food Restaurant with Drive Th	15.62	15.62	15.62	2.20	78.80	19.00	100	0	0
General Heavy Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Light Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Office Building	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
High School	15.62	15.62	15.62	77.80	17.20	5.00	100	0	0
High Turnover (Sit Down	15.62	15.62	15.62	8.50	72.50	19.00	100	0	0
Industrial Park	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Junior College (2yr)	15.62	15.62	15.62	6.40	88.60	5.00	100	0	0
Junior High School	15.62	15.62	15.62	72.80	22.20	5.00	100	0	0
Manufacturing	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Medical Office Building	15.62	15.62	15.62	29.60	51.40	19.00	100	0	0
Other Asphalt Surfaces	15.62	15.62	15.62	0.00	0.00	0.00	100	0	0
Pharmacy/Drugstore w/o Drive	15.62	15.62	15.62	7.40	73.60	19.00	100	0	0
Refrigerated Warehouse-No Rail	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0
Regional Shopping Center	15.62	15.62	15.62	16.30	64.70	19.00	100	0	0
Research & Development	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Single Family Housing	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0

Supermarket	15.62	15.62	15.62	6.50	74.50	19.00	100	0	0
Unrefrigerated Warehouse-No	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.353192	0.054020	0.135333	0.181010	0.057090	0.010432	0.023385	0.172599	0.001500	0.001840	0.006039	0.001025	0.002534

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	3.0421	26.6286	15.6987	0.1659		2.1018	2.1018		2.1018	2.1018		33,186.8519	33,186.8519	0.6361	0.6084	33,388.8216
NaturalGas Unmitigated	3.8258	33.5105	19.9078	0.2087		2.6433	2.6433		2.6433	2.6433		41,735.6320	41,735.6320	0.7999	0.7652	41,989.6281

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					

City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	111.452	1.2000e-003	0.0109	9.1800e-003	7.0000e-005		8.3000e-004	8.3000e-004		8.3000e-004	8.3000e-004		13.1120	13.1120	2.5000e-004	2.4000e-004	13.1918
Elementary School	3893.26	0.0420	0.3817	0.3206	2.2900e-003		0.0290	0.0290		0.0290	0.0290		458.0306	458.0306	8.7800e-003	8.4000e-003	460.8181
Fast Food Restaurant with Drive Thru	3135.45	0.0338	0.3074	0.2582	1.8400e-003		0.0234	0.0234		0.0234	0.0234		368.8767	368.8767	7.0700e-003	6.7600e-003	371.1216
General Heavy Industry	1910.14	0.0206	0.1873	0.1573	1.1200e-003		0.0142	0.0142		0.0142	0.0142		224.7220	224.7220	4.3100e-003	4.1200e-003	226.0896
General Light Industry	3820.27	0.0412	0.3745	0.3146	2.2500e-003		0.0285	0.0285		0.0285	0.0285		449.4440	449.4440	8.6100e-003	8.2400e-003	452.1792
General Office Building	25721.2	0.2774	2.5217	2.1182	0.0151		0.1917	0.1917		0.1917	0.1917		3,026.0216	3,026.0216	0.0580	0.0555	3,044.4375
High School	4661.31	0.0503	0.4570	0.3839	2.7400e-003		0.0347	0.0347		0.0347	0.0347		548.3891	548.3891	0.0105	0.0101	551.7265
High Turnover (Sit Down Restaurant)	4180.6	0.0451	0.4099	0.3443	2.4600e-003		0.0312	0.0312		0.0312	0.0312		491.8356	491.8356	9.4300e-003	9.0200e-003	494.8289
Industrial Park	19834.9	0.2139	1.9446	1.6335	0.0117		0.1478	0.1478		0.1478	0.1478		2,333.5214	2,333.5214	0.0447	0.0428	2,347.7228
Junior College (2yr)	39545.2	0.4265	3.8770	3.2567	0.0233		0.2947	0.2947		0.2947	0.2947		4,652.3771	4,652.3771	0.0892	0.0853	4,680.6907
Junior High School	2313.23	0.0250	0.2268	0.1905	1.3600e-003		0.0172	0.0172		0.0172	0.0172		272.1444	272.1444	5.2200e-003	4.9900e-003	273.8006
Manufacturing	1910.14	0.0206	0.1873	0.1573	1.1200e-003		0.0142	0.0142		0.0142	0.0142		224.7220	224.7220	4.3100e-003	4.1200e-003	226.0896
Medical Office Building	11334.2	0.1222	1.1112	0.9334	6.6700e-003		0.0845	0.0845		0.0845	0.0845		1,333.4408	1,333.4408	0.0256	0.0245	1,341.5559
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Apartments Low Rise	61633.2	0.6647	5.6799	2.4170	0.0363		0.4592	0.4592		0.4592	0.4592		7,250.9611	7,250.9611	0.1390	0.1329	7,295.0893
Bank (with Drive-Through)	582.137	6.2800e-003	0.0571	0.0479	3.4000e-004		4.3400e-003	4.3400e-003		4.3400e-003	4.3400e-003		68.4867	68.4867	1.3100e-003	1.2600e-003	68.9035
Pharmacy/Drugstore w/o Drive Thru	160.986	1.7400e-003	0.0158	0.0133	9.0000e-005		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003		18.9396	18.9396	3.6000e-004	3.5000e-004	19.0548
Refrigerated Warehouse-No Rail	2091.37	0.0226	0.2050	0.1722	1.2300e-003		0.0156	0.0156		0.0156	0.0156		246.0435	246.0435	4.7200e-003	4.5100e-003	247.5409
Regional Shopping Center	4064.28	0.0438	0.3985	0.3347	2.3900e-003		0.0303	0.0303		0.0303	0.0303		478.1512	478.1512	9.1600e-003	8.7700e-003	481.0611
Research & Development	8186.3	0.0883	0.8026	0.6742	4.8200e-003		0.0610	0.0610		0.0610	0.0610		963.0943	963.0943	0.0185	0.0177	968.9555
Single Family Housing	154122	1.6621	14.2034	6.0440	0.0907		1.1484	1.1484		1.1484	1.1484		18,132.0453	18,132.0453	0.3475	0.3324	18,242.3939
Supermarket	1540.82	0.0166	0.1511	0.1269	9.1000e-004		0.0115	0.0115		0.0115	0.0115		181.2732	181.2732	3.4700e-003	3.3200e-003	182.3764

Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**3.8258**	**33.5106**	**19.9079**	**0.2087**		**2.6433**	**2.6433**		**2.6433**	**2.6433**		**41,735.6320**	**41,735.6320**	**0.7999**	**0.7652**	**41,989.6281**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	0.0840205	9.1000e-004	8.2400e-003	6.9200e-003	5.0000e-005		6.3000e-004	6.3000e-004		6.3000e-004	6.3000e-004		9.8848	9.8848	1.9000e-004	1.8000e-004	9.9449
Elementary School	2.97231	0.0321	0.2914	0.2448	1.7500e-003		0.0222	0.0222		0.0222	0.0222		349.6836	349.6836	6.7000e-003	6.4100e-003	351.8117
Fast Food Restaurant with Drive Thru	3.02071	0.0326	0.2962	0.2488	1.7800e-003		0.0225	0.0225		0.0225	0.0225		355.3779	355.3779	6.8100e-003	6.5200e-003	357.5407
General Heavy Industry	1.43692	0.0155	0.1409	0.1183	8.5000e-004		0.0107	0.0107		0.0107	0.0107		169.0492	169.0492	3.2400e-003	3.1000e-003	170.0780
General Light Industry	2.87384	0.0310	0.2818	0.2367	1.6900e-003		0.0214	0.0214		0.0214	0.0214		338.0983	338.0983	6.4800e-003	6.2000e-003	340.1559
General Office Building	19.7945	0.2135	1.9406	1.6301	0.0116		0.1475	0.1475		0.1475	0.1475		2,328.7639	2,328.7639	0.0446	0.0427	2,342.9364
High School	3.55868	0.0384	0.3489	0.2931	2.0900e-003		0.0265	0.0265		0.0265	0.0265		418.6678	418.6678	8.0200e-003	7.6800e-003	421.2157
High Turnover (Sit Down Restaurant)	4.02762	0.0434	0.3949	0.3317	2.3700e-003		0.0300	0.0300		0.0300	0.0300		473.8372	473.8372	9.0800e-003	8.6900e-003	476.7209
Industrial Park	15.2646	0.1646	1.4965	1.2571	8.9800e-003		0.1137	0.1137		0.1137	0.1137		1,795.8300	1,795.8300	0.0344	0.0329	1,806.7591
Junior College (2yr)	29.7404	0.3207	2.9157	2.4492	0.0175		0.2216	0.2216		0.2216	0.2216		3,498.8719	3,498.8719	0.0671	0.0642	3,520.1654
Junior High School	1.76603	0.0191	0.1731	0.1454	1.0400e-003		0.0132	0.0132		0.0132	0.0132		207.7687	207.7687	3.9800e-003	3.8100e-003	209.0332
Manufacturing	1.43692	0.0155	0.1409	0.1183	8.5000e-004		0.0107	0.0107		0.0107	0.0107		169.0492	169.0492	3.2400e-003	3.1000e-003	170.0780
Medical Office Building	8.7226	0.0941	0.8552	0.7183	5.1300e-003		0.0650	0.0650		0.0650	0.0650		1,026.1886	1,026.1886	0.0197	0.0188	1,032.4338
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Apartments Low Rise	49.1848	0.5304	4.5327	1.9288	0.0289		0.3665	0.3665		0.3665	0.3665		5,786.4513	5,786.4513	0.1109	0.1061	5,821.6667
Bank (with Drive-Through)	0.437918	4.7200e-003	0.0429	0.0361	2.6000e-004		3.2600e-003	3.2600e-003		3.2600e-003	3.2600e-003		51.5197	51.5197	9.9000e-004	9.4000e-004	51.8333
Pharmacy/Drugstore w/o Drive Thru	0.121363	1.3100e-003	0.0119	9.9900e-003	7.0000e-005		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004		14.2780	14.2780	2.7000e-004	2.6000e-004	14.3649
Refrigerated Warehouse-No Rail	1.79147	0.0193	0.1756	0.1475	1.0500e-003		0.0134	0.0134		0.0134	0.0134		210.7615	210.7615	4.0400e-003	3.8600e-003	212.0441
Regional Shopping Center	3.06395	0.0330	0.3004	0.2523	1.8000e-003		0.0228	0.0228		0.0228	0.0228		360.4646	360.4646	6.9100e-003	6.6100e-003	362.6584
Research & Development	6.15822	0.0664	0.6038	0.5072	3.6200e-003		0.0459	0.0459		0.0459	0.0459		724.4964	724.4964	0.0139	0.0133	728.9055
Single Family Housing	125.424	1.3526	11.5587	4.9186	0.0738		0.9345	0.9345		0.9345	0.9345		14,755.7305	14,755.7305	0.2828	0.2705	14,845.5314
Supermarket	1.20767	0.0130	0.1184	0.0995	7.1000e-004		9.0000e-003	9.0000e-003		9.0000e-003	9.0000e-003		142.0790	142.0790	2.7200e-003	2.6000e-003	142.9436
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**3.0421**	**26.6286**	**15.6987**	**0.1659**		**2.1019**	**2.1019**		**2.1019**	**2.1019**		**33,186.8519**	**33,186.8519**	**0.6361**	**0.6084**	**33,388.8216**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	463.4301	3.9025	338.9346	0.0179		4.8938	4.8938		4.8620	4.8620	0.0000	48,304.6956	48,304.6956	1.5035	0.8744	48,607.3340
Unmitigated	463.4301	3.9025	338.9346	0.0179		4.8938	4.8938		4.8620	4.8620	0.0000	48,304.6956	48,304.6956	1.5035	0.8744	48,607.3340

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	45.3561					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	403.4496					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	4.3720	2.0000e-004	0.2385	0.0000		3.0207	3.0207		2.9889	2.9889	0.0000	47,694.7059	47,694.7059	0.9142	0.8744	47,984.9679
Landscaping	10.2524	3.9023	338.6961	0.0179		1.8731	1.8731		1.8731	1.8731		609.9898	609.9898	0.5894		622.3661
Total	**463.4301**	**3.9025**	**338.9346**	**0.0179**		**4.8938**	**4.8938**		**4.8620**	**4.8620**	**0.0000**	**48,304.6956**	**48,304.6956**	**1.5035**	**0.8744**	**48,607.3340**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	45.3561					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	403.4496					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	4.3720	2.0000e-004	0.2385	0.0000		3.0207	3.0207		2.9889	2.9889	0.0000	47,694.7059	47,694.7059	0.9142	0.8744	47,984.9679
Landscaping	10.2524	3.9023	338.6961	0.0179		1.8731	1.8731		1.8731	1.8731		609.9898	609.9898	0.5894		622.3661
Total	**463.4301**	**3.9025**	**338.9346**	**0.0179**		**4.8938**	**4.8938**		**4.8620**	**4.8620**	**0.0000**	**48,304.6956**	**48,304.6956**	**1.5035**	**0.8744**	**48,607.3340**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Vegetation

CalEEMod Version: CalEEMod.2013.2.2

Date: 10/23/2015 12:01 PM

Grapevine Operational Year 2023 - Planning Areas 6A, 2 Buildout

Kern-San Joaquin County, Mitigation Report

Operational Percent Reduction Summary

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.95	3.95	3.96	3.95	3.95
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	2.90	4.60	3.05	5.31	5.31	5.31	0.00	5.32	5.32	5.09	0.00	5.32
Natural Gas	20.48	20.54	21.14	20.57	20.48	20.48	0.00	20.48	20.48	20.49	20.48	20.48
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting: Suburban Center

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value 3
No	Land Use	Increase Density	0.00	0.00	0.00	
No	Land Use	Increase Diversity	0.30	0.75		

No	Land Use	Improve Walkability Design	0.00	0.00		
No	Land Use	Improve Destination Accessibility	0.00	0.00		
No	Land Use	Increase Transit Accessibility	0.25	0.00		
No	Land Use	Integrate Below Market Rate Housing	0.00	0.00		
	Land Use	Land Use SubTotal	0.00			
Yes	Neighborhood Enhancements	Improve Pedestrian Network	2.00	Project Site and Connecting Off-Site		
Yes	Neighborhood Enhancements	Provide Traffic Calming Measures	1.00	100.00	100.00	
No	Neighborhood Enhancements	Implement NEV Network	0.01			
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.05			
No	Parking Policy Pricing	Limit Parking Supply	0.00	0.00		
No	Parking Policy Pricing	Unbundle Parking Costs	0.00	0.00		
No	Parking Policy Pricing	On-street Market Pricing	0.00	0.00		
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00			
No	Transit Improvements	Provide BRT System	0.00	0.00		
Yes	Transit Improvements	Expand Transit Network	0.00	50.00		
No	Transit Improvements	Increase Transit Frequency	0.00		0.00	
	Transit Improvements	Transit Improvements Subtotal	0.00			
		Land Use and Site Enhancement Subtotal	0.05			
Yes	Commute	Implement Trip Reduction Program		50.00	Voluntary	
No	Commute	Transit Subsidy	0.00	0.00		
No	Commute	Implement Employee Parking "Cash Out"	0.00	0.00		
No	Commute	Workplace Parking Charge	0.00	0.00		
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00	0.00	0.00	0.00
No	Commute	Market Commute Trip Reduction Option	0.00	0.00		

No	Commute	Employee Vanpool/Shuttle	0.00	0.00	2.00	
No	Commute	Provide Ride Sharing Program	0.00	0.00		
	Commute	Commute Subtotal	0.00			
No	School Trip	Implement School Bus Program	0.00	0.00		
		Total VMT Reduction	0.05			

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	150.00
No	Use Low VOC Paint (Residential Exterior)	150.00
No	Use Low VOC Paint (Non-residential Interior)	150.00
No	Use Low VOC Paint (Non-residential Exterior)	150.00
No	% Electric Lawnmower	0.00
No	% Electric Leafblower	0.00
No	% Electric Chainsaw	0.00

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
Yes	Exceed Title 24	25.00	
No	Install High Efficiency Lighting		
No	On-site Renewable		

Appliance Type	Land Use Subtype	% Improvement

ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy	0.00	0.00
No	Use Reclaimed Water	0.00	0.00
No	Use Grey Water	0.00	
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction	0.00	
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape	0.00	0.00

Solid Waste Mitigation

Mitigation Measures	Input Value
Institute Recycling and Composting Services	75.00
Percent Reduction in Waste Disposed	

Grapevine Operational Year 2025 - Planning Areas 6A, 2, 1 Buildout

Kern-San Joaquin County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Bank (with Drive-Through)	20.00	1000sqft	1.77	20,000.00	0
General Office Building	978.80	1000sqft	85.44	978,800.00	0
Medical Office Building	300.00	1000sqft	22.69	300,000.00	0
Pharmacy/Drugstore w/o Drive Thru	13.00	1000sqft	1.18	13,000.00	0
Research & Development	345.00	1000sqft	26.19	345,000.00	0
Elementary School	1,988.00	Student	10.00	166,203.50	0
High School	1,500.00	Student	5.00	198,991.47	0
Junior College (2yr)	350.00	1000sqft	27.25	350,000.00	0
Junior High School	840.00	Student	20.00	98,751.81	0
General Heavy Industry	52.50	1000sqft	4.09	52,500.00	0
General Light Industry	105.00	1000sqft	8.18	105,000.00	0
Industrial Park	525.00	1000sqft	40.88	525,000.00	0
Manufacturing	52.50	1000sqft	4.09	52,500.00	0
Refrigerated Warehouse-No Rail	105.00	1000sqft	8.18	105,000.00	0
Unrefrigerated Warehouse-No Rail	210.00	1000sqft	16.35	210,000.00	0
Other Asphalt Surfaces	199.00	Acre	199.00	8,668,440.00	0
City Park	63.00	Acre	63.00	2,744,280.00	0
Fast Food Restaurant with Drive Thru	14.20	1000sqft	1.87	14,200.00	0
High Turnover (Sit Down Restaurant)	16.00	1000sqft	2.10	16,000.00	0
Apartments Low Rise	1,960.00	Dwelling Unit	196.00	1,960,000.00	6272
Single Family Housing	3,615.00	Dwelling Unit	925.00	6,507,000.00	11568
Convenience Market with Gas Pumps	12.00	1000sqft	1.59	12,000.00	0
Regional Shopping Center	341.00	1000sqft	44.35	341,000.00	0
Supermarket	90.00	1000sqft	11.81	90,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	7			**Operational Year**	2025
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	499.66	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Planning Areas 6A, 2, 1. Kern County, San Joaquin Valley Air Basin. CO2 Intensity adjusted based on PG&E 33% Renewables by 2020.

Land Use - See 1.1 Land Usage. Population based on 3.2 persons per dwelling unit.

Construction Phase - Construction emissions calculated separately.

Vehicle Trips - Modified trip rates to match Trip Generation and VMT factors provided by Fehr & Peers.

Vehicle Emission Factors - Default CalEEMod values.

Woodstoves - No woodstoves and only gas fireplaces assumed

Area Coating - Default CalEEMod VOC content. Modified non-residential interior and exterior area to be coated based on CalEEMod architectural coating surface area equations and adjusted for parking/asphalt surface and park land uses.

Energy Use - Updated Title 24 electricity and natural gas energy intensity to match 2013 Title 24 standards (25% reduction versus 2008 standards).

Water And Wastewater - Water and wastewater consumption and associated emissions calculated separately.

Construction Off-road Equipment Mitigation - Construction emissions calculated separately.

Mobile Land Use Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Project Setting: Suburban Center. Improve Pedestrian Network: Project Site and Connecting Off-Site. Provide Traffic Calming Measures: 100% Streets with Improvement, 100% Intersections with Improvement. Expand Transit Network: 50%.

Mobile Commute Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Voluntary Commute Trip Reduction Program: 50%

Energy Mitigation - Exceed 2013 Title 24, % Improvement: 25%.

Water Mitigation - Water reductions calculated separately.

Waste Mitigation - Percent Reduction in Waste Disposed: 75%. Waste diversion consistent with Assembly Bill 341 (not mitigation).

Note Regarding Emissions Presented in the Air Quality & Greenhouse Gas Technical Report: Project-generated unmitigated and mitigated emissions in the Technical Report reflect the unmitigated mobile source emissions reported in 2.0 Emissions Summary. No area source mitigation assumed. Unmitigated and mitigated energy source and solid waste emissions reported in the Technical Report as presented in 2.0 Emissions Summary. Water/wastewater and stationary source emissions calculated separately.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	7703333	2681371
tblAreaCoating	Area_Nonresidential_Interior	23110000	5990920
tblConstructionPhase	NumDays	155,000.00	5.00
tblEnergyUse	T24E	352.42	264.31
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
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tblEnergyUse	T24E	4.43	3.32
tblEnergyUse	T24E	2.38	1.78
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tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.70	0.53
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tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	763.80	572.85
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tblEnergyUse	T24NG	14,007.38	10,505.53
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	18.61	13.96

tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	16.95	12.71
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tblEnergyUse	T24NG	5.56	4.17
tblEnergyUse	T24NG	5.93	4.45
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tblEnergyUse	T24NG	23,622.31	17,716.73
tblEnergyUse	T24NG	8.10	6.08
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblLandUse	LotAcreage	0.46	1.77
tblLandUse	LotAcreage	22.47	85.44
tblLandUse	LotAcreage	6.89	22.69
tblLandUse	LotAcreage	0.30	1.18
tblLandUse	LotAcreage	7.92	26.19
tblLandUse	LotAcreage	3.82	10.00
tblLandUse	LotAcreage	4.57	5.00
tblLandUse	LotAcreage	8.03	27.25
tblLandUse	LotAcreage	2.27	20.00
tblLandUse	LotAcreage	1.21	4.09
tblLandUse	LotAcreage	2.41	8.18
tblLandUse	LotAcreage	12.05	40.88

tblLandUse	LotAcreage	1.21	4.09
tblLandUse	LotAcreage	2.41	8.18
tblLandUse	LotAcreage	4.82	16.35
tblLandUse	LotAcreage	0.33	1.87
tblLandUse	LotAcreage	0.37	2.10
tblLandUse	LotAcreage	122.50	196.00
tblLandUse	LotAcreage	1,173.70	925.00
tblLandUse	LotAcreage	0.28	1.59
tblLandUse	LotAcreage	7.83	44.35
tblLandUse	LotAcreage	2.07	11.81
tblLandUse	Population	5,606.00	6,272.00
tblLandUse	Population	10,339.00	11,568.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	499.66
tblProjectCharacteristics	OperationalYear	2014	2025
tblTripsAndVMT	VendorTripNumber	3,121.00	0.00
tblTripsAndVMT	WorkerTripNumber	8,973.00	0.00
tblVehicleTrips	CC_TL	7.30	15.62
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tblVehicleTrips	ST_TR	7.16	5.89
tblVehicleTrips	ST_TR	86.32	5.23
tblVehicleTrips	ST_TR	1.59	1.54
tblVehicleTrips	ST_TR	1,448.33	59.54
tblVehicleTrips	ST_TR	722.03	50.58
tblVehicleTrips	ST_TR	1.50	0.55
tblVehicleTrips	ST_TR	1.32	0.55
tblVehicleTrips	ST_TR	2.37	1.93
tblVehicleTrips	ST_TR	0.61	0.50
tblVehicleTrips	ST_TR	158.37	43.29
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tblVehicleTrips	ST_TR	11.23	1.73
tblVehicleTrips	ST_TR	1.49	1.13
tblVehicleTrips	ST_TR	8.96	2.23
tblVehicleTrips	ST_TR	90.06	8.98
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tblVehicleTrips	ST_TR	49.97	40.45

tblVehicleTrips	ST_TR	1.90	2.10
tblVehicleTrips	ST_TR	10.08	8.16
tblVehicleTrips	ST_TR	177.59	60.37
tblVehicleTrips	ST_TR	2.59	2.90
tblVehicleTrips	SU_TR	6.07	4.99
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tblVehicleTrips	SU_TR	0.98	0.80
tblVehicleTrips	SU_TR	0.25	0.20
tblVehicleTrips	SU_TR	131.84	36.04
tblVehicleTrips	SU_TR	0.73	0.59
tblVehicleTrips	SU_TR	1.21	0.19
tblVehicleTrips	SU_TR	0.62	0.47
tblVehicleTrips	SU_TR	1.55	0.38
tblVehicleTrips	SU_TR	90.06	8.98
tblVehicleTrips	SU_TR	2.59	2.90
tblVehicleTrips	SU_TR	25.24	20.43
tblVehicleTrips	SU_TR	1.11	1.23
tblVehicleTrips	SU_TR	8.77	7.10
tblVehicleTrips	SU_TR	166.44	56.58
tblVehicleTrips	SU_TR	2.59	2.90
tblVehicleTrips	WD_TR	6.59	5.41
tblVehicleTrips	WD_TR	148.15	8.98
tblVehicleTrips	WD_TR	1.59	1.54
tblVehicleTrips	WD_TR	845.60	34.76
tblVehicleTrips	WD_TR	1.29	1.05

tblVehicleTrips	WD_TR	496.12	34.76
tblVehicleTrips	WD_TR	1.50	2.90
tblVehicleTrips	WD_TR	6.97	2.90
tblVehicleTrips	WD_TR	11.01	8.98
tblVehicleTrips	WD_TR	1.71	1.39
tblVehicleTrips	WD_TR	127.15	34.76
tblVehicleTrips	WD_TR	6.96	5.56
tblVehicleTrips	WD_TR	27.49	4.23
tblVehicleTrips	WD_TR	1.62	1.32
tblVehicleTrips	WD_TR	3.82	2.90
tblVehicleTrips	WD_TR	36.13	8.98
tblVehicleTrips	WD_TR	90.06	8.98
tblVehicleTrips	WD_TR	2.59	2.90
tblVehicleTrips	WD_TR	42.94	34.76
tblVehicleTrips	WD_TR	8.11	8.98
tblVehicleTrips	WD_TR	9.57	7.75
tblVehicleTrips	WD_TR	102.24	34.76
tblVehicleTrips	WD_TR	2.59	2.90
tblWater	IndoorWaterUseRate	127,701,890.22	0.00
tblWater	IndoorWaterUseRate	792,458.37	0.00
tblWater	IndoorWaterUseRate	888,870.26	0.00
tblWater	IndoorWaterUseRate	4,819,389.12	0.00
tblWater	IndoorWaterUseRate	4,310,178.72	0.00
tblWater	IndoorWaterUseRate	12,140,625.00	0.00
tblWater	IndoorWaterUseRate	24,281,250.00	0.00
tblWater	IndoorWaterUseRate	173,965,792.54	0.00
tblWater	IndoorWaterUseRate	6,607,440.00	0.00
tblWater	IndoorWaterUseRate	4,856,539.40	0.00
tblWater	IndoorWaterUseRate	121,406,250.00	0.00
tblWater	IndoorWaterUseRate	17,167,161.38	0.00

tblWater	IndoorWaterUseRate	2,036,361.60	0.00
tblWater	IndoorWaterUseRate	12,140,625.00	0.00
tblWater	IndoorWaterUseRate	37,644,161.27	0.00
tblWater	IndoorWaterUseRate	915,817.80	0.00
tblWater	IndoorWaterUseRate	24,281,250.00	0.00
tblWater	IndoorWaterUseRate	25,258,729.83	0.00
tblWater	IndoorWaterUseRate	169,634,411.79	0.00
tblWater	IndoorWaterUseRate	235,531,802.62	0.00
tblWater	IndoorWaterUseRate	11,094,139.34	0.00
tblWater	IndoorWaterUseRate	48,562,500.00	0.00
tblWater	OutdoorWaterUseRate	80,507,713.40	0.00
tblWater	OutdoorWaterUseRate	485,700.29	0.00
tblWater	OutdoorWaterUseRate	75,063,325.03	0.00
tblWater	OutdoorWaterUseRate	544,791.45	0.00
tblWater	OutdoorWaterUseRate	12,392,714.88	0.00
tblWater	OutdoorWaterUseRate	275,117.79	0.00
tblWater	OutdoorWaterUseRate	106,624,195.43	0.00
tblWater	OutdoorWaterUseRate	16,990,560.00	0.00
tblWater	OutdoorWaterUseRate	309,991.88	0.00
tblWater	OutdoorWaterUseRate	26,851,201.13	0.00
tblWater	OutdoorWaterUseRate	5,236,358.40	0.00
tblWater	OutdoorWaterUseRate	7,170,316.43	0.00
tblWater	OutdoorWaterUseRate	561,307.68	0.00
tblWater	OutdoorWaterUseRate	15,481,156.99	0.00
tblWater	OutdoorWaterUseRate	148,487,440.78	0.00
tblWater	OutdoorWaterUseRate	343,117.71	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	105.6929	0.4771	41.4435	2.1900e-003		0.3983	0.3983		0.3966	0.3966	0.0000	2,482.8944	2,482.8944	0.1114	0.0443	2,498.9602
Energy	0.9076	7.9229	4.5263	0.0495		0.6271	0.6271		0.6271	0.6271	0.0000	25,785.2170	25,785.2170	1.1474	0.3665	25,922.9107
Mobile	67.6806	293.3056	884.2424	3.4011	166.4622	7.6546	174.1167	44.8520	7.0486	51.9006	0.0000	250,549.0770	250,549.0770	4.9395	0.0000	250,652.8071
Waste						0.0000	0.0000		0.0000	0.0000	2,656.8066	0.0000	2,656.8066	157.0128	0.0000	5,954.0749
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**174.2811**	**301.7056**	**930.2122**	**3.4528**	**166.4622**	**8.6800**	**175.1421**	**44.8520**	**8.0722**	**52.9243**	**2,656.8066**	**278,817.1884**	**281,473.9950**	**163.2111**	**0.4107**	**285,028.7528**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	105.6929	0.4771	41.4435	2.1900e-003		0.3983	0.3983		0.3966	0.3966	0.0000	2,482.8944	2,482.8944	0.1114	0.0443	2,498.9602
Energy	0.7239	6.3156	3.5803	0.0395		0.5002	0.5002		0.5002	0.5002	0.0000	23,331.3221	23,331.3221	1.0756	0.3255	23,454.8102
Mobile	65.6861	279.8263	857.5785	3.2203	157.4435	7.2483	164.6917	42.4220	6.6745	49.0965	0.0000	237,220.1000	237,220.1000	4.6879	0.0000	237,318.5451
Waste						0.0000	0.0000		0.0000	0.0000	664.2017	0.0000	664.2017	39.2532	0.0000	1,488.5187
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**172.1030**	**286.6190**	**902.6023**	**3.2620**	**157.4435**	**8.1468**	**165.5903**	**42.4220**	**7.5712**	**49.9933**	**664.2017**	**263,034.3165**	**263,698.5181**	**45.1281**	**0.3698**	**264,760.8341**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.25**	**5.00**	**2.97**	**5.53**	**5.42**	**6.14**	**5.45**	**5.42**	**6.21**	**5.54**	**75.00**	**5.66**	**6.32**	**72.35**	**9.97**	**7.11**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

Provide Traffic Calming Measures

Expand Transit Network

Implement Trip Reduction Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	65.6861	279.8263	857.5785	3.2203	157.4435	7.2483	164.6917	42.4220	6.6745	49.0965	0.0000	237,220.1000	237,220.1000	4.6879	0.0000	237,318.5451
Unmitigated	67.6806	293.3056	884.2424	3.4011	166.4622	7.6546	174.1167	44.8520	7.0486	51.9006	0.0000	250,549.0770	250,549.0770	4.9395	0.0000	250,652.8071

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	10,603.60	11,544.40	9780.40	60,384,196	57,112,663
Bank (with Drive-Through)	179.60	104.60	38.80	845,867	800,039
City Park	97.02	97.02	97.02	551,625	521,738
Convenience Market with Gas Pumps	417.12	714.48	583.08	2,747,938	2,599,058
Elementary School	2,087.40	0.00	0.00	8,477,349	8,018,058
Fast Food Restaurant with Drive Thru	493.59	718.24	539.88	3,026,471	2,862,501
General Heavy Industry	152.25	28.88	10.50	650,300	615,067
General Light Industry	304.50	57.75	29.40	1,307,422	1,236,588
General Office Building	8,789.62	1,889.08	783.04	37,866,827	35,815,254
High School	2,085.00	750.00	300.00	9,320,454	8,815,485
High Turnover (Sit Down Restaurant)	556.16	692.64	576.64	3,289,637	3,111,409
Industrial Park	2,919.00	1,044.75	309.75	12,954,822	12,252,947
Junior College (2yr)	1,480.50	605.50	66.50	6,558,432	6,203,105
Junior High School	1,108.80	0.00	0.00	4,503,059	4,259,089
Manufacturing	152.25	59.33	24.68	686,546	649,350
Medical Office Building	2,694.00	669.00	114.00	11,576,857	10,949,639
Other Asphalt Surfaces	0.00	0.00	0.00		
Pharmacy/Drugstore w/o Drive Thru	116.74	116.74	116.74	663,746	627,785
Refrigerated Warehouse-No Rail	304.50	304.50	304.50	1,731,290	1,637,491
Regional Shopping Center	11,853.16	13,793.45	6966.63	65,000,221	61,478,598

Research & Development	3,098.10	724.50	424.35	13,515,146	12,782,914
Single Family Housing	28,016.25	29,498.40	25666.50	158,586,733	149,994,722
Supermarket	3,128.40	5,433.30	5092.20	21,254,290	20,102,762
Unrefrigerated Warehouse-No Rail	609.00	609.00	609.00	3,462,579	3,274,981
Total	81,246.57	69,455.55	52,433.61	428,961,804	405,721,245

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Bank (with Drive-Through)	15.62	15.62	15.62	6.60	74.40	19.00	100	0	0
City Park	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Convenience Market with Gas	15.62	15.62	15.62	0.80	80.20	19.00	100	0	0
Elementary School	15.62	15.62	15.62	65.00	30.00	5.00	100	0	0
Fast Food Restaurant with Drive	15.62	15.62	15.62	2.20	78.80	19.00	100	0	0
General Heavy Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Light Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Office Building	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
High School	15.62	15.62	15.62	77.80	17.20	5.00	100	0	0
High Turnover (Sit Down	15.62	15.62	15.62	8.50	72.50	19.00	100	0	0
Industrial Park	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Junior College (2yr)	15.62	15.62	15.62	6.40	88.60	5.00	100	0	0
Junior High School	15.62	15.62	15.62	72.80	22.20	5.00	100	0	0
Manufacturing	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Medical Office Building	15.62	15.62	15.62	29.60	51.40	19.00	100	0	0
Other Asphalt Surfaces	15.62	15.62	15.62	0.00	0.00	0.00	100	0	0
Pharmacy/Drugstore w/o Drive	15.62	15.62	15.62	7.40	73.60	19.00	100	0	0
Refrigerated Warehouse-No Rail	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0
Regional Shopping Center	15.62	15.62	15.62	16.30	64.70	19.00	100	0	0
Research & Development	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Single Family Housing	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Supermarket	15.62	15.62	15.62	6.50	74.50	19.00	100	0	0
Unrefrigerated Warehouse-No	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.354417	0.053979	0.135300	0.180782	0.057193	0.010470	0.023391	0.171508	0.001499	0.001851	0.006071	0.001001	0.002538

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	16,166.8175	16,166.8175	0.9383	0.1941	16,246.7036
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	16,803.2240	16,803.2240	0.9753	0.2018	16,886.2547
NaturalGas Mitigated	0.7239	6.3156	3.5803	0.0395		0.5002	0.5002		0.5002	0.5002	0.0000	7,164.5046	7,164.5046	0.1373	0.1314	7,208.1066
NaturalGas Unmitigated	0.9076	7.9229	4.5263	0.0495		0.6271	0.6271		0.6271	0.6271	0.0000	8,981.9930	8,981.9930	0.1722	0.1647	9,036.6559

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	54240	2.9000e-004	2.6600e-003	2.2300e-003	2.0000e-005		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004	0.0000	2.8945	2.8945	6.0000e-005	5.0000e-005	2.9121
Elementary School	1.42104e+006	7.6600e-003	0.0697	0.0585	4.2000e-004		5.2900e-003	5.2900e-003		5.2900e-003	5.2900e-003	0.0000	75.8321	75.8321	1.4500e-003	1.3900e-003	76.2936

Fast Food Restaurant with Drive-Thru	1.35425e+006	7.3000e-003	0.0664	0.0558	4.0000e-004		5.0500e-003	5.0500e-003		5.0500e-003	5.0500e-003	0.0000	72.2682	72.2682	1.3900e-003	1.3200e-003	72.7080
General Heavy Industry	697200	3.7600e-003	0.0342	0.0287	2.1000e-004		2.6000e-003	2.6000e-003		2.6000e-003	2.6000e-003	0.0000	37.2053	37.2053	7.1000e-004	6.8000e-004	37.4317
General Light Industry	1.3944e+006	7.5200e-003	0.0684	0.0574	4.1000e-004		5.1900e-003	5.1900e-003		5.1900e-003	5.1900e-003	0.0000	74.4105	74.4105	1.4300e-003	1.3600e-003	74.8633
General Office Building	1.34977e+007	0.0728	0.6617	0.5558	3.9700e-003		0.0503	0.0503		0.0503	0.0503	0.0000	720.2861	720.2861	0.0138	0.0132	724.6697
High School	1.70138e+006	9.1700e-003	0.0834	0.0701	5.0000e-004		6.3400e-003	6.3400e-003		6.3400e-003	6.3400e-003	0.0000	90.7920	90.7920	1.7400e-003	1.6600e-003	91.3445
High Turnover (Sit Down Restaurant)	1.52592e+006	8.2300e-003	0.0748	0.0628	4.5000e-004		5.6800e-003	5.6800e-003		5.6800e-003	5.6800e-003	0.0000	81.4289	81.4289	1.5600e-003	1.4900e-003	81.9245
Industrial Park	7.23975e+006	0.0390	0.3549	0.2981	2.1300e-003		0.0270	0.0270		0.0270	0.0270	0.0000	386.3406	386.3406	7.4000e-003	7.0800e-003	388.6918
Junior College (2yr)	1.4434e+007	0.0778	0.7076	0.5943	4.2500e-003		0.0538	0.0538		0.0538	0.0538	0.0000	770.2532	770.2532	0.0148	0.0141	774.9408
Junior High School	844328	4.5500e-003	0.0414	0.0348	2.5000e-004		3.1500e-003	3.1500e-003		3.1500e-003	3.1500e-003	0.0000	45.0566	45.0566	8.6000e-004	8.3000e-004	45.3308
Manufacturing	697200	3.7600e-003	0.0342	0.0287	2.1000e-004		2.6000e-003	2.6000e-003		2.6000e-003	2.6000e-003	0.0000	37.2053	37.2053	7.1000e-004	6.8000e-004	37.4317
Medical Office Building	4.137e+006	0.0223	0.2028	0.1704	1.2200e-003		0.0154	0.0154		0.0154	0.0154	0.0000	220.7661	220.7661	4.2300e-003	4.0500e-003	222.1096
Apartments Low Rise	2.54869e+007	0.1374	1.1744	0.4997	7.5000e-003		0.0950	0.0950		0.0950	0.0950	0.0000	1,360.0791	1,360.0791	0.0261	0.0249	1,368.3563
Bank (with Drive-Through)	265600	1.4300e-003	0.0130	0.0109	8.0000e-005		9.9000e-004	9.9000e-004		9.9000e-004	9.9000e-004	0.0000	14.1734	14.1734	2.7000e-004	2.6000e-004	14.2597
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	58760	3.2000e-004	2.8800e-003	2.4200e-003	2.0000e-005		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	3.1357	3.1357	6.0000e-005	6.0000e-005	3.1547
Refrigerated Warehouse-No Rail	763350	4.1200e-003	0.0374	0.0314	2.2000e-004		2.8400e-003	2.8400e-003		2.8400e-003	2.8400e-003	0.0000	40.7353	40.7353	7.8000e-004	7.5000e-004	40.9832
Regional Shopping Center	1.54132e+006	8.3100e-003	0.0756	0.0635	4.5000e-004		5.7400e-003	5.7400e-003		5.7400e-003	5.7400e-003	0.0000	82.2507	82.2507	1.5800e-003	1.5100e-003	82.7513
Research & Development	4.5816e+006	0.0247	0.2246	0.1887	1.3500e-003		0.0171	0.0171		0.0171	0.0171	0.0000	244.4916	244.4916	4.6900e-003	4.4800e-003	245.9796
Single Family Housing	8.59876e+007	0.4637	3.9622	1.6860	0.0253		0.3204	0.3204		0.3204	0.3204	0.0000	4,588.6249	4,588.6249	0.0880	0.0841	4,616.5505
Supermarket	632700	3.4100e-003	0.0310	0.0261	1.9000e-004		2.3600e-003	2.3600e-003		2.3600e-003	2.3600e-003	0.0000	33.7633	33.7633	6.5000e-004	6.2000e-004	33.9688
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.9076**	**7.9229**	**4.5263**	**0.0495**		**0.6271**	**0.6271**		**0.6271**	**0.6271**	**0.0000**	**8,981.9930**	**8,981.9930**	**0.1722**	**0.1647**	**9,036.6559**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	40890	2.2000e-004	2.0000e-003	1.6800e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	2.1821	2.1821	4.0000e-005	4.0000e-005	2.1953
Elementary School	1.08489e+006	5.8500e-003	0.0532	0.0447	3.2000e-004		4.0400e-003	4.0400e-003		4.0400e-003	4.0400e-003	0.0000	57.8940	57.8940	1.1100e-003	1.0600e-003	58.2464
Fast Food Restaurant with Drive Thru	1.3047e+006	7.0400e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003	0.0000	69.6236	69.6236	1.3300e-003	1.2800e-003	70.0473
General Heavy Industry	524475	2.8300e-003	0.0257	0.0216	1.5000e-004		1.9500e-003	1.9500e-003		1.9500e-003	1.9500e-003	0.0000	27.9880	27.9880	5.4000e-004	5.1000e-004	28.1583
General Light Industry	1.04895e+006	5.6600e-003	0.0514	0.0432	3.1000e-004		3.9100e-003	3.9100e-003		3.9100e-003	3.9100e-003	0.0000	55.9760	55.9760	1.0700e-003	1.0300e-003	56.3166
General Office Building	1.03875e+007	0.0560	0.5092	0.4277	3.0600e-003		0.0387	0.0387		0.0387	0.0387	0.0000	554.3174	554.3174	0.0106	0.0102	557.6908
High School	1.29892e+006	7.0000e-003	0.0637	0.0535	3.8000e-004		4.8400e-003	4.8400e-003		4.8400e-003	4.8400e-003	0.0000	69.3152	69.3152	1.3300e-003	1.2700e-003	69.7370
High Turnover (Sit Down Restaurant)	1.47008e+006	7.9300e-003	0.0721	0.0605	4.3000e-004		5.4800e-003	5.4800e-003		5.4800e-003	5.4800e-003	0.0000	78.4491	78.4491	1.5000e-003	1.4400e-003	78.9265
Industrial Park	5.57156e+006	0.0300	0.2731	0.2294	1.6400e-003		0.0208	0.0208		0.0208	0.0208	0.0000	297.3198	297.3198	5.7000e-003	5.4500e-003	299.1292
Junior College (2yr)	1.08552e+007	0.0585	0.5321	0.4470	3.1900e-003		0.0404	0.0404		0.0404	0.0404	0.0000	579.2775	579.2775	0.0111	0.0106	582.8029
Junior High School	644602	3.4800e-003	0.0316	0.0265	1.9000e-004		2.4000e-003	2.4000e-003		2.4000e-003	2.4000e-003	0.0000	34.3984	34.3984	6.6000e-004	6.3000e-004	34.6078
Manufacturing	524475	2.8300e-003	0.0257	0.0216	1.5000e-004		1.9500e-003	1.9500e-003		1.9500e-003	1.9500e-003	0.0000	27.9880	27.9880	5.4000e-004	5.1000e-004	28.1583
Medical Office Building	3.18375e+006	0.0172	0.1561	0.1311	9.4000e-004		0.0119	0.0119		0.0119	0.0119	0.0000	169.8970	169.8970	3.2600e-003	3.1100e-003	170.9310
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Apartments Low Rise	2.03392e+007	0.1097	0.9372	0.3988	5.9800e-003		0.0758	0.0758		0.0758	0.0758	0.0000	1,085.3777	1,085.3777	0.0208	0.0199	1,091.9831
Bank (with Drive-Through)	199800	1.0800e-003	9.7900e-003	8.2300e-003	6.0000e-005		7.4000e-004	7.4000e-004		7.4000e-004	7.4000e-004	0.0000	10.6621	10.6621	2.0000e-004	2.0000e-004	10.7270

Pharmacy/Drugstore w/o Drive Thru	44297.5	2.4000e-004	2.1700e-003	1.8200e-003	1.0000e-005		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	2.3639	2.3639	5.0000e-005	4.0000e-005	2.3783
Refrigerated Warehouse-No Rail	653888	3.5300e-003	0.0321	0.0269	1.9000e-004		2.4400e-003	2.4400e-003		2.4400e-003	2.4400e-003	0.0000	34.8939	34.8939	6.7000e-004	6.4000e-004	35.1063
Regional Shopping Center	1.16196e+006	6.2700e-003	0.0570	0.0479	3.4000e-004		4.3300e-003	4.3300e-003		4.3300e-003	4.3300e-003	0.0000	62.0065	62.0065	1.1900e-003	1.1400e-003	62.3838
Research & Development	3.44655e+006	0.0186	0.1690	0.1419	1.0100e-003		0.0128	0.0128		0.0128	0.0128	0.0000	183.9210	183.9210	3.5300e-003	3.3700e-003	185.0404
Single Family Housing	6.99761e+007	0.3773	3.2244	1.3721	0.0206		0.2607	0.2607		0.2607	0.2607	0.0000	3,734.1906	3,734.1906	0.0716	0.0685	3,756.9162
Supermarket	495900	2.6700e-003	0.0243	0.0204	1.5000e-004		1.8500e-003	1.8500e-003		1.8500e-003	1.8500e-003	0.0000	26.4631	26.4631	5.1000e-004	4.9000e-004	26.6242
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.7240**	**6.3156**	**3.5803**	**0.0395**		**0.5002**	**0.5002**		**0.5002**	**0.5002**	**0.0000**	**7,164.5046**	**7,164.5046**	**0.1373**	**0.1314**	**7,208.1066**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	7.26288e+006	1,646.0729	0.0955	0.0198	1,654.2068
Bank (with Drive-Through)	50400	11.4228	6.6000e-004	1.4000e-004	11.4792
City Park	0	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	126120	28.5841	1.6600e-003	3.4000e-004	28.7253
Elementary School	1.27146e+006	288.1655	0.0167	3.4600e-003	289.5894
Fast Food Restaurant with Drive Thru	475558	107.7814	6.2600e-003	1.2900e-003	108.3140
General Heavy Industry	132300	29.9847	1.7400e-003	3.6000e-004	30.1329
General Light Industry	264600	59.9695	3.4800e-003	7.2000e-004	60.2658
General Office Building	1.00229e+007	2,271.6125	0.1318	0.0273	2,282.8373

High School	1.52228e+006	345.0136	0.0200	4.1400e-003	346.7184
High Turnover (Sit Down Restaurant)	535840	121.4438	7.0500e-003	1.4600e-003	122.0439
Industrial Park	5.376e+006	1,218.4272	0.0707	0.0146	1,224.4479
Junior College (2yr)	5.7155e+006	1,295.3721	0.0752	0.0156	1,301.7730
Junior High School	755451	171.2170	9.9400e-003	2.0600e-003	172.0630
Manufacturing	132300	29.9847	1.7400e-003	3.6000e-004	30.1329
Medical Office Building	3.072e+006	696.2441	0.0404	8.3600e-003	699.6845
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	136630	30.9661	1.8000e-003	3.7000e-004	31.1191
Refrigerated Warehouse-No Rail	3.06915e+006	695.5982	0.0404	8.3500e-003	699.0354
Regional Shopping Center	3.58391e+006	812.2644	0.0471	9.7500e-003	816.2781
Research & Development	869400	197.0425	0.0114	2.3700e-003	198.0162
Single Family Housing	2.6321e+007	5,965.4340	0.3462	0.0716	5,994.9113
Supermarket	3.4443e+006	780.6229	0.0453	9.3700e-003	784.4803
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**16,803.2239**	**0.9753**	**0.2018**	**16,886.2547**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	7.13337e+006	1,616.7201	0.0938	0.0194	1,624.7089

Bank (with Drive-Through)	48550	11.0035	6.4000e-004	1.3000e-004	11.0578
City Park	0	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	117420	26.6123	1.5400e-003	3.2000e-004	26.7438
Elementary School	1.1975e+006	271.4029	0.0158	3.2600e-003	272.7440
Fast Food Restaurant with Drive Thru	450176	102.0287	5.9200e-003	1.2300e-003	102.5328
General Heavy Industry	127444	28.8841	1.6800e-003	3.5000e-004	29.0268
General Light Industry	254887	57.7682	3.3500e-003	6.9000e-004	58.0537
General Office Building	9.37446e+006	2,124.6453	0.1233	0.0255	2,135.1440
High School	1.43373e+006	324.9442	0.0189	3.9000e-003	326.5499
High Turnover (Sit Down Restaurant)	507240	114.9619	6.6700e-003	1.3800e-003	115.5299
Industrial Park	5.02819e+006	1,139.5983	0.0661	0.0137	1,145.2295
Junior College (2yr)	5.425e+006	1,229.5327	0.0714	0.0148	1,235.6082
Junior High School	711507	161.2573	9.3600e-003	1.9400e-003	162.0541
Manufacturing	127444	28.8841	1.6800e-003	3.5000e-004	29.0268
Medical Office Building	2.87325e+006	651.1990	0.0378	7.8200e-003	654.4168
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	127205	28.8300	1.6700e-003	3.5000e-004	28.9725
Refrigerated Warehouse-No Rail	3.05524e+006	692.4450	0.0402	8.3100e-003	695.8667
Regional Shopping Center	3.33669e+006	756.2328	0.0439	9.0800e-003	759.9697
Research & Development	837487	189.8098	0.0110	2.2800e-003	190.7477
Single Family Housing	2.58032e+007	5,848.0984	0.3394	0.0702	5,876.9960
Supermarket	3.36195e+006	761.9590	0.0442	9.1500e-003	765.7241
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000

Total		**16,166.8175**	**0.9383**	**0.1941**	**16,246.7036**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	105.6929	0.4771	41.4435	2.1900e-003		0.3983	0.3983		0.3966	0.3966	0.0000	2,482.8944	2,482.8944	0.1114	0.0443	2,498.9602
Unmitigated	105.6929	0.4771	41.4435	2.1900e-003		0.3983	0.3983		0.3966	0.3966	0.0000	2,482.8944	2,482.8944	0.1114	0.0443	2,498.9602

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	10.9617					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	93.2386					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.2440	1.0000e-005	0.0133	0.0000		0.1686	0.1686		0.1668	0.1668	0.0000	2,415.1312	2,415.1312	0.0463	0.0443	2,429.8293
Landscaping	1.2485	0.4770	41.4302	2.1900e-003		0.2297	0.2297		0.2297	0.2297	0.0000	67.7631	67.7631	0.0651	0.0000	69.1308
Total	**105.6929**	**0.4771**	**41.4435**	**2.1900e-003**		**0.3984**	**0.3984**		**0.3966**	**0.3966**	**0.0000**	**2,482.8944**	**2,482.8944**	**0.1114**	**0.0443**	**2,498.9602**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	10.9617					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	93.2386					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.2440	1.0000e-005	0.0133	0.0000		0.1686	0.1686		0.1668	0.1668	0.0000	2,415.1312	2,415.1312	0.0463	0.0443	2,429.8293
Landscaping	1.2485	0.4770	41.4302	2.1900e-003		0.2297	0.2297		0.2297	0.2297	0.0000	67.7631	67.7631	0.0651	0.0000	69.1308
Total	**105.6929**	**0.4771**	**41.4435**	**2.1900e-003**		**0.3984**	**0.3984**		**0.3966**	**0.3966**	**0.0000**	**2,482.8944**	**2,482.8944**	**0.1114**	**0.0443**	**2,498.9602**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	0 / 0	0.0000	0.0000	0.0000	0.0000
Bank (with Drive-Through)	0 / 0	0.0000	0.0000	0.0000	0.0000
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	0 / 0	0.0000	0.0000	0.0000	0.0000
Elementary School	0 / 0	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant with Drive-Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
General Heavy Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
High School	0 / 0	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	0 / 0	0.0000	0.0000	0.0000	0.0000
Industrial Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Junior College (2yr)	0 / 0	0.0000	0.0000	0.0000	0.0000
Junior High School	0 / 0	0.0000	0.0000	0.0000	0.0000
Manufacturing	0 / 0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000

Regional Shopping Center	0 / 0	0.0000	0.0000	0.0000	0.0000
Research & Development	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Supermarket	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	0 / 0	0.0000	0.0000	0.0000	0.0000
Bank (with Drive-Through)	0 / 0	0.0000	0.0000	0.0000	0.0000
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	0 / 0	0.0000	0.0000	0.0000	0.0000
Elementary School	0 / 0	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant with Drive-Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
General Heavy Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
High School	0 / 0	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	0 / 0	0.0000	0.0000	0.0000	0.0000

Industrial Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Junior College (2yr)	0 / 0	0.0000	0.0000	0.0000	0.0000
Junior High School	0 / 0	0.0000	0.0000	0.0000	0.0000
Manufacturing	0 / 0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0 / 0	0.0000	0.0000	0.0000	0.0000
Research & Development	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Supermarket	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			

Unmitigated	2,656.8066	157.0128	0.0000	5,954.0749
Mitigated	664.2017	39.2532	0.0000	1,488.5187

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	901.6	183.0167	10.8160	0.0000	410.1521
Bank (with Drive-Through)	18.66	3.7878	0.2239	0.0000	8.4887
City Park	5.42	1.1002	0.0650	0.0000	2.4656
Convenience Market with Gas Pumps	36.06	7.3199	0.4326	0.0000	16.4043
Elementary School	362.81	73.6472	4.3524	0.0000	165.0480
Fast Food Restaurant with Drive-Thru	163.57	33.2032	1.9623	0.0000	74.4106
General Heavy Industry	65.1	13.2147	0.7810	0.0000	29.6150
General Light Industry	130.2	26.4294	1.5619	0.0000	59.2300
General Office Building	910.28	184.7786	10.9201	0.0000	414.1008
High School	273.75	55.5688	3.2840	0.0000	124.5332
High Turnover (Sit Down Restaurant)	190.4	38.6495	2.2841	0.0000	86.6160
Industrial Park	651	132.1471	7.8097	0.0000	296.1502
Junior College (2yr)	455	92.3609	5.4584	0.0000	206.9867
Junior High School	153.3	31.1185	1.8391	0.0000	69.7386

Manufacturing	65.1	13.2147	0.7810	0.0000	29.6150
Medical Office Building	3240	657.6907	38.8684	0.0000	1,473.9273
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	39.09	7.9349	0.4689	0.0000	17.7827
Refrigerated Warehouse-No Rail	98.7	20.0352	1.1841	0.0000	44.9002
Regional Shopping Center	358.05	72.6809	4.2953	0.0000	162.8826
Research & Development	26.22	5.3224	0.3146	0.0000	11.9279
Single Family Housing	4238.99	860.4767	50.8527	0.0000	1,928.3837
Supermarket	507.6	103.0382	6.0894	0.0000	230.9153
Unrefrigerated Warehouse-No Rail	197.4	40.0704	2.3681	0.0000	89.8004
Total		**2,656.8066**	**157.0128**	**0.0000**	**5,954.0748**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	225.4	45.7542	2.7040	0.0000	102.5380
Bank (with Drive-Through)	4.665	0.9470	0.0560	0.0000	2.1222
City Park	1.355	0.2751	0.0163	0.0000	0.6164
Convenience Market with Gas Pumps	9.015	1.8300	0.1082	0.0000	4.1011
Elementary School	90.7025	18.4118	1.0881	0.0000	41.2620
Fast Food Restaurant with Drive-Thru	40.8925	8.3008	0.4906	0.0000	18.6027

General Heavy Industry	16.275	3.3037	0.1952	0.0000	7.4038
General Light Industry	32.55	6.6074	0.3905	0.0000	14.8075
General Office Building	227.57	46.1947	2.7300	0.0000	103.5252
High School	68.4375	13.8922	0.8210	0.0000	31.1333
High Turnover (Sit Down Restaurant)	47.6	9.6624	0.5710	0.0000	21.6540
Industrial Park	162.75	33.0368	1.9524	0.0000	74.0376
Junior College (2yr)	113.75	23.0902	1.3646	0.0000	51.7467
Junior High School	38.325	7.7796	0.4598	0.0000	17.4347
Manufacturing	16.275	3.3037	0.1952	0.0000	7.4038
Medical Office Building	810	164.4227	9.7171	0.0000	368.4818
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	9.7725	1.9837	0.1172	0.0000	4.4457
Refrigerated Warehouse-No Rail	24.675	5.0088	0.2960	0.0000	11.2251
Regional Shopping Center	89.5125	18.1702	1.0738	0.0000	40.7207
Research & Development	6.555	1.3306	0.0786	0.0000	2.9820
Single Family Housing	1059.75	215.1192	12.7132	0.0000	482.0959
Supermarket	126.9	25.7596	1.5224	0.0000	57.7288
Unrefrigerated Warehouse-No Rail	49.35	10.0176	0.5920	0.0000	22.4501
Total		**664.2017**	**39.2532**	**0.0000**	**1,488.5187**

9.0 Operational Offroad

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

10.0 Vegetation

Grapevine Operational Year 2025 - Planning Areas 6A, 2, 1 Buildout

Kern-San Joaquin County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Bank (with Drive-Through)	20.00	1000sqft	1.77	20,000.00	0
General Office Building	978.80	1000sqft	85.44	978,800.00	0
Medical Office Building	300.00	1000sqft	22.69	300,000.00	0
Pharmacy/Drugstore w/o Drive Thru	13.00	1000sqft	1.18	13,000.00	0
Research & Development	345.00	1000sqft	26.19	345,000.00	0
Elementary School	1,988.00	Student	10.00	166,203.50	0
High School	1,500.00	Student	5.00	198,991.47	0
Junior College (2yr)	350.00	1000sqft	27.25	350,000.00	0
Junior High School	840.00	Student	20.00	98,751.81	0
General Heavy Industry	52.50	1000sqft	4.09	52,500.00	0
General Light Industry	105.00	1000sqft	8.18	105,000.00	0
Industrial Park	525.00	1000sqft	40.88	525,000.00	0
Manufacturing	52.50	1000sqft	4.09	52,500.00	0
Refrigerated Warehouse-No Rail	105.00	1000sqft	8.18	105,000.00	0
Unrefrigerated Warehouse-No Rail	210.00	1000sqft	16.35	210,000.00	0
Other Asphalt Surfaces	199.00	Acre	199.00	8,668,440.00	0
City Park	63.00	Acre	63.00	2,744,280.00	0
Fast Food Restaurant with Drive Thru	14.20	1000sqft	1.87	14,200.00	0
High Turnover (Sit Down Restaurant)	16.00	1000sqft	2.10	16,000.00	0
Apartments Low Rise	1,960.00	Dwelling Unit	196.00	1,960,000.00	6272
Single Family Housing	3,615.00	Dwelling Unit	925.00	6,507,000.00	11568
Convenience Market with Gas Pumps	12.00	1000sqft	1.59	12,000.00	0

Regional Shopping Center	341.00	1000sqft	44.35	341,000.00	0
Supermarket	90.00	1000sqft	11.81	90,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	7			**Operational Year**	2025
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	499.66	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Planning Areas 6A, 2, 1. Kern County, San Joaquin Valley Air Basin. CO2 Intensity adjusted based on PG&E 33% Renewables by 2020.

Land Use - See 1.1 Land Usage. Population based on 3.2 persons per dwelling unit.

Construction Phase - Construction emissions calculated separately.

Vehicle Trips - Modified trip rates to match Trip Generation and VMT factors provided by Fehr & Peers.

Vehicle Emission Factors - Default CalEEMod values.

Woodstoves - No woodstoves and only gas fireplaces assumed

Area Coating - Default CalEEMod VOC content. Modified non-residential interior and exterior area to be coated based on CalEEMod architectural coating surface area equations and adjusted for parking/asphalt surface and park land uses.

Energy Use - Updated Title 24 electricity and natural gas energy intensity to match 2013 Title 24 standards (25% reduction versus 2008 standards).

Water And Wastewater - Water and wastewater consumption and associated emissions calculated separately.

Construction Off-road Equipment Mitigation - Construction emissions calculated separately.

Mobile Land Use Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Project Setting: Suburban Center. Improve Pedestrian Network: Project Site and Connecting Off-Site. Provide Traffic Calming Measures: 100% Streets with Improvement, 100% Intersections with Improvement. Expand Transit Network: 50%.

Mobile Commute Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Voluntary Commute Trip Reduction Program: 50%

Energy Mitigation - Exceed 2013 Title 24, % Improvement: 25%.

Water Mitigation - Water reductions calculated separately.

Waste Mitigation - Percent Reduction in Waste Disposed: 75%. Waste diversion consistent with Assembly Bill 341 (not mitigation).

Note Regarding Emissions Presented in the Air Quality & Greenhouse Gas Technical Report: Project-generated unmitigated and mitigated emissions in the Technical Report reflect the unmitigated mobile source emissions reported in 2.0 Emissions Summary. No area source mitigation assumed. Unmitigated and mitigated energy source and solid waste emissions reported in the Technical Report as presented in 2.0 Emissions Summary. Water/wastewater and stationary source emissions calculated separately.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	7703333	2681371
tblAreaCoating	Area_Nonresidential_Interior	23110000	5990920
tblConstructionPhase	NumDays	155,000.00	5.00
tblEnergyUse	T24E	352.42	264.31
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tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
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tblEnergyUse	T24E	4.43	3.32
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tblEnergyUse	T24E	0.70	0.53
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tblEnergyUse	T24E	0.49	0.37
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tblEnergyUse	T24E	4.88	3.66
tblEnergyUse	T24NG	14,007.38	10,505.53
tblEnergyUse	T24NG	17.55	13.16

tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	17.55	13.16
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tblFireplaces	FireplaceWoodMass	3,078.40	0.00
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tblLandUse	LotAcreage	2.41	8.18
tblLandUse	LotAcreage	4.82	16.35
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tblLandUse	LotAcreage	0.37	2.10
tblLandUse	LotAcreage	122.50	196.00
tblLandUse	LotAcreage	1,173.70	925.00
tblLandUse	LotAcreage	0.28	1.59
tblLandUse	LotAcreage	7.83	44.35
tblLandUse	LotAcreage	2.07	11.81
tblLandUse	Population	5,606.00	6,272.00
tblLandUse	Population	10,339.00	11,568.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	499.66
tblProjectCharacteristics	OperationalYear	2014	2025
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tblTripsAndVMT	WorkerTripNumber	8,973.00	0.00
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tblWater	IndoorWaterUseRate	4,856,539.40	0.00
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tblWater	IndoorWaterUseRate	25,258,729.83	0.00
tblWater	IndoorWaterUseRate	169,634,411.79	0.00
tblWater	IndoorWaterUseRate	235,531,802.62	0.00
tblWater	IndoorWaterUseRate	11,094,139.34	0.00
tblWater	IndoorWaterUseRate	48,562,500.00	0.00
tblWater	OutdoorWaterUseRate	80,507,713.40	0.00
tblWater	OutdoorWaterUseRate	485,700.29	0.00
tblWater	OutdoorWaterUseRate	75,063,325.03	0.00
tblWater	OutdoorWaterUseRate	544,791.45	0.00
tblWater	OutdoorWaterUseRate	12,392,714.88	0.00
tblWater	OutdoorWaterUseRate	275,117.79	0.00
tblWater	OutdoorWaterUseRate	106,624,195.43	0.00
tblWater	OutdoorWaterUseRate	16,990,560.00	0.00
tblWater	OutdoorWaterUseRate	309,991.88	0.00
tblWater	OutdoorWaterUseRate	26,851,201.13	0.00
tblWater	OutdoorWaterUseRate	5,236,358.40	0.00
tblWater	OutdoorWaterUseRate	7,170,316.43	0.00
tblWater	OutdoorWaterUseRate	561,307.68	0.00
tblWater	OutdoorWaterUseRate	15,481,156.99	0.00
tblWater	OutdoorWaterUseRate	148,487,440.78	0.00
tblWater	OutdoorWaterUseRate	343,117.71	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	590.7855	5.3008	460.6603	0.0244		6.6650	6.6650		6.6217	6.6217	0.0000	65,762.3091	65,762.3091	2.0422	1.1904	66,174.2283
Energy	4.9731	43.4133	24.8017	0.2713		3.4360	3.4360		3.4360	3.4360		54,251.7946	54,251.7946	1.0398	0.9946	54,581.9620
Mobile	451.7660	1,949.6740	6,448.2757	21.5228	1,093.8130	49.5089	1,143.3218	294.2392	45.5894	339.8287		1,752,349.6962	1,752,349.6962	35.2440		1,753,089.8198
Total	**1,047.5246**	**1,998.3881**	**6,933.7378**	**21.8184**	**1,093.8130**	**59.6098**	**1,153.4228**	**294.2392**	**55.6471**	**349.8863**	**0.0000**	**1,872,363.7999**	**1,872,363.7999**	**38.3261**	**2.1851**	**1,873,846.0100**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	590.7855	5.3008	460.6603	0.0244		6.6650	6.6650		6.6217	6.6217	0.0000	65,762.3091	65,762.3091	2.0422	1.1904	66,174.2283
Energy	3.9668	34.6062	19.6180	0.2164		2.7407	2.7407		2.7407	2.7407		43,274.0519	43,274.0519	0.8294	0.7934	43,537.4105
Mobile	438.9503	1,859.9056	6,282.1779	20.3791	1,034.5517	46.8850	1,081.4367	278.2978	43.1735	321.4713		1,659,065.6404	1,659,065.6404	33.4524		1,659,768.1402
Total	**1,033.7026**	**1,899.8126**	**6,762.4563**	**20.6198**	**1,034.5517**	**56.2907**	**1,090.8424**	**278.2978**	**52.5359**	**330.8337**	**0.0000**	**1,768,102.0014**	**1,768,102.0014**	**36.3240**	**1.9838**	**1,769,479.7790**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.32**	**4.93**	**2.47**	**5.49**	**5.42**	**5.57**	**5.43**	**5.42**	**5.59**	**5.45**	**0.00**	**5.57**	**5.57**	**5.22**	**9.21**	**5.57**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

Provide Traffic Calming Measures

Expand Transit Network

Implement Trip Reduction Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	438.9503	1,859.9056	6,282.1779	20.3791	1,034.5517	46.8850	1,081.4367	278.2978	43.1735	321.4713		1,659,065.6404	1,659,065.6404	33.4524		1,659,768.1402
Unmitigated	451.7660	1,949.6740	6,448.2757	21.5228	1,093.8130	49.5089	1,143.3218	294.2392	45.5894	339.8287		1,752,349.6962	1,752,349.6962	35.2440		1,753,089.8198

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	10,603.60	11,544.40	9780.40	60,384,196	57,112,663
Bank (with Drive-Through)	179.60	104.60	38.80	845,867	800,039
City Park	97.02	97.02	97.02	551,625	521,738
Convenience Market with Gas Pumps	417.12	714.48	583.08	2,747,938	2,599,058
Elementary School	2,087.40	0.00	0.00	8,477,349	8,018,058
Fast Food Restaurant with Drive Thru	493.59	718.24	539.88	3,026,471	2,862,501
General Heavy Industry	152.25	28.88	10.50	650,300	615,067
General Light Industry	304.50	57.75	29.40	1,307,422	1,236,588
General Office Building	8,789.62	1,889.08	783.04	37,866,827	35,815,254
High School	2,085.00	750.00	300.00	9,320,454	8,815,485
High Turnover (Sit Down Restaurant)	556.16	692.64	576.64	3,289,637	3,111,409
Industrial Park	2,919.00	1,044.75	309.75	12,954,822	12,252,947

Junior College (2yr)	1,480.50	605.50	66.50	6,558,432	6,203,105
Junior High School	1,108.80	0.00	0.00	4,503,059	4,259,089
Manufacturing	152.25	59.33	24.68	686,546	649,350
Medical Office Building	2,694.00	669.00	114.00	11,576,857	10,949,639
Other Asphalt Surfaces	0.00	0.00	0.00		
Pharmacy/Drugstore w/o Drive Thru	116.74	116.74	116.74	663,746	627,785
Refrigerated Warehouse-No Rail	304.50	304.50	304.50	1,731,290	1,637,491
Regional Shopping Center	11,853.16	13,793.45	6966.63	65,000,221	61,478,598
Research & Development	3,098.10	724.50	424.35	13,515,146	12,782,914
Single Family Housing	28,016.25	29,498.40	25666.50	158,586,733	149,994,722
Supermarket	3,128.40	5,433.30	5092.20	21,254,290	20,102,762
Unrefrigerated Warehouse-No Rail	609.00	609.00	609.00	3,462,579	3,274,981
Total	81,246.57	69,455.55	52,433.61	428,961,804	405,721,245

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Bank (with Drive-Through)	15.62	15.62	15.62	6.60	74.40	19.00	100	0	0
City Park	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Convenience Market with Gas	15.62	15.62	15.62	0.80	80.20	19.00	100	0	0
Elementary School	15.62	15.62	15.62	65.00	30.00	5.00	100	0	0
Fast Food Restaurant with Drive Thru	15.62	15.62	15.62	2.20	78.80	19.00	100	0	0
General Heavy Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Light Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Office Building	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
High School	15.62	15.62	15.62	77.80	17.20	5.00	100	0	0
High Turnover (Sit Down Rest	15.62	15.62	15.62	8.50	72.50	19.00	100	0	0
Industrial Park	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Junior College (2yr)	15.62	15.62	15.62	6.40	88.60	5.00	100	0	0
Junior High School	15.62	15.62	15.62	72.80	22.20	5.00	100	0	0
Manufacturing	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Medical Office Building	15.62	15.62	15.62	29.60	51.40	19.00	100	0	0
Other Asphalt Surfaces	15.62	15.62	15.62	0.00	0.00	0.00	100	0	0
Pharmacy/Drugstore w/o Drive Thru	15.62	15.62	15.62	7.40	73.60	19.00	100	0	0
Refrigerated Warehouse-No Rail	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0
Regional Shopping Center	15.62	15.62	15.62	16.30	64.70	19.00	100	0	0
Research & Development	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Single Family Housing	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0

Supermarket	15.62	15.62	15.62	6.50	74.50	19.00	100	0	0
Unrefrigerated Warehouse-No	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.354417	0.053979	0.135300	0.180782	0.057193	0.010470	0.023391	0.171508	0.001499	0.001851	0.006071	0.001001	0.002538

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	3.9668	34.6062	19.6180	0.2164		2.7407	2.7407		2.7407	2.7407		43,274.0519	43,274.0519	0.8294	0.7934	43,537.4105
NaturalGas Unmitigated	4.9731	43.4133	24.8017	0.2713		3.4360	3.4360		3.4360	3.4360		54,251.7946	54,251.7946	1.0398	0.9946	54,581.9620

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					

Bank (with Drive-Through)	727.671	7.8500e-003	0.0713	0.0599	4.3000e-004		5.4200e-003	5.4200e-003		5.4200e-003	5.4200e-003		85.6084	85.6084	1.6400e-003	1.5700e-003	86.1294
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	148.603	1.6000e-003	0.0146	0.0122	9.0000e-005		1.1100e-003	1.1100e-003		1.1100e-003	1.1100e-003		17.4827	17.4827	3.4000e-004	3.2000e-004	17.5891
Elementary School	3893.26	0.0420	0.3817	0.3206	2.2900e-003		0.0290	0.0290		0.0290	0.0290		458.0306	458.0306	8.7800e-003	8.4000e-003	460.8181
Fast Food Restaurant with Drive Thru	3710.28	0.0400	0.3638	0.3056	2.1800e-003		0.0277	0.0277		0.0277	0.0277		436.5041	436.5041	8.3700e-003	8.0000e-003	439.1606
General Heavy Industry	1910.14	0.0206	0.1873	0.1573	1.1200e-003		0.0142	0.0142		0.0142	0.0142		224.7220	224.7220	4.3100e-003	4.1200e-003	226.0896
General Light Industry	3820.27	0.0412	0.3745	0.3146	2.2500e-003		0.0285	0.0285		0.0285	0.0285		449.4440	449.4440	8.6100e-003	8.2400e-003	452.1792
General Office Building	36979.9	0.3988	3.6255	3.0454	0.0218		0.2755	0.2755		0.2755	0.2755		4,350.5728	4,350.5728	0.0834	0.0798	4,377.0496
High School	4661.31	0.0503	0.4570	0.3839	2.7400e-003		0.0347	0.0347		0.0347	0.0347		548.3891	548.3891	0.0105	0.0101	551.7265
High Turnover (Sit Down Restaurant)	4180.6	0.0451	0.4099	0.3443	2.4600e-003		0.0312	0.0312		0.0312	0.0312		491.8356	491.8356	9.4300e-003	9.0200e-003	494.8289
Industrial Park	19834.9	0.2139	1.9446	1.6335	0.0117		0.1478	0.1478		0.1478	0.1478		2,333.5214	2,333.5214	0.0447	0.0428	2,347.7228
Junior College (2yr)	39545.2	0.4265	3.8770	3.2567	0.0233		0.2947	0.2947		0.2947	0.2947		4,652.3771	4,652.3771	0.0892	0.0853	4,680.6907
Junior High School	2313.23	0.0250	0.2268	0.1905	1.3600e-003		0.0172	0.0172		0.0172	0.0172		272.1444	272.1444	5.2200e-003	4.9900e-003	273.8006
Manufacturing	1910.14	0.0206	0.1873	0.1573	1.1200e-003		0.0142	0.0142		0.0142	0.0142		224.7220	224.7220	4.3100e-003	4.1200e-003	226.0896
Medical Office Building	11334.2	0.1222	1.1112	0.9334	6.6700e-003		0.0845	0.0845		0.0845	0.0845		1,333.4408	1,333.4408	0.0256	0.0245	1,341.5559
Apartments Low Rise	69827.2	0.7530	6.4351	2.7383	0.0411		0.5203	0.5203		0.5203	0.5203		8,214.9617	8,214.9617	0.1575	0.1506	8,264.9566
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	160.986	1.7400e-003	0.0158	0.0133	9.0000e-005		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003		18.9396	18.9396	3.6000e-004	3.5000e-004	19.0548
Refrigerated Warehouse-No Rail	2091.37	0.0226	0.2050	0.1722	1.2300e-003		0.0156	0.0156		0.0156	0.0156		246.0435	246.0435	4.7200e-003	4.5100e-003	247.5409
Regional Shopping Center	4222.79	0.0455	0.4140	0.3478	2.4800e-003		0.0315	0.0315		0.0315	0.0315		496.7994	496.7994	9.5200e-003	9.1100e-003	499.8228
Research & Development	12552.3	0.1354	1.2306	1.0337	7.3800e-003		0.0935	0.0935		0.0935	0.0935		1,476.7446	1,476.7446	0.0283	0.0271	1,485.7318
Single Family Housing	235582	2.5406	21.7105	9.2385	0.1386		1.7553	1.7553		1.7553	1.7553		27,715.5787	27,715.5787	0.5312	0.5081	27,884.2511
Supermarket	1733.42	0.0187	0.1699	0.1428	1.0200e-003		0.0129	0.0129		0.0129	0.0129		203.9323	203.9323	3.9100e-003	3.7400e-003	205.1734

Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**4.9731**	**43.4133**	**24.8017**	**0.2712**		**3.4360**	**3.4360**		**3.4360**	**3.4360**		**54,251.7946**	**54,251.7946**	**1.0399**	**0.9946**	**54,581.9620**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	0.112027	1.2100e-003	0.0110	9.2300e-003	7.0000e-005		8.3000e-004	8.3000e-004		8.3000e-004	8.3000e-004		13.1797	13.1797	2.5000e-004	2.4000e-004	13.2599
Elementary School	2.97231	0.0321	0.2914	0.2448	1.7500e-003		0.0222	0.0222		0.0222	0.0222		349.6836	349.6836	6.7000e-003	6.4100e-003	351.8117
Fast Food Restaurant with Drive Thru	3.57451	0.0386	0.3504	0.2944	2.1000e-003		0.0266	0.0266		0.0266	0.0266		420.5305	420.5305	8.0600e-003	7.7100e-003	423.0898
General Heavy Industry	1.43692	0.0155	0.1409	0.1183	8.5000e-004		0.0107	0.0107		0.0107	0.0107		169.0492	169.0492	3.2400e-003	3.1000e-003	170.0780
General Light Industry	2.87384	0.0310	0.2818	0.2367	1.6900e-003		0.0214	0.0214		0.0214	0.0214		338.0983	338.0983	6.4800e-003	6.2000e-003	340.1559
General Office Building	28.4589	0.3069	2.7901	2.3437	0.0167		0.2121	0.2121		0.2121	0.2121		3,348.1112	3,348.1112	0.0642	0.0614	3,368.4873
High School	3.55868	0.0384	0.3489	0.2931	2.0900e-003		0.0265	0.0265		0.0265	0.0265		418.6678	418.6678	8.0200e-003	7.6800e-003	421.2157
High Turnover (Sit Down Restaurant)	4.02762	0.0434	0.3949	0.3317	2.3700e-003		0.0300	0.0300		0.0300	0.0300		473.8372	473.8372	9.0800e-003	8.6900e-003	476.7209
Industrial Park	15.2646	0.1646	1.4965	1.2571	8.9800e-003		0.1137	0.1137		0.1137	0.1137		1,795.8300	1,795.8300	0.0344	0.0329	1,806.7591
Junior College (2yr)	29.7404	0.3207	2.9157	2.4492	0.0175		0.2216	0.2216		0.2216	0.2216		3,498.8719	3,498.8719	0.0671	0.0642	3,520.1654
Junior High School	1.76603	0.0191	0.1731	0.1454	1.0400e-003		0.0132	0.0132		0.0132	0.0132		207.7687	207.7687	3.9800e-003	3.8100e-003	209.0332
Manufacturing	1.43692	0.0155	0.1409	0.1183	8.5000e-004		0.0107	0.0107		0.0107	0.0107		169.0492	169.0492	3.2400e-003	3.1000e-003	170.0780
Medical Office Building	8.7226	0.0941	0.8552	0.7183	5.1300e-003		0.0650	0.0650		0.0650	0.0650		1,026.1886	1,026.1886	0.0197	0.0188	1,032.4338
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Apartments Low Rise	55.7239	0.6009	5.1353	2.1853	0.0328		0.4152	0.4152		0.4152	0.4152		6,555.7483	6,555.7483	0.1257	0.1202	6,595.6455
Bank (with Drive-Through)	0.547397	5.9000e-003	0.0537	0.0451	3.2000e-004		4.0800e-003	4.0800e-003		4.0800e-003	4.0800e-003		64.3997	64.3997	1.2300e-003	1.1800e-003	64.7916
Pharmacy/Drugstore w/o Drive Thru	0.121363	1.3100e-003	0.0119	9.9900e-003	7.0000e-005		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004		14.2780	14.2780	2.7000e-004	2.6000e-004	14.3649
Refrigerated Warehouse-No Rail	1.79147	0.0193	0.1756	0.1475	1.0500e-003		0.0134	0.0134		0.0134	0.0134		210.7615	210.7615	4.0400e-003	3.8600e-003	212.0441
Regional Shopping Center	3.18345	0.0343	0.3121	0.2622	1.8700e-003		0.0237	0.0237		0.0237	0.0237		374.5230	374.5230	7.1800e-003	6.8700e-003	376.8023
Research & Development	9.4426	0.1018	0.9258	0.7776	5.5500e-003		0.0704	0.0704		0.0704	0.0704		1,110.8944	1,110.8944	0.0213	0.0204	1,117.6552
Single Family Housing	191.715	2.0675	17.6679	7.5183	0.1128		1.4285	1.4285		1.4285	1.4285		22,554.7424	22,554.7424	0.4323	0.4135	22,692.0068
Supermarket	1.35863	0.0147	0.1332	0.1119	8.0000e-004		0.0101	0.0101		0.0101	0.0101		159.8388	159.8388	3.0600e-003	2.9300e-003	160.8116
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**3.9668**	**34.6062**	**19.6180**	**0.2164**		**2.7407**	**2.7407**		**2.7407**	**2.7407**		**43,274.0519**	**43,274.0519**	**0.8294**	**0.7934**	**43,537.4105**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	590.7855	5.3008	460.6603	0.0244		6.6650	6.6650		6.6217	6.6217	0.0000	65,762.3091	65,762.3091	2.0422	1.1904	66,174.2283
Unmitigated	590.7855	5.3008	460.6603	0.0244		6.6650	6.6650		6.6217	6.6217	0.0000	65,762.3091	65,762.3091	2.0422	1.1904	66,174.2283

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	60.0643					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	510.8965					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	5.9521	2.7000e-004	0.3247	0.0000		4.1124	4.1124		4.0691	4.0691	0.0000	64,932.3529	64,932.3529	1.2445	1.1904	65,327.5204
Landscaping	13.8727	5.3005	460.3357	0.0244		2.5526	2.5526		2.5526	2.5526		829.9562	829.9562	0.7977		846.7079
Total	**590.7855**	**5.3008**	**460.6603**	**0.0244**		**6.6650**	**6.6650**		**6.6217**	**6.6217**	**0.0000**	**65,762.3091**	**65,762.3091**	**2.0422**	**1.1904**	**66,174.2283**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	60.0643					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	510.8965					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	5.9521	2.7000e-004	0.3247	0.0000		4.1124	4.1124		4.0691	4.0691	0.0000	64,932.3529	64,932.3529	1.2445	1.1904	65,327.5204
Landscaping	13.8727	5.3005	460.3357	0.0244		2.5526	2.5526		2.5526	2.5526		829.9562	829.9562	0.7977		846.7079
Total	**590.7855**	**5.3008**	**460.6603**	**0.0244**		**6.6650**	**6.6650**		**6.6217**	**6.6217**	**0.0000**	**65,762.3091**	**65,762.3091**	**2.0422**	**1.1904**	**66,174.2283**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Vegetation

Grapevine Operational Year 2025 - Planning Areas 6A, 2, 1 Buildout

Kern-San Joaquin County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Bank (with Drive-Through)	20.00	1000sqft	1.77	20,000.00	0
General Office Building	978.80	1000sqft	85.44	978,800.00	0
Medical Office Building	300.00	1000sqft	22.69	300,000.00	0
Pharmacy/Drugstore w/o Drive Thru	13.00	1000sqft	1.18	13,000.00	0
Research & Development	345.00	1000sqft	26.19	345,000.00	0
Elementary School	1,988.00	Student	10.00	166,203.50	0
High School	1,500.00	Student	5.00	198,991.47	0
Junior College (2yr)	350.00	1000sqft	27.25	350,000.00	0
Junior High School	840.00	Student	20.00	98,751.81	0
General Heavy Industry	52.50	1000sqft	4.09	52,500.00	0
General Light Industry	105.00	1000sqft	8.18	105,000.00	0
Industrial Park	525.00	1000sqft	40.88	525,000.00	0
Manufacturing	52.50	1000sqft	4.09	52,500.00	0
Refrigerated Warehouse-No Rail	105.00	1000sqft	8.18	105,000.00	0
Unrefrigerated Warehouse-No Rail	210.00	1000sqft	16.35	210,000.00	0
Other Asphalt Surfaces	199.00	Acre	199.00	8,668,440.00	0
City Park	63.00	Acre	63.00	2,744,280.00	0
Fast Food Restaurant with Drive Thru	14.20	1000sqft	1.87	14,200.00	0
High Turnover (Sit Down Restaurant)	16.00	1000sqft	2.10	16,000.00	0
Apartments Low Rise	1,960.00	Dwelling Unit	196.00	1,960,000.00	6272
Single Family Housing	3,615.00	Dwelling Unit	925.00	6,507,000.00	11568
Convenience Market with Gas Pumps	12.00	1000sqft	1.59	12,000.00	0

Regional Shopping Center	341.00	1000sqft	44.35	341,000.00	0
Supermarket	90.00	1000sqft	11.81	90,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	7			**Operational Year**	2025
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	499.66	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Planning Areas 6A, 2, 1. Kern County, San Joaquin Valley Air Basin. CO2 Intensity adjusted based on PG&E 33% Renewables by 2020.

Land Use - See 1.1 Land Usage. Population based on 3.2 persons per dwelling unit.

Construction Phase - Construction emissions calculated separately.

Vehicle Trips - Modified trip rates to match Trip Generation and VMT factors provided by Fehr & Peers.

Vehicle Emission Factors - Default CalEEMod values.

Woodstoves - No woodstoves and only gas fireplaces assumed

Area Coating - Default CalEEMod VOC content. Modified non-residential interior and exterior area to be coated based on CalEEMod architectural coating surface area equations and adjusted for parking/asphalt surface and park land uses.

Energy Use - Updated Title 24 electricity and natural gas energy intensity to match 2013 Title 24 standards (25% reduction versus 2008 standards).

Water And Wastewater - Water and wastewater consumption and associated emissions calculated separately.

Construction Off-road Equipment Mitigation - Construction emissions calculated separately.

Mobile Land Use Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Project Setting: Suburban Center. Improve Pedestrian Network: Project Site and Connecting Off-Site. Provide Traffic Calming Measures: 100% Streets with Improvement, 100% Intersections with Improvement. Expand Transit Network: 50%.

Mobile Commute Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Voluntary Commute Trip Reduction Program: 50%

Energy Mitigation - Exceed 2013 Title 24, % Improvement: 25%.

Water Mitigation - Water reductions calculated separately.

Waste Mitigation - Percent Reduction in Waste Disposed: 75%. Waste diversion consistent with Assembly Bill 341 (not mitigation).

Note Regarding Emissions Presented in the Air Quality & Greenhouse Gas Technical Report: Project-generated unmitigated and mitigated emissions in the Technical Report reflect the unmitigated mobile source emissions reported in 2.0 Emissions Summary. No area source mitigation assumed. Unmitigated and mitigated energy source and solid waste emissions reported in the Technical Report as presented in 2.0 Emissions Summary. Water/wastewater and stationary source emissions calculated separately.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	7703333	2681371
tblAreaCoating	Area_Nonresidential_Interior	23110000	5990920
tblConstructionPhase	NumDays	155,000.00	5.00
tblEnergyUse	T24E	352.42	264.31
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	4.43	3.32
tblEnergyUse	T24E	2.38	1.78
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tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.70	0.53
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.49	0.37
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tblEnergyUse	T24E	4.88	3.66
tblEnergyUse	T24NG	14,007.38	10,505.53
tblEnergyUse	T24NG	17.55	13.16

tblEnergyUse	T24NG	5.93	4.45
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tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71
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tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
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tblLandUse	LotAcreage	6.89	22.69
tblLandUse	LotAcreage	0.30	1.18
tblLandUse	LotAcreage	7.92	26.19
tblLandUse	LotAcreage	3.82	10.00
tblLandUse	LotAcreage	4.57	5.00
tblLandUse	LotAcreage	8.03	27.25
tblLandUse	LotAcreage	2.27	20.00

tblLandUse	LotAcreage	1.21	4.09
tblLandUse	LotAcreage	2.41	8.18
tblLandUse	LotAcreage	12.05	40.88
tblLandUse	LotAcreage	1.21	4.09
tblLandUse	LotAcreage	2.41	8.18
tblLandUse	LotAcreage	4.82	16.35
tblLandUse	LotAcreage	0.33	1.87
tblLandUse	LotAcreage	0.37	2.10
tblLandUse	LotAcreage	122.50	196.00
tblLandUse	LotAcreage	1,173.70	925.00
tblLandUse	LotAcreage	0.28	1.59
tblLandUse	LotAcreage	7.83	44.35
tblLandUse	LotAcreage	2.07	11.81
tblLandUse	Population	5,606.00	6,272.00
tblLandUse	Population	10,339.00	11,568.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	499.66
tblProjectCharacteristics	OperationalYear	2014	2025
tblTripsAndVMT	VendorTripNumber	3,121.00	0.00
tblTripsAndVMT	WorkerTripNumber	8,973.00	0.00
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tblVehicleTrips	ST_TR	177.59	60.37
tblVehicleTrips	ST_TR	2.59	2.90
tblVehicleTrips	SU_TR	6.07	4.99
tblVehicleTrips	SU_TR	31.90	1.94
tblVehicleTrips	SU_TR	1.59	1.54
tblVehicleTrips	SU_TR	1,182.08	48.59
tblVehicleTrips	SU_TR	542.72	38.02
tblVehicleTrips	SU_TR	1.50	0.20
tblVehicleTrips	SU_TR	0.68	0.28
tblVehicleTrips	SU_TR	0.98	0.80
tblVehicleTrips	SU_TR	0.25	0.20
tblVehicleTrips	SU_TR	131.84	36.04
tblVehicleTrips	SU_TR	0.73	0.59
tblVehicleTrips	SU_TR	1.21	0.19
tblVehicleTrips	SU_TR	0.62	0.47
tblVehicleTrips	SU_TR	1.55	0.38
tblVehicleTrips	SU_TR	90.06	8.98
tblVehicleTrips	SU_TR	2.59	2.90
tblVehicleTrips	SU_TR	25.24	20.43
tblVehicleTrips	SU_TR	1.11	1.23
tblVehicleTrips	SU_TR	8.77	7.10
tblVehicleTrips	SU_TR	166.44	56.58
tblVehicleTrips	SU_TR	2.59	2.90
tblVehicleTrips	WD_TR	6.59	5.41
tblVehicleTrips	WD_TR	148.15	8.98

tblVehicleTrips	WD_TR	1.59	1.54
tblVehicleTrips	WD_TR	845.60	34.76
tblVehicleTrips	WD_TR	1.29	1.05
tblVehicleTrips	WD_TR	496.12	34.76
tblVehicleTrips	WD_TR	1.50	2.90
tblVehicleTrips	WD_TR	6.97	2.90
tblVehicleTrips	WD_TR	11.01	8.98
tblVehicleTrips	WD_TR	1.71	1.39
tblVehicleTrips	WD_TR	127.15	34.76
tblVehicleTrips	WD_TR	6.96	5.56
tblVehicleTrips	WD_TR	27.49	4.23
tblVehicleTrips	WD_TR	1.62	1.32
tblVehicleTrips	WD_TR	3.82	2.90
tblVehicleTrips	WD_TR	36.13	8.98
tblVehicleTrips	WD_TR	90.06	8.98
tblVehicleTrips	WD_TR	2.59	2.90
tblVehicleTrips	WD_TR	42.94	34.76
tblVehicleTrips	WD_TR	8.11	8.98
tblVehicleTrips	WD_TR	9.57	7.75
tblVehicleTrips	WD_TR	102.24	34.76
tblVehicleTrips	WD_TR	2.59	2.90
tblWater	IndoorWaterUseRate	127,701,890.22	0.00
tblWater	IndoorWaterUseRate	792,458.37	0.00
tblWater	IndoorWaterUseRate	888,870.26	0.00
tblWater	IndoorWaterUseRate	4,819,389.12	0.00
tblWater	IndoorWaterUseRate	4,310,178.72	0.00
tblWater	IndoorWaterUseRate	12,140,625.00	0.00
tblWater	IndoorWaterUseRate	24,281,250.00	0.00
tblWater	IndoorWaterUseRate	173,965,792.54	0.00
tblWater	IndoorWaterUseRate	6,607,440.00	0.00

tblWater	IndoorWaterUseRate	4,856,539.40	0.00
tblWater	IndoorWaterUseRate	121,406,250.00	0.00
tblWater	IndoorWaterUseRate	17,167,161.38	0.00
tblWater	IndoorWaterUseRate	2,036,361.60	0.00
tblWater	IndoorWaterUseRate	12,140,625.00	0.00
tblWater	IndoorWaterUseRate	37,644,161.27	0.00
tblWater	IndoorWaterUseRate	915,817.80	0.00
tblWater	IndoorWaterUseRate	24,281,250.00	0.00
tblWater	IndoorWaterUseRate	25,258,729.83	0.00
tblWater	IndoorWaterUseRate	169,634,411.79	0.00
tblWater	IndoorWaterUseRate	235,531,802.62	0.00
tblWater	IndoorWaterUseRate	11,094,139.34	0.00
tblWater	IndoorWaterUseRate	48,562,500.00	0.00
tblWater	OutdoorWaterUseRate	80,507,713.40	0.00
tblWater	OutdoorWaterUseRate	485,700.29	0.00
tblWater	OutdoorWaterUseRate	75,063,325.03	0.00
tblWater	OutdoorWaterUseRate	544,791.45	0.00
tblWater	OutdoorWaterUseRate	12,392,714.88	0.00
tblWater	OutdoorWaterUseRate	275,117.79	0.00
tblWater	OutdoorWaterUseRate	106,624,195.43	0.00
tblWater	OutdoorWaterUseRate	16,990,560.00	0.00
tblWater	OutdoorWaterUseRate	309,991.88	0.00
tblWater	OutdoorWaterUseRate	26,851,201.13	0.00
tblWater	OutdoorWaterUseRate	5,236,358.40	0.00
tblWater	OutdoorWaterUseRate	7,170,316.43	0.00
tblWater	OutdoorWaterUseRate	561,307.68	0.00
tblWater	OutdoorWaterUseRate	15,481,156.99	0.00
tblWater	OutdoorWaterUseRate	148,487,440.78	0.00
tblWater	OutdoorWaterUseRate	343,117.71	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	590.7855	5.3008	460.6603	0.0244		6.6650	6.6650		6.6217	6.6217	0.0000	65,762.3091	65,762.3091	2.0422	1.1904	66,174.2283
Energy	4.9731	43.4133	24.8017	0.2713		3.4360	3.4360		3.4360	3.4360		54,251.7946	54,251.7946	1.0398	0.9946	54,581.9620
Mobile	457.3623	1,802.7107	5,566.1310	23.1006	1,093.8130	49.3809	1,143.1939	294.2392	45.4717	339.7110		1,861,179.5647	1,861,179.5647	35.1065		1,861,916.8013
Total	**1,053.1209**	**1,851.4247**	**6,051.5931**	**23.3962**	**1,093.8130**	**59.4819**	**1,153.2949**	**294.2392**	**55.5294**	**349.7686**	**0.0000**	**1,981,193.6684**	**1,981,193.6684**	**38.1886**	**2.1851**	**1,982,672.9916**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	590.7855	5.3008	460.6603	0.0244		6.6650	6.6650		6.6217	6.6217	0.0000	65,762.3091	65,762.3091	2.0422	1.1904	66,174.2283
Energy	3.9668	34.6062	19.6180	0.2164		2.7407	2.7407		2.7407	2.7407		43,274.0519	43,274.0519	0.8294	0.7934	43,537.4105
Mobile	444.1781	1,720.3687	5,366.5230	21.8718	1,034.5517	46.7571	1,081.3088	278.2978	43.0558	321.3536		1,762,156.7467	1,762,156.7467	33.3149		1,762,856.3595
Total	**1,038.9305**	**1,760.2756**	**5,846.8013**	**22.1125**	**1,034.5517**	**56.1628**	**1,090.7145**	**278.2978**	**52.4182**	**330.7160**	**0.0000**	**1,871,193.1077**	**1,871,193.1077**	**36.1866**	**1.9838**	**1,872,567.9983**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.35**	**4.92**	**3.38**	**5.49**	**5.42**	**5.58**	**5.43**	**5.42**	**5.60**	**5.45**	**0.00**	**5.55**	**5.55**	**5.24**	**9.21**	**5.55**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

Provide Traffic Calming Measures

Expand Transit Network

Implement Trip Reduction Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	444.1781	1,720.3687	5,366.5230	21.8718	1,034.5517	46.7571	1,081.3088	278.2978	43.0558	321.3536		1,762,156.7467	1,762,156.7467	33.3149		1,762,856.3595
Unmitigated	457.3623	1,802.7107	5,566.1310	23.1006	1,093.8130	49.3809	1,143.1939	294.2392	45.4717	339.7110		1,861,179.5647	1,861,179.5647	35.1065		1,861,916.8013

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	10,603.60	11,544.40	9780.40	60,384,196	57,112,663
Bank (with Drive-Through)	179.60	104.60	38.80	845,867	800,039
City Park	97.02	97.02	97.02	551,625	521,738
Convenience Market with Gas Pumps	417.12	714.48	583.08	2,747,938	2,599,058
Elementary School	2,087.40	0.00	0.00	8,477,349	8,018,058
Fast Food Restaurant with Drive Thru	493.59	718.24	539.88	3,026,471	2,862,501
General Heavy Industry	152.25	28.88	10.50	650,300	615,067
General Light Industry	304.50	57.75	29.40	1,307,422	1,236,588
General Office Building	8,789.62	1,889.08	783.04	37,866,827	35,815,254
High School	2,085.00	750.00	300.00	9,320,454	8,815,485
High Turnover (Sit Down Restaurant)	556.16	692.64	576.64	3,289,637	3,111,409
Industrial Park	2,919.00	1,044.75	309.75	12,954,822	12,252,947

Junior College (2yr)	1,480.50	605.50	66.50	6,558,432	6,203,105
Junior High School	1,108.80	0.00	0.00	4,503,059	4,259,089
Manufacturing	152.25	59.33	24.68	686,546	649,350
Medical Office Building	2,694.00	669.00	114.00	11,576,857	10,949,639
Other Asphalt Surfaces	0.00	0.00	0.00		
Pharmacy/Drugstore w/o Drive Thru	116.74	116.74	116.74	663,746	627,785
Refrigerated Warehouse-No Rail	304.50	304.50	304.50	1,731,290	1,637,491
Regional Shopping Center	11,853.16	13,793.45	6966.63	65,000,221	61,478,598
Research & Development	3,098.10	724.50	424.35	13,515,146	12,782,914
Single Family Housing	28,016.25	29,498.40	25666.50	158,586,733	149,994,722
Supermarket	3,128.40	5,433.30	5092.20	21,254,290	20,102,762
Unrefrigerated Warehouse-No Rail	609.00	609.00	609.00	3,462,579	3,274,981
Total	81,246.57	69,455.55	52,433.61	428,961,804	405,721,245

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Bank (with Drive-Through)	15.62	15.62	15.62	6.60	74.40	19.00	100	0	0
City Park	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Convenience Market with Gas	15.62	15.62	15.62	0.80	80.20	19.00	100	0	0
Elementary School	15.62	15.62	15.62	65.00	30.00	5.00	100	0	0
Fast Food Restaurant with Drive Thru	15.62	15.62	15.62	2.20	78.80	19.00	100	0	0
General Heavy Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Light Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Office Building	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
High School	15.62	15.62	15.62	77.80	17.20	5.00	100	0	0
High Turnover (Sit Down Rest	15.62	15.62	15.62	8.50	72.50	19.00	100	0	0
Industrial Park	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Junior College (2yr)	15.62	15.62	15.62	6.40	88.60	5.00	100	0	0
Junior High School	15.62	15.62	15.62	72.80	22.20	5.00	100	0	0
Manufacturing	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Medical Office Building	15.62	15.62	15.62	29.60	51.40	19.00	100	0	0
Other Asphalt Surfaces	15.62	15.62	15.62	0.00	0.00	0.00	100	0	0
Pharmacy/Drugstore w/o Drive Thru	15.62	15.62	15.62	7.40	73.60	19.00	100	0	0
Refrigerated Warehouse-No Rail	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0
Regional Shopping Center	15.62	15.62	15.62	16.30	64.70	19.00	100	0	0
Research & Development	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Single Family Housing	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0

Supermarket	15.62	15.62	15.62	6.50	74.50	19.00	100	0	0
Unrefrigerated Warehouse-No	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.354417	0.053979	0.135300	0.180782	0.057193	0.010470	0.023391	0.171508	0.001499	0.001851	0.006071	0.001001	0.002538

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	3.9668	34.6062	19.6180	0.2164		2.7407	2.7407		2.7407	2.7407		43,274.0519	43,274.0519	0.8294	0.7934	43,537.4105
NaturalGas Unmitigated	4.9731	43.4133	24.8017	0.2713		3.4360	3.4360		3.4360	3.4360		54,251.7946	54,251.7946	1.0398	0.9946	54,581.9620

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					

City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	148.603	1.6000e-003	0.0146	0.0122	9.0000e-005		1.1100e-003	1.1100e-003		1.1100e-003	1.1100e-003		17.4827	17.4827	3.4000e-004	3.2000e-004	17.5891
Elementary School	3893.26	0.0420	0.3817	0.3206	2.2900e-003		0.0290	0.0290		0.0290	0.0290		458.0306	458.0306	8.7800e-003	8.4000e-003	460.8181
Fast Food Restaurant with Drive Thru	3710.28	0.0400	0.3638	0.3056	2.1800e-003		0.0277	0.0277		0.0277	0.0277		436.5041	436.5041	8.3700e-003	8.0000e-003	439.1606
General Heavy Industry	1910.14	0.0206	0.1873	0.1573	1.1200e-003		0.0142	0.0142		0.0142	0.0142		224.7220	224.7220	4.3100e-003	4.1200e-003	226.0896
General Light Industry	3820.27	0.0412	0.3745	0.3146	2.2500e-003		0.0285	0.0285		0.0285	0.0285		449.4440	449.4440	8.6100e-003	8.2400e-003	452.1792
General Office Building	36979.9	0.3988	3.6255	3.0454	0.0218		0.2755	0.2755		0.2755	0.2755		4,350.5728	4,350.5728	0.0834	0.0798	4,377.0496
High School	4661.31	0.0503	0.4570	0.3839	2.7400e-003		0.0347	0.0347		0.0347	0.0347		548.3891	548.3891	0.0105	0.0101	551.7265
High Turnover (Sit Down Restaurant)	4180.6	0.0451	0.4099	0.3443	2.4600e-003		0.0312	0.0312		0.0312	0.0312		491.8356	491.8356	9.4300e-003	9.0200e-003	494.8289
Industrial Park	19834.9	0.2139	1.9446	1.6335	0.0117		0.1478	0.1478		0.1478	0.1478		2,333.5214	2,333.5214	0.0447	0.0428	2,347.7228
Junior College (2yr)	39545.2	0.4265	3.8770	3.2567	0.0233		0.2947	0.2947		0.2947	0.2947		4,652.3771	4,652.3771	0.0892	0.0853	4,680.6907
Junior High School	2313.23	0.0250	0.2268	0.1905	1.3600e-003		0.0172	0.0172		0.0172	0.0172		272.1444	272.1444	5.2200e-003	4.9900e-003	273.8006
Manufacturing	1910.14	0.0206	0.1873	0.1573	1.1200e-003		0.0142	0.0142		0.0142	0.0142		224.7220	224.7220	4.3100e-003	4.1200e-003	226.0896
Medical Office Building	11334.2	0.1222	1.1112	0.9334	6.6700e-003		0.0845	0.0845		0.0845	0.0845		1,333.4408	1,333.4408	0.0256	0.0245	1,341.5559
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Apartments Low Rise	69827.2	0.7530	6.4351	2.7383	0.0411		0.5203	0.5203		0.5203	0.5203		8,214.9617	8,214.9617	0.1575	0.1506	8,264.9566
Bank (with Drive-Through)	727.671	7.8500e-003	0.0713	0.0599	4.3000e-004		5.4200e-003	5.4200e-003		5.4200e-003	5.4200e-003		85.6084	85.6084	1.6400e-003	1.5700e-003	86.1294
Pharmacy/Drugstore w/o Drive Thru	160.986	1.7400e-003	0.0158	0.0133	9.0000e-005		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003		18.9396	18.9396	3.6000e-004	3.5000e-004	19.0548
Refrigerated Warehouse-No Rail	2091.37	0.0226	0.2050	0.1722	1.2300e-003		0.0156	0.0156		0.0156	0.0156		246.0435	246.0435	4.7200e-003	4.5100e-003	247.5409
Regional Shopping Center	4222.79	0.0455	0.4140	0.3478	2.4800e-003		0.0315	0.0315		0.0315	0.0315		496.7994	496.7994	9.5200e-003	9.1100e-003	499.8228
Research & Development	12552.3	0.1354	1.2306	1.0337	7.3800e-003		0.0935	0.0935		0.0935	0.0935		1,476.7446	1,476.7446	0.0283	0.0271	1,485.7318
Single Family Housing	235582	2.5406	21.7105	9.2385	0.1386		1.7553	1.7553		1.7553	1.7553		27,715.5787	27,715.5787	0.5312	0.5081	27,884.2511
Supermarket	1733.42	0.0187	0.1699	0.1428	1.0200e-003		0.0129	0.0129		0.0129	0.0129		203.9323	203.9323	3.9100e-003	3.7400e-003	205.1734

Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**4.9731**	**43.4133**	**24.8017**	**0.2712**		**3.4360**	**3.4360**		**3.4360**	**3.4360**		**54,251.7946**	**54,251.7946**	**1.0399**	**0.9946**	**54,581.9620**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	0.112027	1.2100e-003	0.0110	9.2300e-003	7.0000e-005		8.3000e-004	8.3000e-004		8.3000e-004	8.3000e-004		13.1797	13.1797	2.5000e-004	2.4000e-004	13.2599
Elementary School	2.97231	0.0321	0.2914	0.2448	1.7500e-003		0.0222	0.0222		0.0222	0.0222		349.6836	349.6836	6.7000e-003	6.4100e-003	351.8117
Fast Food Restaurant with Drive Thru	3.57451	0.0386	0.3504	0.2944	2.1000e-003		0.0266	0.0266		0.0266	0.0266		420.5305	420.5305	8.0600e-003	7.7100e-003	423.0898
General Heavy Industry	1.43692	0.0155	0.1409	0.1183	8.5000e-004		0.0107	0.0107		0.0107	0.0107		169.0492	169.0492	3.2400e-003	3.1000e-003	170.0780
General Light Industry	2.87384	0.0310	0.2818	0.2367	1.6900e-003		0.0214	0.0214		0.0214	0.0214		338.0983	338.0983	6.4800e-003	6.2000e-003	340.1559
General Office Building	28.4589	0.3069	2.7901	2.3437	0.0167		0.2121	0.2121		0.2121	0.2121		3,348.1112	3,348.1112	0.0642	0.0614	3,368.4873
High School	3.55868	0.0384	0.3489	0.2931	2.0900e-003		0.0265	0.0265		0.0265	0.0265		418.6678	418.6678	8.0200e-003	7.6800e-003	421.2157
High Turnover (Sit Down Restaurant)	4.02762	0.0434	0.3949	0.3317	2.3700e-003		0.0300	0.0300		0.0300	0.0300		473.8372	473.8372	9.0800e-003	8.6900e-003	476.7209
Industrial Park	15.2646	0.1646	1.4965	1.2571	8.9800e-003		0.1137	0.1137		0.1137	0.1137		1,795.8300	1,795.8300	0.0344	0.0329	1,806.7591
Junior College (2yr)	29.7404	0.3207	2.9157	2.4492	0.0175		0.2216	0.2216		0.2216	0.2216		3,498.8719	3,498.8719	0.0671	0.0642	3,520.1654
Junior High School	1.76603	0.0191	0.1731	0.1454	1.0400e-003		0.0132	0.0132		0.0132	0.0132		207.7687	207.7687	3.9800e-003	3.8100e-003	209.0332
Manufacturing	1.43692	0.0155	0.1409	0.1183	8.5000e-004		0.0107	0.0107		0.0107	0.0107		169.0492	169.0492	3.2400e-003	3.1000e-003	170.0780
Medical Office Building	8.7226	0.0941	0.8552	0.7183	5.1300e-003		0.0650	0.0650		0.0650	0.0650		1,026.1886	1,026.1886	0.0197	0.0188	1,032.4338
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Apartments Low Rise	55.7239	0.6009	5.1353	2.1853	0.0328		0.4152	0.4152		0.4152	0.4152		6,555.7483	6,555.7483	0.1257	0.1202	6,595.6455
Bank (with Drive-Through)	0.547397	5.9000e-003	0.0537	0.0451	3.2000e-004		4.0800e-003	4.0800e-003		4.0800e-003	4.0800e-003		64.3997	64.3997	1.2300e-003	1.1800e-003	64.7916
Pharmacy/Drugstore w/o Drive Thru	0.121363	1.3100e-003	0.0119	9.9900e-003	7.0000e-005		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004		14.2780	14.2780	2.7000e-004	2.6000e-004	14.3649
Refrigerated Warehouse-No Rail	1.79147	0.0193	0.1756	0.1475	1.0500e-003		0.0134	0.0134		0.0134	0.0134		210.7615	210.7615	4.0400e-003	3.8600e-003	212.0441
Regional Shopping Center	3.18345	0.0343	0.3121	0.2622	1.8700e-003		0.0237	0.0237		0.0237	0.0237		374.5230	374.5230	7.1800e-003	6.8700e-003	376.8023
Research & Development	9.4426	0.1018	0.9258	0.7776	5.5500e-003		0.0704	0.0704		0.0704	0.0704		1,110.8944	1,110.8944	0.0213	0.0204	1,117.6552
Single Family Housing	191.715	2.0675	17.6679	7.5183	0.1128		1.4285	1.4285		1.4285	1.4285		22,554.7424	22,554.7424	0.4323	0.4135	22,692.0068
Supermarket	1.35863	0.0147	0.1332	0.1119	8.0000e-004		0.0101	0.0101		0.0101	0.0101		159.8388	159.8388	3.0600e-003	2.9300e-003	160.8116
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**3.9668**	**34.6062**	**19.6180**	**0.2164**		**2.7407**	**2.7407**		**2.7407**	**2.7407**		**43,274.0519**	**43,274.0519**	**0.8294**	**0.7934**	**43,537.4105**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	590.7855	5.3008	460.6603	0.0244		6.6650	6.6650		6.6217	6.6217	0.0000	65,762.3091	65,762.3091	2.0422	1.1904	66,174.2283
Unmitigated	590.7855	5.3008	460.6603	0.0244		6.6650	6.6650		6.6217	6.6217	0.0000	65,762.3091	65,762.3091	2.0422	1.1904	66,174.2283

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	60.0643					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	510.8965					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	5.9521	2.7000e-004	0.3247	0.0000		4.1124	4.1124		4.0691	4.0691	0.0000	64,932.3529	64,932.3529	1.2445	1.1904	65,327.5204
Landscaping	13.8727	5.3005	460.3357	0.0244		2.5526	2.5526		2.5526	2.5526		829.9562	829.9562	0.7977		846.7079
Total	**590.7855**	**5.3008**	**460.6603**	**0.0244**		**6.6650**	**6.6650**		**6.6217**	**6.6217**	**0.0000**	**65,762.3091**	**65,762.3091**	**2.0422**	**1.1904**	**66,174.2283**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	60.0643					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	510.8965					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	5.9521	2.7000e-004	0.3247	0.0000		4.1124	4.1124		4.0691	4.0691	0.0000	64,932.3529	64,932.3529	1.2445	1.1904	65,327.5204
Landscaping	13.8727	5.3005	460.3357	0.0244		2.5526	2.5526		2.5526	2.5526		829.9562	829.9562	0.7977		846.7079
Total	**590.7855**	**5.3008**	**460.6603**	**0.0244**		**6.6650**	**6.6650**		**6.6217**	**6.6217**	**0.0000**	**65,762.3091**	**65,762.3091**	**2.0422**	**1.1904**	**66,174.2283**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Vegetation

Date: 10/23/2015 12:14 PM

Grapevine Operational Year 2025 - Planning Areas 6A, 2, 1 Buildout

Kern-San Joaquin County, Mitigation Report

Operational Percent Reduction Summary

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Landscaping												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.79	3.79	3.79	3.80	3.79
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	2.95	4.60	3.02	5.31	5.31	5.31	0.00	5.32	5.32	5.10	0.00	5.32
Natural Gas	20.23	20.29	20.90	20.29	20.23	20.23	0.00	20.23	20.23	20.25	20.22	20.23
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting: Suburban Center

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value 3
No	Land Use	Increase Density	0.00	0.00	0.00	
No	Land Use	Increase Diversity	0.30	0.71		

No	Land Use	Improve Walkability Design	0.00	0.00		
No	Land Use	Improve Destination Accessibility	0.00	0.00		
No	Land Use	Increase Transit Accessibility	0.25	0.00		
No	Land Use	Integrate Below Market Rate Housing	0.00	0.00		
	Land Use	Land Use SubTotal	0.00			
Yes	Neighborhood Enhancements	Improve Pedestrian Network	2.00	Project Site and Connecting Off-Site		
Yes	Neighborhood Enhancements	Provide Traffic Calming Measures	1.00	100.00	100.00	
No	Neighborhood Enhancements	Implement NEV Network	0.01			
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.05			
No	Parking Policy Pricing	Limit Parking Supply	0.00	0.00		
No	Parking Policy Pricing	Unbundle Parking Costs	0.00	0.00		
No	Parking Policy Pricing	On-street Market Pricing	0.00	0.00		
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00			
No	Transit Improvements	Provide BRT System	0.00	0.00		
Yes	Transit Improvements	Expand Transit Network	0.00	50.00		
No	Transit Improvements	Increase Transit Frequency	0.00		0.00	
	Transit Improvements	Transit Improvements Subtotal	0.00			
		Land Use and Site Enhancement Subtotal	0.05			
Yes	Commute	Implement Trip Reduction Program		50.00	Voluntary	
No	Commute	Transit Subsidy	0.00	0.00		
No	Commute	Implement Employee Parking "Cash Out"	0.00	0.00		
No	Commute	Workplace Parking Charge	0.00	0.00		
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00	0.00	0.00	0.00
No	Commute	Market Commute Trip Reduction Option	0.00	0.00		

No	Commute	Employee Vanpool/Shuttle	0.00	0.00	2.00	
No	Commute	Provide Ride Sharing Program	0.00	0.00		
	Commute	Commute Subtotal	0.00			
No	School Trip	Implement School Bus Program	0.00	0.00		
		Total VMT Reduction	0.05			

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	150.00
No	Use Low VOC Paint (Residential Exterior)	150.00
No	Use Low VOC Paint (Non-residential Interior)	150.00
No	Use Low VOC Paint (Non-residential Exterior)	150.00
No	% Electric Lawnmower	
No	% Electric Leafblower	
No	% Electric Chainsaw	

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
Yes	Exceed Title 24	25.00	
No	Install High Efficiency Lighting		
No	On-site Renewable		

Appliance Type	Land Use Subtype	% Improvement

ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy	0.00	0.00
No	Use Reclaimed Water	0.00	0.00
No	Use Grey Water	0.00	
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction	0.00	
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape	0.00	0.00

Solid Waste Mitigation

Mitigation Measures	Input Value
Institute Recycling and Composting Services	75.00
Percent Reduction in Waste Disposed	

Grapevine Operational Year 2028 - Planning Areas 6A, 2, 1, 3 Buildout

Kern-San Joaquin County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Bank (with Drive-Through)	28.00	1000sqft	2.45	28,000.00	0
General Office Building	1,486.60	1000sqft	128.27	1,486,600.00	0
Government Office Building	6.00	1000sqft	0.51	6,000.00	0
Medical Office Building	300.00	1000sqft	22.69	300,000.00	0
Pharmacy/Drugstore w/o Drive Thru	21.00	1000sqft	1.85	21,000.00	0
Research & Development	540.00	1000sqft	41.19	540,000.00	0
Elementary School	2,982.00	Student	15.00	249,305.25	0
High School	1,500.00	Student	5.00	198,991.47	0
Junior College (2yr)	350.00	1000sqft	27.25	98,751.81	0
Junior High School	840.00	Student	20.00	350,000.00	0
General Heavy Industry	52.50	1000sqft	4.09	52,500.00	0
General Light Industry	105.00	1000sqft	8.18	525,000.00	0
Industrial Park	525.00	1000sqft	40.88	105,000.00	0
Manufacturing	52.50	1000sqft	4.09	210,000.00	0
Refrigerated Warehouse-No Rail	105.00	1000sqft	8.18	105,000.00	0
Unrefrigerated Warehouse-No Rail	210.00	1000sqft	16.35	52,500.00	0
Other Asphalt Surfaces	281.00	Acre	281.00	12,240,360.00	0
City Park	68.00	Acre	68.00	2,962,080.00	0
Fast Food Restaurant with Drive Thru	22.20	1000sqft	2.89	22,200.00	0
High Turnover (Sit Down Restaurant)	24.00	1000sqft	3.11	24,000.00	0
Apartments Low Rise	2,690.00	Dwelling Unit	269.00	2,690,000.00	8608
Single Family Housing	4,795.00	Dwelling Unit	1,227.00	8,631,000.00	15344
Convenience Market with Gas Pumps	18.00	1000sqft	2.35	18,000.00	0
Regional Shopping Center	894.20	1000sqft	114.30	894,200.00	0
Supermarket	150.00	1000sqft	19.39	150,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	7			**Operational Year**	2025
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	499.66	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Planning Areas 6A, 2, 1, 3. Kern County, San Joaquin Valley Air Basin. Operational Year 2025 was conservatively used for anticipated Operational Year 2028 since CalEEMod does not include year 2028 (options include 2025 and 2030). CO2 Intensity adjusted based on PG&E 33% Renewables by 2020.

Land Use - See 1.1 Land Usage. Population based on 3.2 persons per dwelling unit.

Construction Phase - Construction emissions calculated separately.

Vehicle Trips - Modified trip rates to match Trip Generation and VMT factors provided by Fehr & Peers.

Vehicle Emission Factors - Default CalEEMod values.

Woodstoves - No woodstoves and only gas fireplaces assumed

Area Coating - Default CalEEMod VOC content. Modified non-residential interior and exterior area to be coated based on CalEEMod architectural coating surface area equations and adjusted for parking/asphalt surface and park land uses.

Energy Use - Updated Title 24 electricity and natural gas energy intensity to match 2013 Title 24 standards (25% reduction versus 2008 standards).

Water And Wastewater - Water and wastewater consumption and associated emissions calculated separately.

Construction Off-road Equipment Mitigation - Construction emissions calculated separately.

Mobile Land Use Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Project Setting: Suburban Center. Improve Pedestrian Network: Project Site and Connecting Off-Site. Provide Traffic Calming Measures: 100% Streets with Improvement, 100% Intersections with Improvement. Expand Transit Network: 50%.

Mobile Commute Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Voluntary Commute Trip Reduction Program: 50%

Energy Mitigation - Exceed 2013 Title 24, % Improvement: 25%.

Water Mitigation - Water reductions calculated separately.

Waste Mitigation - Percent Reduction in Waste Disposed: 75%. Waste diversion consistent with Assembly Bill 341 (not mitigation).

Note Regarding Emissions Presented in the Air Quality & Greenhouse Gas Technical Report: Project-generated unmitigated and mitigated emissions in the Technical Report reflect the unmitigated mobile source emissions reported in 2.0 Emissions Summary. No area source mitigation assumed. Unmitigated and mitigated energy source and solid waste emissions reported in the Technical Report as presented in 2.0 Emissions Summary. Water/wastewater and stationary source emissions calculated separately.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	10319764	3360409
tblAreaCoating	Area_Nonresidential_Interior	30959292	7345573
tblConstructionPhase	NumDays	155,000.00	5.00
tblEnergyUse	T24E	352.42	264.31
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	4.43	3.32
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.70	0.53
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	763.80	572.85
tblEnergyUse	T24E	4.88	3.66
tblEnergyUse	T24NG	14,007.38	10,505.53
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	10.78	8.09

tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	54.53	40.90
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	5.56	4.17
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	23,622.31	17,716.73
tblEnergyUse	T24NG	8.10	6.08
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblLandUse	LandUseSquareFeet	350,000.00	98,751.81
tblLandUse	LandUseSquareFeet	98,751.81	350,000.00
tblLandUse	LandUseSquareFeet	105,000.00	525,000.00
tblLandUse	LandUseSquareFeet	525,000.00	105,000.00
tblLandUse	LandUseSquareFeet	52,500.00	210,000.00
tblLandUse	LandUseSquareFeet	210,000.00	52,500.00
tblLandUse	LotAcreage	0.64	2.45
tblLandUse	LotAcreage	34.13	128.27
tblLandUse	LotAcreage	0.14	0.51
tblLandUse	LotAcreage	6.89	22.69

tblLandUse	LotAcreage	0.48	1.85
tblLandUse	LotAcreage	12.40	41.19
tblLandUse	LotAcreage	5.72	15.00
tblLandUse	LotAcreage	4.57	5.00
tblLandUse	LotAcreage	8.03	27.25
tblLandUse	LotAcreage	2.27	20.00
tblLandUse	LotAcreage	1.21	4.09
tblLandUse	LotAcreage	2.41	8.18
tblLandUse	LotAcreage	12.05	40.88
tblLandUse	LotAcreage	1.21	4.09
tblLandUse	LotAcreage	2.41	8.18
tblLandUse	LotAcreage	4.82	16.35
tblLandUse	LotAcreage	0.51	2.89
tblLandUse	LotAcreage	0.55	3.11
tblLandUse	LotAcreage	168.13	269.00
tblLandUse	LotAcreage	1,556.82	1,227.00
tblLandUse	LotAcreage	0.41	2.35
tblLandUse	LotAcreage	20.53	114.30
tblLandUse	LotAcreage	3.44	19.39
tblLandUse	Population	7,693.00	8,608.00
tblLandUse	Population	13,714.00	15,344.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	499.66
tblProjectCharacteristics	OperationalYear	2014	2025
tblTripsAndVMT	VendorTripNumber	4,183.00	0.00
tblTripsAndVMT	WorkerTripNumber	11,987.00	0.00

tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
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tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
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tblVehicleTrips	CNW_TL	7.30	15.62
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tblVehicleTrips	DV_TP	15.00	0.00

tblVehicleTrips	DV_TP	11.00	0.00
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tblVehicleTrips	PB_TP	3.00	0.00
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tblVehicleTrips	PB_TP	65.00	0.00
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tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	11.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00

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tblVehicleTrips	PR_TP	92.00	100.00
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tblVehicleTrips	PR_TP	92.00	100.00
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tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	34.00	100.00
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tblVehicleTrips	ST_TR	7.16	5.89
tblVehicleTrips	ST_TR	86.32	5.23

tblVehicleTrips	ST_TR	1.59	1.54
tblVehicleTrips	ST_TR	1,448.33	59.54
tblVehicleTrips	ST_TR	722.03	50.58
tblVehicleTrips	ST_TR	1.50	0.55
tblVehicleTrips	ST_TR	1.32	0.55
tblVehicleTrips	ST_TR	2.37	1.93
tblVehicleTrips	ST_TR	0.61	0.50
tblVehicleTrips	ST_TR	158.37	43.29
tblVehicleTrips	ST_TR	2.49	1.99
tblVehicleTrips	ST_TR	11.23	1.73
tblVehicleTrips	ST_TR	1.49	1.13
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tblVehicleTrips	ST_TR	90.06	8.98
tblVehicleTrips	ST_TR	2.59	2.90
tblVehicleTrips	ST_TR	49.97	40.45
tblVehicleTrips	ST_TR	1.90	2.10
tblVehicleTrips	ST_TR	10.08	8.16
tblVehicleTrips	ST_TR	177.59	60.37
tblVehicleTrips	ST_TR	2.59	2.90
tblVehicleTrips	SU_TR	6.07	4.99
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tblVehicleTrips	SU_TR	1.59	1.54
tblVehicleTrips	SU_TR	1,182.08	48.59
tblVehicleTrips	SU_TR	542.72	38.02
tblVehicleTrips	SU_TR	1.50	0.20
tblVehicleTrips	SU_TR	0.68	0.28
tblVehicleTrips	SU_TR	0.98	0.80
tblVehicleTrips	SU_TR	0.25	0.20
tblVehicleTrips	SU_TR	131.84	36.04
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tblVehicleTrips	SU_TR	1.21	0.19
tblVehicleTrips	SU_TR	0.62	0.47
tblVehicleTrips	SU_TR	1.55	0.38
tblVehicleTrips	SU_TR	90.06	8.98
tblVehicleTrips	SU_TR	2.59	2.90
tblVehicleTrips	SU_TR	25.24	20.43
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tblVehicleTrips	SU_TR	166.44	56.58
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tblVehicleTrips	WD_TR	6.59	5.41
tblVehicleTrips	WD_TR	148.15	8.98
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tblVehicleTrips	WD_TR	845.60	34.76
tblVehicleTrips	WD_TR	1.29	1.05
tblVehicleTrips	WD_TR	496.12	34.76
tblVehicleTrips	WD_TR	1.50	2.90
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tblVehicleTrips	WD_TR	3.82	2.90
tblVehicleTrips	WD_TR	36.13	8.98
tblVehicleTrips	WD_TR	90.06	8.98
tblVehicleTrips	WD_TR	2.59	2.90
tblVehicleTrips	WD_TR	42.94	34.76

tblVehicleTrips	WD_TR	8.11	8.98
tblVehicleTrips	WD_TR	9.57	7.75
tblVehicleTrips	WD_TR	102.24	34.76
tblVehicleTrips	WD_TR	2.59	2.90
tblWater	IndoorWaterUseRate	175,264,328.92	0.00
tblWater	IndoorWaterUseRate	1,109,441.72	0.00
tblWater	IndoorWaterUseRate	1,333,305.39	0.00
tblWater	IndoorWaterUseRate	7,229,083.68	0.00
tblWater	IndoorWaterUseRate	6,738,448.42	0.00
tblWater	IndoorWaterUseRate	12,140,625.00	0.00
tblWater	IndoorWaterUseRate	24,281,250.00	0.00
tblWater	IndoorWaterUseRate	264,218,989.77	0.00
tblWater	IndoorWaterUseRate	1,191,958.12	0.00
tblWater	IndoorWaterUseRate	6,607,440.00	0.00
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tblWater	IndoorWaterUseRate	121,406,250.00	0.00
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tblWater	IndoorWaterUseRate	37,644,161.27	0.00
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tblWater	IndoorWaterUseRate	66,235,648.71	0.00
tblWater	IndoorWaterUseRate	265,514,731.49	0.00
tblWater	IndoorWaterUseRate	312,413,552.85	0.00
tblWater	IndoorWaterUseRate	18,490,232.23	0.00
tblWater	IndoorWaterUseRate	48,562,500.00	0.00
tblWater	OutdoorWaterUseRate	110,492,729.10	0.00
tblWater	OutdoorWaterUseRate	679,980.41	0.00
tblWater	OutdoorWaterUseRate	81,020,731.78	0.00

tblWater	OutdoorWaterUseRate	817,187.17	0.00
tblWater	OutdoorWaterUseRate	18,589,072.32	0.00
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tblWater	OutdoorWaterUseRate	161,940,671.15	0.00
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tblWater	OutdoorWaterUseRate	16,990,560.00	0.00
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tblWater	OutdoorWaterUseRate	26,851,201.13	0.00
tblWater	OutdoorWaterUseRate	5,236,358.40	0.00
tblWater	OutdoorWaterUseRate	7,170,316.43	0.00
tblWater	OutdoorWaterUseRate	906,727.80	0.00
tblWater	OutdoorWaterUseRate	40,596,042.76	0.00
tblWater	OutdoorWaterUseRate	196,956,370.28	0.00
tblWater	OutdoorWaterUseRate	571,862.85	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	141.1728	0.6405	55.6390	2.9400e-003		0.5348	0.5348		0.5324	0.5324	0.0000	3,333.5301	3,333.5301	0.1496	0.0595	3,355.0997
Energy	1.1569	10.0785	5.6197	0.0631		0.7993	0.7993		0.7993	0.7993	0.0000	33,118.6159	33,118.6159	1.4771	0.4701	33,295.3698
Mobile	104.1478	451.3426	1,360.6839	5.2337	256.1542	11.7789	267.9331	69.0189	10.8465	79.8654	0.0000	385,548.2275	385,548.2275	7.6010	0.0000	385,707.8487
Waste						0.0000	0.0000		0.0000	0.0000	3,377.4672	0.0000	3,377.4672	199.6026	0.0000	7,569.1216
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**246.4774**	**462.0616**	**1,421.9425**	**5.2997**	**256.1542**	**13.1130**	**269.2672**	**69.0189**	**12.1782**	**81.1971**	**3,377.4672**	**422,000.3735**	**425,377.8407**	**208.8303**	**0.5296**	**429,927.4399**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	141.1728	0.6405	55.6390	2.9400e-003		0.5348	0.5348		0.5324	0.5324	0.0000	3,333.5301	3,333.5301	0.1496	0.0595	3,355.0997
Energy	0.9252	8.0562	4.4615	0.0505		0.6393	0.6393		0.6393	0.6393	0.0000	30,011.7960	30,011.7960	1.3859	0.4183	30,170.5747
Mobile	101.0787	430.6005	1,319.6532	4.9555	242.2761	11.1537	253.4298	65.2796	10.2708	75.5504	0.0000	365,037.4217	365,037.4217	7.2137	0.0000	365,188.9103
Waste						0.0000	0.0000		0.0000	0.0000	844.3668	0.0000	844.3668	49.9007	0.0000	1,892.2804
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**243.1767**	**439.2971**	**1,379.7536**	**5.0089**	**242.2761**	**12.3278**	**254.6039**	**65.2796**	**11.4425**	**76.7220**	**844.3668**	**398,382.7478**	**399,227.1146**	**58.6499**	**0.4778**	**400,606.8651**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.34**	**4.93**	**2.97**	**5.49**	**5.42**	**5.99**	**5.45**	**5.42**	**6.04**	**5.51**	**75.00**	**5.60**	**6.15**	**71.92**	**9.78**	**6.82**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

Provide Traffic Calming Measures

Expand Transit Network

Implement Trip Reduction Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	101.0787	430.6005	1,319.6532	4.9555	242.2761	11.1537	253.4298	65.2796	10.2708	75.5504	0.0000	365,037.4217	365,037.4217	7.2137	0.0000	365,188.9103
Unmitigated	104.1478	451.3426	1,360.6839	5.2337	256.1542	11.7789	267.9331	69.0189	10.8465	79.8654	0.0000	385,548.2275	385,548.2275	7.6010	0.0000	385,707.8487

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	14,552.90	15,844.10	13423.10	82,874,228	78,384,216
Bank (with Drive-Through)	251.44	146.44	54.32	1,184,213	1,120,054
City Park	104.72	104.72	104.72	595,404	563,146
Convenience Market with Gas Pumps	625.68	1,071.72	874.62	4,121,907	3,898,588
Elementary School	3,131.10	0.00	0.00	12,716,023	12,027,087
Fast Food Restaurant with Drive Thru	771.67	1,122.88	844.04	4,731,525	4,475,178
General Heavy Industry	152.25	28.88	10.50	650,300	615,067
General Light Industry	304.50	57.75	29.40	1,307,422	1,236,588
General Office Building	13,349.67	2,869.14	1189.28	57,512,081	54,396,156
Government Office Building	53.88	0.00	0.00	218,817	206,962
High School	2,085.00	750.00	300.00	9,320,454	8,815,485
High Turnover (Sit Down Restaurant)	834.24	1,038.96	864.96	4,934,455	4,667,113
Industrial Park	2,919.00	1,044.75	309.75	12,954,822	12,252,947
Junior College (2yr)	1,480.50	605.50	66.50	6,558,432	6,203,105
Junior High School	1,108.80	0.00	0.00	4,503,059	4,259,089
Manufacturing	152.25	59.33	24.68	686,546	649,350
Medical Office Building	2,694.00	669.00	114.00	11,576,857	10,949,639

Other Asphalt Surfaces	0.00	0.00	0.00		
Pharmacy/Drugstore w/o Drive Thru	188.58	188.58	188.58	1,072,206	1,014,115
Refrigerated Warehouse-No Rail	304.50	304.50	304.50	1,731,290	1,637,491
Regional Shopping Center	31,082.39	36,170.39	18268.51	170,449,259	161,214,553
Research & Development	4,849.20	1,134.00	664.20	21,154,141	20,008,039
Single Family Housing	37,161.25	39,127.20	34044.50	210,352,250	198,955,655
Supermarket	5,214.00	9,055.50	8487.00	35,423,817	33,504,603
Unrefrigerated Warehouse-No Rail	609.00	609.00	609.00	3,462,579	3,274,981
Total	123,980.52	112,002.32	80,776.16	660,092,088	624,329,208

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Bank (with Drive-Through)	15.62	15.62	15.62	6.60	74.40	19.00	100	0	0
City Park	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Convenience Market with Gas	15.62	15.62	15.62	0.80	80.20	19.00	100	0	0
Elementary School	15.62	15.62	15.62	65.00	30.00	5.00	100	0	0
Fast Food Restaurant with Drive Thru	15.62	15.62	15.62	2.20	78.80	19.00	100	0	0
General Heavy Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Light Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Office Building	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Government Office Building	15.62	15.62	15.62	33.00	62.00	5.00	100	0	0
High School	15.62	15.62	15.62	77.80	17.20	5.00	100	0	0
High Turnover (Sit Down Restaurant)	15.62	15.62	15.62	8.50	72.50	19.00	100	0	0
Industrial Park	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Junior College (2yr)	15.62	15.62	15.62	6.40	88.60	5.00	100	0	0
Junior High School	15.62	15.62	15.62	72.80	22.20	5.00	100	0	0
Manufacturing	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Medical Office Building	15.62	15.62	15.62	29.60	51.40	19.00	100	0	0
Other Asphalt Surfaces	15.62	15.62	15.62	0.00	0.00	0.00	100	0	0
Pharmacy/Drugstore w/o Drive Thru	15.62	15.62	15.62	7.40	73.60	19.00	100	0	0
Refrigerated Warehouse-No Rail	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0
Regional Shopping Center	15.62	15.62	15.62	16.30	64.70	19.00	100	0	0
Research & Development	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Single Family Housing	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Supermarket	15.62	15.62	15.62	6.50	74.50	19.00	100	0	0
Unrefrigerated Warehouse-No Rail	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.354417	0.053979	0.135300	0.180782	0.057193	0.010470	0.023391	0.171508	0.001499	0.001851	0.006071	0.001001	0.002538

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	20,855.0700	20,855.0700	1.2104	0.2504	20,958.1224
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	21,669.7384	21,669.7384	1.2577	0.2602	21,776.8164
NaturalGas Mitigated	0.9252	8.0562	4.4615	0.0505		0.6393	0.6393		0.6393	0.6393	0.0000	9,156.7261	9,156.7261	0.1755	0.1679	9,212.4524
NaturalGas Unmitigated	1.1569	10.0785	5.6197	0.0631		0.7993	0.7993		0.7993	0.7993	0.0000	11,448.8775	11,448.8775	0.2194	0.2099	11,518.5535

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					

Bank (with Drive-Through)	371840	2.0100e-003	0.0182	0.0153	1.1000e-004		1.3900e-003	1.3900e-003		1.3900e-003	1.3900e-003	0.0000	19.8428	19.8428	3.8000e-004	3.6000e-004	19.9636
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	81360	4.4000e-004	3.9900e-003	3.3500e-003	2.0000e-005		3.0000e-004	3.0000e-004		3.0000e-004	3.0000e-004	0.0000	4.3417	4.3417	8.0000e-005	8.0000e-005	4.3681
Elementary School	2.13156e+006	0.0115	0.1045	0.0878	6.3000e-004		7.9400e-003	7.9400e-003		7.9400e-003	7.9400e-003	0.0000	113.7482	113.7482	2.1800e-003	2.0900e-003	114.4404
Fast Food Restaurant with Drive Thru	2.11721e+006	0.0114	0.1038	0.0872	6.2000e-004		7.8900e-003	7.8900e-003		7.8900e-003	7.8900e-003	0.0000	112.9826	112.9826	2.1700e-003	2.0700e-003	113.6702
General Heavy Industry	697200	3.7600e-003	0.0342	0.0287	2.1000e-004		2.6000e-003	2.6000e-003		2.6000e-003	2.6000e-003	0.0000	37.2053	37.2053	7.1000e-004	6.8000e-004	37.4317
General Light Industry	6.972e+006	0.0376	0.3418	0.2871	2.0500e-003		0.0260	0.0260		0.0260	0.0260	0.0000	372.0525	372.0525	7.1300e-003	6.8200e-003	374.3167
General Office Building	2.05002e+007	0.1105	1.0049	0.8441	6.0300e-003		0.0764	0.0764		0.0764	0.0764	0.0000	1,093.9695	1,093.9695	0.0210	0.0201	1,100.6272
Government Office Building	82740	4.5000e-004	4.0600e-003	3.4100e-003	2.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	4.4153	4.4153	8.0000e-005	8.0000e-005	4.4422
High School	1.70138e+006	9.1700e-003	0.0834	0.0701	5.0000e-004		6.3400e-003	6.3400e-003		6.3400e-003	6.3400e-003	0.0000	90.7920	90.7920	1.7400e-003	1.6600e-003	91.3445
High Turnover (Sit Down Restaurant)	2.28888e+006	0.0123	0.1122	0.0943	6.7000e-004		8.5300e-003	8.5300e-003		8.5300e-003	8.5300e-003	0.0000	122.1434	122.1434	2.3400e-003	2.2400e-003	122.8867
Industrial Park	1.44795e+006	7.8100e-003	0.0710	0.0596	4.3000e-004		5.3900e-003	5.3900e-003		5.3900e-003	5.3900e-003	0.0000	77.2681	77.2681	1.4800e-003	1.4200e-003	77.7384
Junior College (2yr)	4.07252e+006	0.0220	0.1996	0.1677	1.2000e-003		0.0152	0.0152		0.0152	0.0152	0.0000	217.3254	217.3254	4.1700e-003	3.9800e-003	218.6480
Junior High School	2.9925e+006	0.0161	0.1467	0.1232	8.8000e-004		0.0112	0.0112		0.0112	0.0112	0.0000	159.6912	159.6912	3.0600e-003	2.9300e-003	160.6631
Manufacturing	2.7888e+006	0.0150	0.1367	0.1148	8.2000e-004		0.0104	0.0104		0.0104	0.0104	0.0000	148.8210	148.8210	2.8500e-003	2.7300e-003	149.7267
Apartments Low Rise	3.49795e+007	0.1886	1.6118	0.6859	0.0103		0.1303	0.1303		0.1303	0.1303	0.0000	1,866.6391	1,866.6391	0.0358	0.0342	1,877.9992
Medical Office Building	4.137e+006	0.0223	0.2028	0.1704	1.2200e-003		0.0154	0.0154		0.0154	0.0154	0.0000	220.7661	220.7661	4.2300e-003	4.0500e-003	222.1096
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	94920	5.1000e-004	4.6500e-003	3.9100e-003	3.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	5.0653	5.0653	1.0000e-004	9.0000e-005	5.0961
Refrigerated Warehouse-No Rail	763350	4.1200e-003	0.0374	0.0314	2.2000e-004		2.8400e-003	2.8400e-003		2.8400e-003	2.8400e-003	0.0000	40.7353	40.7353	7.8000e-004	7.5000e-004	40.9832
Regional Shopping Center	4.04178e+006	0.0218	0.1981	0.1664	1.1900e-003		0.0151	0.0151		0.0151	0.0151	0.0000	215.6850	215.6850	4.1300e-003	3.9500e-003	216.9976
Research & Development	7.1712e+006	0.0387	0.3515	0.2953	2.1100e-003		0.0267	0.0267		0.0267	0.0267	0.0000	382.6825	382.6825	7.3300e-003	7.0200e-003	385.0115
Single Family Housing	1.14055e+008	0.6150	5.2555	2.2364	0.0336		0.4249	0.4249		0.4249	0.4249	0.0000	6,086.4333	6,086.4333	0.1167	0.1116	6,123.4743

Supermarket	1.0545e+006	5.6900e-003	0.0517	0.0434	3.1000e-004		3.9300e-003	3.9300e-003		3.9300e-003	3.9300e-003	0.0000	56.2721	56.2721	1.0800e-003	1.0300e-003	56.6146
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.1569**	**10.0785**	**5.6197**	**0.0631**		**0.7993**	**0.7993**		**0.7993**	**0.7993**	**0.0000**	**11,448.8775**	**11,448.8775**	**0.2194**	**0.2099**	**11,518.5535**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	61335	3.3000e-004	3.0100e-003	2.5300e-003	2.0000e-005		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004	0.0000	3.2731	3.2731	6.0000e-005	6.0000e-005	3.2930
Elementary School	1.62734e+006	8.7700e-003	0.0798	0.0670	4.8000e-004		6.0600e-003	6.0600e-003		6.0600e-003	6.0600e-003	0.0000	86.8411	86.8411	1.6600e-003	1.5900e-003	87.3696
Fast Food Restaurant with Drive Thru	2.03974e+006	0.0110	0.1000	0.0840	6.0000e-004		7.6000e-003	7.6000e-003		7.6000e-003	7.6000e-003	0.0000	108.8481	108.8481	2.0900e-003	2.0000e-003	109.5105
General Heavy Industry	524475	2.8300e-003	0.0257	0.0216	1.5000e-004		1.9500e-003	1.9500e-003		1.9500e-003	1.9500e-003	0.0000	27.9880	27.9880	5.4000e-004	5.1000e-004	28.1583
General Light Industry	5.24475e+006	0.0283	0.2571	0.2160	1.5400e-003		0.0195	0.0195		0.0195	0.0195	0.0000	279.8798	279.8798	5.3600e-003	5.1300e-003	281.5831
General Office Building	1.57765e+007	0.0851	0.7734	0.6496	4.6400e-003		0.0588	0.0588		0.0588	0.0588	0.0000	841.8964	841.8964	0.0161	0.0154	847.0200
Government Office Building	63675	3.4000e-004	3.1200e-003	2.6200e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	3.3979	3.3979	7.0000e-005	6.0000e-005	3.4186
High School	1.29892e+006	7.0000e-003	0.0637	0.0535	3.8000e-004		4.8400e-003	4.8400e-003		4.8400e-003	4.8400e-003	0.0000	69.3152	69.3152	1.3300e-003	1.2700e-003	69.7370
High Turnover (Sit Down Restaurant)	2.20512e+006	0.0119	0.1081	0.0908	6.5000e-004		8.2200e-003	8.2200e-003		8.2200e-003	8.2200e-003	0.0000	117.6736	117.6736	2.2600e-003	2.1600e-003	118.3897
Industrial Park	1.11431e+006	6.0100e-003	0.0546	0.0459	3.3000e-004		4.1500e-003	4.1500e-003		4.1500e-003	4.1500e-003	0.0000	59.4640	59.4640	1.1400e-003	1.0900e-003	59.8259
Junior College (2yr)	3.06279e+006	0.0165	0.1501	0.1261	9.0000e-004		0.0114	0.0114		0.0114	0.0114	0.0000	163.4420	163.4420	3.1300e-003	3.0000e-003	164.4367
Junior High School	2.28463e+006	0.0123	0.1120	0.0941	6.7000e-004		8.5100e-003	8.5100e-003		8.5100e-003	8.5100e-003	0.0000	121.9163	121.9163	2.3400e-003	2.2400e-003	122.6583
Manufacturing	2.0979e+006	0.0113	0.1028	0.0864	6.2000e-004		7.8200e-003	7.8200e-003		7.8200e-003	7.8200e-003	0.0000	111.9519	111.9519	2.1500e-003	2.0500e-003	112.6333

Medical Office Building	3.18375e+006	0.0172	0.1561	0.1311	9.4000e-004		0.0119	0.0119		0.0119	0.0119	0.0000	169.8970	169.8970	3.2600e-003	3.1100e-003	170.9310
Apartments Low Rise	2.79145e+007	0.1505	1.2863	0.5473	8.2100e-003		0.1040	0.1040		0.1040	0.1040	0.0000	1,489.6255	1,489.6255	0.0286	0.0273	1,498.6911
Bank (with Drive-Through)	279720	1.5100e-003	0.0137	0.0115	8.0000e-005		1.0400e-003	1.0400e-003		1.0400e-003	1.0400e-003	0.0000	14.9269	14.9269	2.9000e-004	2.7000e-004	15.0178
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	71557.5	3.9000e-004	3.5100e-003	2.9500e-003	2.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004	0.0000	3.8186	3.8186	7.0000e-005	7.0000e-005	3.8418
Refrigerated Warehouse-No Rail	653888	3.5300e-003	0.0321	0.0269	1.9000e-004		2.4400e-003	2.4400e-003		2.4400e-003	2.4400e-003	0.0000	34.8939	34.8939	6.7000e-004	6.4000e-004	35.1063
Regional Shopping Center	3.04699e+006	0.0164	0.1494	0.1255	9.0000e-004		0.0114	0.0114		0.0114	0.0114	0.0000	162.5988	162.5988	3.1200e-003	2.9800e-003	163.5884
Research & Development	5.3946e+006	0.0291	0.2644	0.2221	1.5900e-003		0.0201	0.0201		0.0201	0.0201	0.0000	287.8764	287.8764	5.5200e-003	5.2800e-003	289.6284
Single Family Housing	9.28175e+007	0.5005	4.2769	1.8200	0.0273		0.3458	0.3458		0.3458	0.3458	0.0000	4,953.0965	4,953.0965	0.0949	0.0908	4,983.2402
Supermarket	826500	4.4600e-003	0.0405	0.0340	2.4000e-004		3.0800e-003	3.0800e-003		3.0800e-003	3.0800e-003	0.0000	44.1052	44.1052	8.5000e-004	8.1000e-004	44.3736
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.9253**	**8.0562**	**4.4615**	**0.0505**		**0.6393**	**0.6393**		**0.6393**	**0.6393**	**0.0000**	**9,156.7260**	**9,156.7260**	**0.1755**	**0.1679**	**9,212.4524**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	9.96793e+006	2,259.1511	0.1311	0.0271	2,270.3144
Bank (with Drive-Through)	70560	15.9919	9.3000e-004	1.9000e-004	16.0709
City Park	0	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	189180	42.8761	2.4900e-003	5.1000e-004	43.0880
Elementary School	1.90719e+006	432.2482	0.0251	5.1900e-003	434.3841

Fast Food Restaurant with Drive Thru	743478	168.5033	9.7800e-003	2.0200e-003	169.3360
General Heavy Industry	132300	29.9847	1.7400e-003	3.6000e-004	30.1329
General Light Industry	1.323e+006	299.8473	0.0174	3.6000e-003	301.3290
General Office Building	1.52228e+007	3,450.1217	0.2002	0.0414	3,467.1700
Government Office Building	61440	13.9249	8.1000e-004	1.7000e-004	13.9937
High School	1.52228e+006	345.0136	0.0200	4.1400e-003	346.7184
High Turnover (Sit Down Restaurant)	803760	182.1657	0.0106	2.1900e-003	183.0659
Industrial Park	1.0752e+006	243.6854	0.0141	2.9300e-003	244.8896
Junior College (2yr)	1.61262e+006	365.4867	0.0212	4.3900e-003	367.2927
Junior High School	2.6775e+006	606.8339	0.0352	7.2900e-003	609.8324
Manufacturing	529200	119.9389	6.9600e-003	1.4400e-003	120.5316
Medical Office Building	3.072e+006	696.2441	0.0404	8.3600e-003	699.6845
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	220710	50.0222	2.9000e-003	6.0000e-004	50.2693
Refrigerated Warehouse-No Rail	3.06915e+006	695.5982	0.0404	8.3500e-003	699.0354
Regional Shopping Center	9.39804e+006	2,129.9907	0.1236	0.0256	2,140.5157
Research & Development	1.3608e+006	308.4144	0.0179	3.7000e-003	309.9384
Single Family Housing	3.49126e+007	7,912.6572	0.4593	0.0950	7,951.7565
Supermarket	5.7405e+006	1,301.0382	0.0755	0.0156	1,307.4671
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**21,669.7384**	**1.2577**	**0.2602**	**21,776.8164**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	9.79018e+006	2,218.8659	0.1288	0.0266	2,229.8301
Bank (with Drive-Through)	67970	15.4049	8.9000e-004	1.8000e-004	15.4810
City Park	0	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	176130	39.9185	2.3200e-003	4.8000e-004	40.1157
Elementary School	1.79624e+006	407.1043	0.0236	4.8900e-003	409.1160
Fast Food Restaurant with Drive Thru	703796	159.5096	9.2600e-003	1.9200e-003	160.2978
General Heavy Industry	127444	28.8841	1.6800e-003	3.5000e-004	29.0268
General Light Industry	1.27444e+006	288.8410	0.0168	3.4700e-003	290.2683
General Office Building	1.42379e+007	3,226.9082	0.1873	0.0388	3,242.8535
Government Office Building	57465	13.0240	7.6000e-004	1.6000e-004	13.0883
High School	1.43373e+006	324.9442	0.0189	3.9000e-003	326.5499
High Turnover (Sit Down Restaurant)	760860	172.4428	0.0100	2.0700e-003	173.2949
Industrial Park	1.00564e+006	227.9197	0.0132	2.7400e-003	229.0459
Junior College (2yr)	1.53065e+006	346.9102	0.0201	4.1700e-003	348.6244
Junior High School	2.52175e+006	571.5344	0.0332	6.8600e-003	574.3585
Manufacturing	509775	115.5364	6.7100e-003	1.3900e-003	116.1073
Medical Office Building	2.87325e+006	651.1990	0.0378	7.8200e-003	654.4168
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	205485	46.5715	2.7000e-003	5.6000e-004	46.8017

Refrigerated Warehouse-No Rail	3.05524e+006	692.4450	0.0402	8.3100e-003	695.8667
Regional Shopping Center	8.74975e+006	1,983.0598	0.1151	0.0238	1,992.8589
Research & Development	1.31085e+006	297.0936	0.0172	3.5700e-003	298.5617
Single Family Housing	3.42259e+007	7,757.0213	0.4502	0.0932	7,795.3515
Supermarket	5.60325e+006	1,269.9316	0.0737	0.0153	1,276.2068
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**20,855.0700**	**1.2104**	**0.2504**	**20,958.1224**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	141.1728	0.6405	55.6390	2.9400e-003		0.5348	0.5348		0.5324	0.5324	0.0000	3,333.5301	3,333.5301	0.1496	0.0595	3,355.0997
Unmitigated	141.1728	0.6405	55.6390	2.9400e-003		0.5348	0.5348		0.5324	0.5324	0.0000	3,333.5301	3,333.5301	0.1496	0.0595	3,355.0997

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					

Architectural Coating	14.3474					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	124.8217					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.3276	1.0000e-005	0.0179	0.0000		0.2264	0.2264		0.2240	0.2240	0.0000	3,242.5574	3,242.5574	0.0622	0.0595	3,262.2910
Landscaping	1.6760	0.6405	55.6211	2.9400e-003		0.3084	0.3084		0.3084	0.3084	0.0000	90.9727	90.9727	0.0874	0.0000	92.8087
Total	**141.1728**	**0.6405**	**55.6390**	**2.9400e-003**		**0.5348**	**0.5348**		**0.5324**	**0.5324**	**0.0000**	**3,333.5301**	**3,333.5301**	**0.1496**	**0.0595**	**3,355.0997**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	14.3474					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	124.8217					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.3276	1.0000e-005	0.0179	0.0000		0.2264	0.2264		0.2240	0.2240	0.0000	3,242.5574	3,242.5574	0.0622	0.0595	3,262.2910
Landscaping	1.6760	0.6405	55.6211	2.9400e-003		0.3084	0.3084		0.3084	0.3084	0.0000	90.9727	90.9727	0.0874	0.0000	92.8087
Total	**141.1728**	**0.6405**	**55.6390**	**2.9400e-003**		**0.5348**	**0.5348**		**0.5324**	**0.5324**	**0.0000**	**3,333.5301**	**3,333.5301**	**0.1496**	**0.0595**	**3,355.0997**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			

Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	0 / 0	0.0000	0.0000	0.0000	0.0000
Bank (with Drive-Through)	0 / 0	0.0000	0.0000	0.0000	0.0000
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	0 / 0	0.0000	0.0000	0.0000	0.0000
Elementary School	0 / 0	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant with Drive-Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
General Heavy Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Government Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
High School	0 / 0	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	0 / 0	0.0000	0.0000	0.0000	0.0000
Industrial Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Junior College (2yr)	0 / 0	0.0000	0.0000	0.0000	0.0000

Junior High School	0 / 0	0.0000	0.0000	0.0000	0.0000
Manufacturing	0 / 0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0 / 0	0.0000	0.0000	0.0000	0.0000
Research & Development	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Supermarket	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	0 / 0	0.0000	0.0000	0.0000	0.0000
Bank (with Drive-Through)	0 / 0	0.0000	0.0000	0.0000	0.0000
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	0 / 0	0.0000	0.0000	0.0000	0.0000
Elementary School	0 / 0	0.0000	0.0000	0.0000	0.0000

Fast Food Restaurant with Drive Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
General Heavy Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Government Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
High School	0 / 0	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	0 / 0	0.0000	0.0000	0.0000	0.0000
Industrial Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Junior College (2yr)	0 / 0	0.0000	0.0000	0.0000	0.0000
Junior High School	0 / 0	0.0000	0.0000	0.0000	0.0000
Manufacturing	0 / 0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0 / 0	0.0000	0.0000	0.0000	0.0000
Research & Development	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Supermarket	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Unmitigated	3,377.4672	199.6026	0.0000	7,569.1216
Mitigated	844.3668	49.9007	0.0000	1,892.2804

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	1237.4	251.1810	14.8444	0.0000	562.9129
Bank (with Drive-Through)	26.12	5.3021	0.3134	0.0000	11.8824
City Park	5.85	1.1875	0.0702	0.0000	2.6613
Convenience Market with Gas Pumps	54.09	10.9798	0.6489	0.0000	24.6064
Elementary School	544.22	110.4717	6.5287	0.0000	247.5743
Fast Food Restaurant with Drive-Thru	255.72	51.9089	3.0677	0.0000	116.3311
General Heavy Industry	65.1	13.2147	0.7810	0.0000	29.6150

General Light Industry	130.2	26.4294	1.5619	0.0000	59.2300
General Office Building	1382.54	280.6431	16.5855	0.0000	628.9393
Government Office Building	5.58	1.1327	0.0669	0.0000	2.5384
High School	273.75	55.5688	3.2840	0.0000	124.5332
High Turnover (Sit Down Restaurant)	285.6	57.9742	3.4262	0.0000	129.9240
Industrial Park	651	132.1471	7.8097	0.0000	296.1502
Junior College (2yr)	455	92.3609	5.4584	0.0000	206.9867
Junior High School	153.3	31.1185	1.8391	0.0000	69.7386
Manufacturing	65.1	13.2147	0.7810	0.0000	29.6150
Medical Office Building	3240	657.6907	38.8684	0.0000	1,473.9273
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	63.15	12.8189	0.7576	0.0000	28.7279
Refrigerated Warehouse-No Rail	98.7	20.0352	1.1841	0.0000	44.9002
Regional Shopping Center	938.91	190.5902	11.2636	0.0000	427.1250
Research & Development	41.04	8.3308	0.4923	0.0000	18.6698
Single Family Housing	5622.74	1,141.3654	67.4528	0.0000	2,557.8734
Supermarket	846	171.7304	10.1490	0.0000	384.8588
Unrefrigerated Warehouse-No Rail	197.4	40.0704	2.3681	0.0000	89.8004
Total		**3,377.4672**	**199.6026**	**0.0000**	**7,569.1216**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	309.35	62.7953	3.7111	0.0000	140.7282
Bank (with Drive-Through)	6.53	1.3255	0.0783	0.0000	2.9706
City Park	1.4625	0.2969	0.0175	0.0000	0.6653
Convenience Market with Gas Pumps	13.5225	2.7450	0.1622	0.0000	6.1516
Elementary School	136.055	27.6179	1.6322	0.0000	61.8936
Fast Food Restaurant with Drive-Thru	63.93	12.9772	0.7669	0.0000	29.0828
General Heavy Industry	16.275	3.3037	0.1952	0.0000	7.4038
General Light Industry	32.55	6.6074	0.3905	0.0000	14.8075
General Office Building	345.635	70.1608	4.1464	0.0000	157.2348
Government Office Building	1.395	0.2832	0.0167	0.0000	0.6346
High School	68.4375	13.8922	0.8210	0.0000	31.1333
High Turnover (Sit Down Restaurant)	71.4	14.4936	0.8565	0.0000	32.4810
Industrial Park	162.75	33.0368	1.9524	0.0000	74.0376
Junior College (2yr)	113.75	23.0902	1.3646	0.0000	51.7467
Junior High School	38.325	7.7796	0.4598	0.0000	17.4347
Manufacturing	16.275	3.3037	0.1952	0.0000	7.4038
Medical Office Building	810	164.4227	9.7171	0.0000	368.4818
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	15.7875	3.2047	0.1894	0.0000	7.1820
Refrigerated Warehouse-No Rail	24.675	5.0088	0.2960	0.0000	11.2251

Regional Shopping Center	234.727	47.6476	2.8159	0.0000	106.7813
Research & Development	10.26	2.0827	0.1231	0.0000	4.6674
Single Family Housing	1405.68	285.3414	16.8632	0.0000	639.4684
Supermarket	211.5	42.9326	2.5372	0.0000	96.2147
Unrefrigerated Warehouse-No Rail	49.35	10.0176	0.5920	0.0000	22.4501
Total		**844.3668**	**49.9006**	**0.0000**	**1,892.2804**

9.0 Operational Offroad

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

10.0 Vegetation

Grapevine Operational Year 2028 - Planning Areas 6A, 2, 1, 3 Buildout

Kern-San Joaquin County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Bank (with Drive-Through)	28.00	1000sqft	2.45	28,000.00	0
General Office Building	1,486.60	1000sqft	128.27	1,486,600.00	0
Government Office Building	6.00	1000sqft	0.51	6,000.00	0
Medical Office Building	300.00	1000sqft	22.69	300,000.00	0
Pharmacy/Drugstore w/o Drive Thru	21.00	1000sqft	1.85	21,000.00	0
Research & Development	540.00	1000sqft	41.19	540,000.00	0
Elementary School	2,982.00	Student	15.00	249,305.25	0
High School	1,500.00	Student	5.00	198,991.47	0
Junior College (2yr)	350.00	1000sqft	27.25	98,751.81	0
Junior High School	840.00	Student	20.00	350,000.00	0
General Heavy Industry	52.50	1000sqft	4.09	52,500.00	0
General Light Industry	105.00	1000sqft	8.18	525,000.00	0
Industrial Park	525.00	1000sqft	40.88	105,000.00	0
Manufacturing	52.50	1000sqft	4.09	210,000.00	0
Refrigerated Warehouse-No Rail	105.00	1000sqft	8.18	105,000.00	0
Unrefrigerated Warehouse-No Rail	210.00	1000sqft	16.35	52,500.00	0
Other Asphalt Surfaces	281.00	Acre	281.00	12,240,360.00	0
City Park	68.00	Acre	68.00	2,962,080.00	0
Fast Food Restaurant with Drive Thru	22.20	1000sqft	2.89	22,200.00	0
High Turnover (Sit Down Restaurant)	24.00	1000sqft	3.11	24,000.00	0
Apartments Low Rise	2,690.00	Dwelling Unit	269.00	2,690,000.00	8608
Single Family Housing	4,795.00	Dwelling Unit	1,227.00	8,631,000.00	15344

Convenience Market with Gas Pumps	18.00	1000sqft	2.35	18,000.00	0
Regional Shopping Center	894.20	1000sqft	114.30	894,200.00	0
Supermarket	150.00	1000sqft	19.39	150,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	7			**Operational Year**	2025
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	499.66	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Planning Areas 6A, 2, 1, 3. Kern County, San Joaquin Valley Air Basin. Operational Year 2025 was conservatively used for anticipated Operational Year 2028 since CalEEMod does not include year 2028 (options include 2025 and 2030). CO2 Intensity adjusted based on PG&E 33% Renewables by 2020.

Land Use - See 1.1 Land Usage. Population based on 3.2 persons per dwelling unit.

Construction Phase - Construction emissions calculated separately.

Vehicle Trips - Modified trip rates to match Trip Generation and VMT factors provided by Fehr & Peers.

Vehicle Emission Factors - Default CalEEMod values.

Woodstoves - No woodstoves and only gas fireplaces assumed

Area Coating - Default CalEEMod VOC content. Modified non-residential interior and exterior area to be coated based on CalEEMod architectural coating surface area equations and adjusted for parking/asphalt surface and park land uses.

Energy Use - Updated Title 24 electricity and natural gas energy intensity to match 2013 Title 24 standards (25% reduction versus 2008 standards).

Water And Wastewater - Water and wastewater consumption and associated emissions calculated separately.

Construction Off-road Equipment Mitigation - Construction emissions calculated separately.

Mobile Land Use Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Project Setting: Suburban Center. Improve Pedestrian Network: Project Site and Connecting Off-Site. Provide Traffic Calming Measures: 100% Streets with Improvement, 100% Intersections with Improvement. Expand Transit Network: 50%.

Mobile Commute Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Voluntary Commute Trip Reduction Program: 50%

Energy Mitigation - Exceed 2013 Title 24, % Improvement: 25%.

Water Mitigation - Water reductions calculated separately.

Waste Mitigation - Percent Reduction in Waste Disposed: 75%. Waste diversion consistent with Assembly Bill 341 (not mitigation).

Note Regarding Emissions Presented in the Air Quality & Greenhouse Gas Technical Report: Project-generated unmitigated and mitigated emissions in the Technical Report reflect the unmitigated mobile source emissions reported in 2.0 Emissions Summary. No area source mitigation assumed. Unmitigated and mitigated energy source and solid waste emissions reported in the Technical Report as presented in 2.0 Emissions Summary. Water/wastewater and stationary source emissions calculated separately.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	10319764	3360409
tblAreaCoating	Area_Nonresidential_Interior	30959292	7345573
tblConstructionPhase	NumDays	155,000.00	5.00
tblEnergyUse	T24E	352.42	264.31
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	4.43	3.32
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.70	0.53
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	763.80	572.85
tblEnergyUse	T24E	4.88	3.66

tblEnergyUse	T24NG	14,007.38	10,505.53
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	54.53	40.90
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	5.56	4.17
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	23,622.31	17,716.73
tblEnergyUse	T24NG	8.10	6.08
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblLandUse	LandUseSquareFeet	350,000.00	98,751.81
tblLandUse	LandUseSquareFeet	98,751.81	350,000.00
tblLandUse	LandUseSquareFeet	105,000.00	525,000.00
tblLandUse	LandUseSquareFeet	525,000.00	105,000.00
tblLandUse	LandUseSquareFeet	52,500.00	210,000.00
tblLandUse	LandUseSquareFeet	210,000.00	52,500.00

tblLandUse	LotAcreage	0.64	2.45
tblLandUse	LotAcreage	34.13	128.27
tblLandUse	LotAcreage	0.14	0.51
tblLandUse	LotAcreage	6.89	22.69
tblLandUse	LotAcreage	0.48	1.85
tblLandUse	LotAcreage	12.40	41.19
tblLandUse	LotAcreage	5.72	15.00
tblLandUse	LotAcreage	4.57	5.00
tblLandUse	LotAcreage	8.03	27.25
tblLandUse	LotAcreage	2.27	20.00
tblLandUse	LotAcreage	1.21	4.09
tblLandUse	LotAcreage	2.41	8.18
tblLandUse	LotAcreage	12.05	40.88
tblLandUse	LotAcreage	1.21	4.09
tblLandUse	LotAcreage	2.41	8.18
tblLandUse	LotAcreage	4.82	16.35
tblLandUse	LotAcreage	0.51	2.89
tblLandUse	LotAcreage	0.55	3.11
tblLandUse	LotAcreage	168.13	269.00
tblLandUse	LotAcreage	1,556.82	1,227.00
tblLandUse	LotAcreage	0.41	2.35
tblLandUse	LotAcreage	20.53	114.30
tblLandUse	LotAcreage	3.44	19.39
tblLandUse	Population	7,693.00	8,608.00
tblLandUse	Population	13,714.00	15,344.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

tblProjectCharacteristics	CO2IntensityFactor	641.35	499.66
tblProjectCharacteristics	OperationalYear	2014	2025
tblTripsAndVMT	VendorTripNumber	4,183.00	0.00
tblTripsAndVMT	WorkerTripNumber	11,987.00	0.00
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
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tblVehicleTrips	CC_TL	7.30	15.62
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tblVehicleTrips	CNW_TL	7.30	15.62
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tblVehicleTrips	HW_TL	10.80	15.62
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tblVehicleTrips	PB_TP	12.00	0.00
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tblVehicleTrips	PB_TP	10.00	0.00

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tblVehicleTrips	PR_TP	92.00	100.00
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tblVehicleTrips	PR_TP	82.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00

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tblVehicleTrips	ST_TR	1.59	1.54
tblVehicleTrips	ST_TR	1,448.33	59.54
tblVehicleTrips	ST_TR	722.03	50.58
tblVehicleTrips	ST_TR	1.50	0.55
tblVehicleTrips	ST_TR	1.32	0.55
tblVehicleTrips	ST_TR	2.37	1.93
tblVehicleTrips	ST_TR	0.61	0.50
tblVehicleTrips	ST_TR	158.37	43.29
tblVehicleTrips	ST_TR	2.49	1.99
tblVehicleTrips	ST_TR	11.23	1.73
tblVehicleTrips	ST_TR	1.49	1.13
tblVehicleTrips	ST_TR	8.96	2.23
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tblVehicleTrips	ST_TR	2.59	2.90
tblVehicleTrips	ST_TR	49.97	40.45
tblVehicleTrips	ST_TR	1.90	2.10
tblVehicleTrips	ST_TR	10.08	8.16
tblVehicleTrips	ST_TR	177.59	60.37
tblVehicleTrips	ST_TR	2.59	2.90
tblVehicleTrips	SU_TR	6.07	4.99
tblVehicleTrips	SU_TR	31.90	1.94
tblVehicleTrips	SU_TR	1.59	1.54
tblVehicleTrips	SU_TR	1,182.08	48.59
tblVehicleTrips	SU_TR	542.72	38.02
tblVehicleTrips	SU_TR	1.50	0.20
tblVehicleTrips	SU_TR	0.68	0.28

tblVehicleTrips	SU_TR	0.98	0.80
tblVehicleTrips	SU_TR	0.25	0.20
tblVehicleTrips	SU_TR	131.84	36.04
tblVehicleTrips	SU_TR	0.73	0.59
tblVehicleTrips	SU_TR	1.21	0.19
tblVehicleTrips	SU_TR	0.62	0.47
tblVehicleTrips	SU_TR	1.55	0.38
tblVehicleTrips	SU_TR	90.06	8.98
tblVehicleTrips	SU_TR	2.59	2.90
tblVehicleTrips	SU_TR	25.24	20.43
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tblVehicleTrips	SU_TR	8.77	7.10
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tblVehicleTrips	SU_TR	2.59	2.90
tblVehicleTrips	WD_TR	6.59	5.41
tblVehicleTrips	WD_TR	148.15	8.98
tblVehicleTrips	WD_TR	1.59	1.54
tblVehicleTrips	WD_TR	845.60	34.76
tblVehicleTrips	WD_TR	1.29	1.05
tblVehicleTrips	WD_TR	496.12	34.76
tblVehicleTrips	WD_TR	1.50	2.90
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tblVehicleTrips	WD_TR	68.93	8.98
tblVehicleTrips	WD_TR	1.71	1.39
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tblVehicleTrips	WD_TR	1.62	1.32
tblVehicleTrips	WD_TR	3.82	2.90

tblVehicleTrips	WD_TR	36.13	8.98
tblVehicleTrips	WD_TR	90.06	8.98
tblVehicleTrips	WD_TR	2.59	2.90
tblVehicleTrips	WD_TR	42.94	34.76
tblVehicleTrips	WD_TR	8.11	8.98
tblVehicleTrips	WD_TR	9.57	7.75
tblVehicleTrips	WD_TR	102.24	34.76
tblVehicleTrips	WD_TR	2.59	2.90
tblWater	IndoorWaterUseRate	175,264,328.92	0.00
tblWater	IndoorWaterUseRate	1,109,441.72	0.00
tblWater	IndoorWaterUseRate	1,333,305.39	0.00
tblWater	IndoorWaterUseRate	7,229,083.68	0.00
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tblWater	IndoorWaterUseRate	264,218,989.77	0.00
tblWater	IndoorWaterUseRate	1,191,958.12	0.00
tblWater	IndoorWaterUseRate	6,607,440.00	0.00
tblWater	IndoorWaterUseRate	7,284,809.10	0.00
tblWater	IndoorWaterUseRate	121,406,250.00	0.00
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tblWater	IndoorWaterUseRate	2,036,361.60	0.00
tblWater	IndoorWaterUseRate	12,140,625.00	0.00
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tblWater	IndoorWaterUseRate	265,514,731.49	0.00
tblWater	IndoorWaterUseRate	312,413,552.85	0.00
tblWater	IndoorWaterUseRate	18,490,232.23	0.00

tblWater	IndoorWaterUseRate	48,562,500.00	0.00
tblWater	OutdoorWaterUseRate	110,492,729.10	0.00
tblWater	OutdoorWaterUseRate	679,980.41	0.00
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tblWater	OutdoorWaterUseRate	18,589,072.32	0.00
tblWater	OutdoorWaterUseRate	430,113.73	0.00
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tblWater	OutdoorWaterUseRate	730,554.97	0.00
tblWater	OutdoorWaterUseRate	16,990,560.00	0.00
tblWater	OutdoorWaterUseRate	464,987.81	0.00
tblWater	OutdoorWaterUseRate	26,851,201.13	0.00
tblWater	OutdoorWaterUseRate	5,236,358.40	0.00
tblWater	OutdoorWaterUseRate	7,170,316.43	0.00
tblWater	OutdoorWaterUseRate	906,727.80	0.00
tblWater	OutdoorWaterUseRate	40,596,042.76	0.00
tblWater	OutdoorWaterUseRate	196,956,370.28	0.00
tblWater	OutdoorWaterUseRate	571,862.85	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	789.1841	7.1165	618.4483	0.0327		8.9483	8.9483		8.8902	8.8902	0.0000	88,292.4606	88,292.4606	2.7417	1.5983	88,845.4996
Energy	6.3389	55.2248	30.7928	0.3458		4.3796	4.3796		4.3796	4.3796		69,151.9296	69,151.9296	1.3254	1.2678	69,572.7767
Mobile	699.6287	3,019.3685	9,986.1413	33.3313	1,693.9367	76.6720	1,770.6088	455.6745	70.6022	526.2767		2,713,781.5663	2,713,781.5663	54.5807		2,714,927.7609
Total	**1,495.1517**	**3,081.7097**	**10,635.3824**	**33.7097**	**1,693.9367**	**90.0000**	**1,783.9367**	**455.6745**	**83.8720**	**539.5465**	**0.0000**	**2,871,225.9565**	**2,871,225.9565**	**58.6478**	**2.8661**	**2,873,346.0372**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	789.1841	7.1165	618.4483	0.0327		8.9483	8.9483		8.8902	8.8902	0.0000	88,292.4606	88,292.4606	2.7417	1.5983	88,845.4996
Energy	5.0698	44.1436	24.4464	0.2765		3.5028	3.5028		3.5028	3.5028		55,307.1928	55,307.1928	1.0601	1.0140	55,643.7832
Mobile	679.7817	2,880.3484	9,728.9135	31.5601	1,602.1616	72.6086	1,674.7701	430.9867	66.8608	497.8474		2,569,316.9360	2,569,316.9360	51.8061		2,570,404.8644
Total	**1,474.0356**	**2,931.6085**	**10,371.8082**	**31.8693**	**1,602.1616**	**85.0597**	**1,687.2212**	**430.9867**	**79.2537**	**510.2404**	**0.0000**	**2,712,916.5894**	**2,712,916.5894**	**55.6079**	**2.6122**	**2,714,894.1471**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.41**	**4.87**	**2.48**	**5.46**	**5.42**	**5.49**	**5.42**	**5.42**	**5.51**	**5.43**	**0.00**	**5.51**	**5.51**	**5.18**	**8.86**	**5.51**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

Provide Traffic Calming Measures

Expand Transit Network

Implement Trip Reduction Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	679.7817	2,880.3484	9,728.9135	31.5601	1,602.1616	72.6086	1,674.7701	430.9867	66.8608	497.8474		2,569,316.9360	2,569,316.9360	51.8061		2,570,404.8644
Unmitigated	699.6287	3,019.3685	9,986.1413	33.3313	1,693.9367	76.6720	1,770.6088	455.6745	70.6022	526.2767		2,713,781.5663	2,713,781.5663	54.5807		2,714,927.7609

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	14,552.90	15,844.10	13423.10	82,874,228	78,384,216
Bank (with Drive-Through)	251.44	146.44	54.32	1,184,213	1,120,054
City Park	104.72	104.72	104.72	595,404	563,146
Convenience Market with Gas Pumps	625.68	1,071.72	874.62	4,121,907	3,898,588
Elementary School	3,131.10	0.00	0.00	12,716,023	12,027,087
Fast Food Restaurant with Drive Thru	771.67	1,122.88	844.04	4,731,525	4,475,178
General Heavy Industry	152.25	28.88	10.50	650,300	615,067
General Light Industry	304.50	57.75	29.40	1,307,422	1,236,588
General Office Building	13,349.67	2,869.14	1189.28	57,512,081	54,396,156
Government Office Building	53.88	0.00	0.00	218,817	206,962
High School	2,085.00	750.00	300.00	9,320,454	8,815,485
High Turnover (Sit Down Restaurant)	834.24	1,038.96	864.96	4,934,455	4,667,113

Industrial Park	2,919.00	1,044.75	309.75	12,954,822	12,252,947
Junior College (2yr)	1,480.50	605.50	66.50	6,558,432	6,203,105
Junior High School	1,108.80	0.00	0.00	4,503,059	4,259,089
Manufacturing	152.25	59.33	24.68	686,546	649,350
Medical Office Building	2,694.00	669.00	114.00	11,576,857	10,949,639
Other Asphalt Surfaces	0.00	0.00	0.00		
Pharmacy/Drugstore w/o Drive Thru	188.58	188.58	188.58	1,072,206	1,014,115
Refrigerated Warehouse-No Rail	304.50	304.50	304.50	1,731,290	1,637,491
Regional Shopping Center	31,082.39	36,170.39	18268.51	170,449,259	161,214,553
Research & Development	4,849.20	1,134.00	664.20	21,154,141	20,008,039
Single Family Housing	37,161.25	39,127.20	34044.50	210,352,250	198,955,655
Supermarket	5,214.00	9,055.50	8487.00	35,423,817	33,504,603
Unrefrigerated Warehouse-No Rail	609.00	609.00	609.00	3,462,579	3,274,981
Total	123,980.52	112,002.32	80,776.16	660,092,088	624,329,208

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Bank (with Drive-Through)	15.62	15.62	15.62	6.60	74.40	19.00	100	0	0
City Park	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Convenience Market with Gas	15.62	15.62	15.62	0.80	80.20	19.00	100	0	0
Elementary School	15.62	15.62	15.62	65.00	30.00	5.00	100	0	0
Fast Food Restaurant with Drive Th	15.62	15.62	15.62	2.20	78.80	19.00	100	0	0
General Heavy Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Light Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Office Building	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Government Office Building	15.62	15.62	15.62	33.00	62.00	5.00	100	0	0
High School	15.62	15.62	15.62	77.80	17.20	5.00	100	0	0
High Turnover (Sit Down Rest	15.62	15.62	15.62	8.50	72.50	19.00	100	0	0
Industrial Park	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Junior College (2yr)	15.62	15.62	15.62	6.40	88.60	5.00	100	0	0
Junior High School	15.62	15.62	15.62	72.80	22.20	5.00	100	0	0
Manufacturing	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Medical Office Building	15.62	15.62	15.62	29.60	51.40	19.00	100	0	0
Other Asphalt Surfaces	15.62	15.62	15.62	0.00	0.00	0.00	100	0	0
Pharmacy/Drugstore w/o Drive Th	15.62	15.62	15.62	7.40	73.60	19.00	100	0	0
Refrigerated Warehouse-No Rail	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0
Regional Shopping Center	15.62	15.62	15.62	16.30	64.70	19.00	100	0	0

Research & Development	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Single Family Housing	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Supermarket	15.62	15.62	15.62	6.50	74.50	19.00	100	0	0
Unrefrigerated Warehouse-No	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.354417	0.053979	0.135300	0.180782	0.057193	0.010470	0.023391	0.171508	0.001499	0.001851	0.006071	0.001001	0.002538

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	5.0698	44.1436	24.4464	0.2765		3.5028	3.5028		3.5028	3.5028		55,307.1928	55,307.1928	1.0601	1.0140	55,643.7832
NaturalGas Unmitigated	6.3389	55.2248	30.7928	0.3458		4.3796	4.3796		4.3796	4.3796		69,151.9296	69,151.9296	1.3254	1.2678	69,572.7767

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Land Use	kBTU/yr	lb/day										lb/day				
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	222.904	2.4000e-003	0.0219	0.0184	1.3000e-004		1.6600e-003	1.6600e-003		1.6600e-003	1.6600e-003		26.2240	26.2240	5.0000e-004	4.8000e-004	26.3836
Elementary School	5839.89	0.0630	0.5725	0.4809	3.4400e-003		0.0435	0.0435		0.0435	0.0435		687.0459	687.0459	0.0132	0.0126	691.2271
Fast Food Restaurant with Drive Thru	5800.59	0.0626	0.5687	0.4777	3.4100e-003		0.0432	0.0432		0.0432	0.0432		682.4219	682.4219	0.0131	0.0125	686.5750
General Heavy Industry	1910.14	0.0206	0.1873	0.1573	1.1200e-003		0.0142	0.0142		0.0142	0.0142		224.7220	224.7220	4.3100e-003	4.1200e-003	226.0896
General Light Industry	19101.4	0.2060	1.8727	1.5731	0.0112		0.1423	0.1423		0.1423	0.1423		2,247.2200	2,247.2200	0.0431	0.0412	2,260.8962
General Office Building	56165	0.6057	5.5064	4.6254	0.0330		0.4185	0.4185		0.4185	0.4185		6,607.6435	6,607.6435	0.1267	0.1211	6,647.8565
Government Office Building	226.685	2.4400e-003	0.0222	0.0187	1.3000e-004		1.6900e-003	1.6900e-003		1.6900e-003	1.6900e-003		26.6688	26.6688	5.1000e-004	4.9000e-004	26.8311
High School	4661.31	0.0503	0.4570	0.3839	2.7400e-003		0.0347	0.0347		0.0347	0.0347		548.3891	548.3891	0.0105	0.0101	551.7265
High Turnover (Sit Down Restaurant)	6270.9	0.0676	0.6148	0.5164	3.6900e-003		0.0467	0.0467		0.0467	0.0467		737.7534	737.7534	0.0141	0.0135	742.2433
Industrial Park	3966.99	0.0428	0.3889	0.3267	2.3300e-003		0.0296	0.0296		0.0296	0.0296		466.7043	466.7043	8.9500e-003	8.5600e-003	469.5446
Junior College (2yr)	11157.6	0.1203	1.0939	0.9189	6.5600e-003		0.0831	0.0831		0.0831	0.0831		1,312.6590	1,312.6590	0.0252	0.0241	1,320.6477
Junior High School	8198.63	0.0884	0.8038	0.6752	4.8200e-003		0.0611	0.0611		0.0611	0.0611		964.5447	964.5447	0.0185	0.0177	970.4148
Manufacturing	7640.55	0.0824	0.7491	0.6292	4.4900e-003		0.0569	0.0569		0.0569	0.0569		898.8880	898.8880	0.0172	0.0165	904.3585
Apartments Low Rise	95834.2	1.0335	8.8318	3.7582	0.0564		0.7141	0.7141		0.7141	0.7141		11,274.6159	11,274.6159	0.2161	0.2067	11,343.2313
Bank (with Drive-Through)	1018.74	0.0110	0.0999	0.0839	6.0000e-004		7.5900e-003	7.5900e-003		7.5900e-003	7.5900e-003		119.8517	119.8517	2.3000e-003	2.2000e-003	120.5811
Medical Office Building	11334.2	0.1222	1.1112	0.9334	6.6700e-003		0.0845	0.0845		0.0845	0.0845		1,333.4408	1,333.4408	0.0256	0.0245	1,341.5559
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	260.055	2.8000e-003	0.0255	0.0214	1.5000e-004		1.9400e-003	1.9400e-003		1.9400e-003	1.9400e-003		30.5947	30.5947	5.9000e-004	5.6000e-004	30.7809
Refrigerated Warehouse-No Rail	2091.37	0.0226	0.2050	0.1722	1.2300e-003		0.0156	0.0156		0.0156	0.0156		246.0435	246.0435	4.7200e-003	4.5100e-003	247.5409
Regional Shopping Center	11073.4	0.1194	1.0856	0.9119	6.5100e-003		0.0825	0.0825		0.0825	0.0825		1,302.7507	1,302.7507	0.0250	0.0239	1,310.6790

Research & Development	19647.1	0.2119	1.9262	1.6180	0.0116		0.1464	0.1464		0.1464	0.1464		2,311.4263	2,311.4263	0.0443	0.0424	2,325.4932
Single Family Housing	312481	3.3699	28.7972	12.2541	0.1838		2.3283	2.3283		2.3283	2.3283		36,762.4343	36,762.4343	0.7046	0.6740	36,986.1643
Supermarket	2889.04	0.0312	0.2832	0.2379	1.7000e-003		0.0215	0.0215		0.0215	0.0215		339.8872	339.8872	6.5100e-003	6.2300e-003	341.9557
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**6.3389**	**55.2248**	**30.7928**	**0.3457**		**4.3796**	**4.3796**		**4.3796**	**4.3796**		**69,151.9296**	**69,151.9296**	**1.3254**	**1.2678**	**69,572.7768**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	0.168041	1.8100e-003	0.0165	0.0138	1.0000e-004		1.2500e-003	1.2500e-003		1.2500e-003	1.2500e-003		19.7695	19.7695	3.8000e-004	3.6000e-004	19.8899
Elementary School	4.45847	0.0481	0.4371	0.3672	2.6200e-003		0.0332	0.0332		0.0332	0.0332		524.5254	524.5254	0.0101	9.6200e-003	527.7176
Fast Food Restaurant with Drive Thru	5.58832	0.0603	0.5479	0.4602	3.2900e-003		0.0416	0.0416		0.0416	0.0416		657.4492	657.4492	0.0126	0.0121	661.4503
General Heavy Industry	1.43692	0.0155	0.1409	0.1183	8.5000e-004		0.0107	0.0107		0.0107	0.0107		169.0492	169.0492	3.2400e-003	3.1000e-003	170.0780
General Light Industry	14.3692	0.1550	1.4087	1.1833	8.4500e-003		0.1071	0.1071		0.1071	0.1071		1,690.4915	1,690.4915	0.0324	0.0310	1,700.7796
General Office Building	43.2234	0.4661	4.2376	3.5596	0.0254		0.3221	0.3221		0.3221	0.3221		5,085.1064	5,085.1064	0.0975	0.0932	5,116.0535
Government Office Building	0.174452	1.8800e-003	0.0171	0.0144	1.0000e-004		1.3000e-003	1.3000e-003		1.3000e-003	1.3000e-003		20.5238	20.5238	3.9000e-004	3.8000e-004	20.6487
High School	3.55868	0.0384	0.3489	0.2931	2.0900e-003		0.0265	0.0265		0.0265	0.0265		418.6678	418.6678	8.0200e-003	7.6800e-003	421.2157
High Turnover (Sit Down Restaurant)	6.04142	0.0652	0.5923	0.4975	3.5500e-003		0.0450	0.0450		0.0450	0.0450		710.7558	710.7558	0.0136	0.0130	715.0814
Industrial Park	3.05291	0.0329	0.2993	0.2514	1.8000e-003		0.0228	0.0228		0.0228	0.0228		359.1660	359.1660	6.8800e-003	6.5800e-003	361.3518
Junior College (2yr)	8.3912	0.0905	0.8227	0.6910	4.9400e-003		0.0625	0.0625		0.0625	0.0625		987.1998	987.1998	0.0189	0.0181	993.2077

Junior High School	6.25925	0.0675	0.6137	0.5155	3.6800e-003		0.0466	0.0466		0.0466	0.0466		736.3820	736.3820	0.0141	0.0135	740.8635
Manufacturing	5.74767	0.0620	0.5635	0.4733	3.3800e-003		0.0428	0.0428		0.0428	0.0428		676.1966	676.1966	0.0130	0.0124	680.3118
Medical Office Building	8.7226	0.0941	0.8552	0.7183	5.1300e-003		0.0650	0.0650		0.0650	0.0650		1,026.1886	1,026.1886	0.0197	0.0188	1,032.4338
Apartments Low Rise	76.4782	0.8248	7.0480	2.9991	0.0450		0.5698	0.5698		0.5698	0.5698		8,997.4301	8,997.4301	0.1725	0.1650	9,052.1869
Bank (with Drive-Through)	0.766356	8.2600e-003	0.0751	0.0631	4.5000e-004		5.7100e-003	5.7100e-003		5.7100e-003	5.7100e-003		90.1596	90.1596	1.7300e-003	1.6500e-003	90.7082
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	0.196048	2.1100e-003	0.0192	0.0162	1.2000e-004		1.4600e-003	1.4600e-003		1.4600e-003	1.4600e-003		23.0645	23.0645	4.4000e-004	4.2000e-004	23.2048
Refrigerated Warehouse-No Rail	1.79147	0.0193	0.1756	0.1475	1.0500e-003		0.0134	0.0134		0.0134	0.0134		210.7615	210.7615	4.0400e-003	3.8600e-003	212.0441
Regional Shopping Center	8.34791	0.0900	0.8184	0.6875	4.9100e-003		0.0622	0.0622		0.0622	0.0622		982.1069	982.1069	0.0188	0.0180	988.0838
Research & Development	14.7797	0.1594	1.4490	1.2172	8.6900e-003		0.1101	0.1101		0.1101	0.1101		1,738.7913	1,738.7913	0.0333	0.0319	1,749.3733
Single Family Housing	254.295	2.7424	23.4350	9.9723	0.1496		1.8947	1.8947		1.8947	1.8947		29,917.0096	29,917.0096	0.5734	0.5485	30,099.0795
Supermarket	2.26438	0.0244	0.2220	0.1865	1.3300e-003		0.0169	0.0169		0.0169	0.0169		266.3981	266.3981	5.1100e-003	4.8800e-003	268.0193
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**5.0698**	**44.1436**	**24.4464**	**0.2765**		**3.5028**	**3.5028**		**3.5028**	**3.5028**		**55,307.1928**	**55,307.1928**	**1.0600**	**1.0140**	**55,643.7832**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	789.1841	7.1165	618.4483	0.0327		8.9483	8.9483		8.8902	8.8902	0.0000	88,292.4606	88,292.4606	2.7417	1.5983	88,845.4996
Unmitigated	789.1841	7.1165	618.4483	0.0327		8.9483	8.9483		8.8902	8.8902	0.0000	88,292.4606	88,292.4606	2.7417	1.5983	88,845.4996

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	78.6160					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	683.9545					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	7.9913	3.6000e-004	0.4359	0.0000		5.5213	5.5213		5.4632	5.4632	0.0000	87,178.2353	87,178.2353	1.6709	1.5983	87,708.7875
Landscaping	18.6223	7.1161	618.0124	0.0327		3.4270	3.4270		3.4270	3.4270		1,114.2253	1,114.2253	1.0708		1,136.7121
Total	**789.1841**	**7.1165**	**618.4483**	**0.0327**		**8.9483**	**8.9483**		**8.8902**	**8.8902**	**0.0000**	**88,292.4606**	**88,292.4606**	**2.7417**	**1.5983**	**88,845.4996**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	78.6160					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	683.9545					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	7.9913	3.6000e-004	0.4359	0.0000		5.5213	5.5213		5.4632	5.4632	0.0000	87,178.2353	87,178.2353	1.6709	1.5983	87,708.7875
Landscaping	18.6223	7.1161	618.0124	0.0327		3.4270	3.4270		3.4270	3.4270		1,114.2253	1,114.2253	1.0708		1,136.7121
Total	**789.1841**	**7.1165**	**618.4483**	**0.0327**		**8.9483**	**8.9483**		**8.8902**	**8.8902**	**0.0000**	**88,292.4606**	**88,292.4606**	**2.7417**	**1.5983**	**88,845.4996**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Vegetation

Grapevine Operational Year 2028 - Planning Areas 6A, 2, 1, 3 Buildout

Kern-San Joaquin County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Bank (with Drive-Through)	28.00	1000sqft	2.45	28,000.00	0
General Office Building	1,486.60	1000sqft	128.27	1,486,600.00	0
Government Office Building	6.00	1000sqft	0.51	6,000.00	0
Medical Office Building	300.00	1000sqft	22.69	300,000.00	0
Pharmacy/Drugstore w/o Drive Thru	21.00	1000sqft	1.85	21,000.00	0
Research & Development	540.00	1000sqft	41.19	540,000.00	0
Elementary School	2,982.00	Student	15.00	249,305.25	0
High School	1,500.00	Student	5.00	198,991.47	0
Junior College (2yr)	350.00	1000sqft	27.25	98,751.81	0
Junior High School	840.00	Student	20.00	350,000.00	0
General Heavy Industry	52.50	1000sqft	4.09	52,500.00	0
General Light Industry	105.00	1000sqft	8.18	525,000.00	0
Industrial Park	525.00	1000sqft	40.88	105,000.00	0
Manufacturing	52.50	1000sqft	4.09	210,000.00	0
Refrigerated Warehouse-No Rail	105.00	1000sqft	8.18	105,000.00	0
Unrefrigerated Warehouse-No Rail	210.00	1000sqft	16.35	52,500.00	0
Other Asphalt Surfaces	281.00	Acre	281.00	12,240,360.00	0
City Park	68.00	Acre	68.00	2,962,080.00	0
Fast Food Restaurant with Drive Thru	22.20	1000sqft	2.89	22,200.00	0
High Turnover (Sit Down Restaurant)	24.00	1000sqft	3.11	24,000.00	0
Apartments Low Rise	2,690.00	Dwelling Unit	269.00	2,690,000.00	8608
Single Family Housing	4,795.00	Dwelling Unit	1,227.00	8,631,000.00	15344

Convenience Market with Gas Pumps	18.00	1000sqft	2.35	18,000.00	0
Regional Shopping Center	894.20	1000sqft	114.30	894,200.00	0
Supermarket	150.00	1000sqft	19.39	150,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	7			**Operational Year**	2025
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	499.66	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Planning Areas 6A, 2, 1, 3. Kern County, San Joaquin Valley Air Basin. Operational Year 2025 was conservatively used for anticipated Operational Year 2028 since CalEEMod does not include year 2028 (options include 2025 and 2030). CO2 Intensity adjusted based on PG&E 33% Renewables by 2020.

Land Use - See 1.1 Land Usage. Population based on 3.2 persons per dwelling unit.

Construction Phase - Construction emissions calculated separately.

Vehicle Trips - Modified trip rates to match Trip Generation and VMT factors provided by Fehr & Peers.

Vehicle Emission Factors - Default CalEEMod values.

Woodstoves - No woodstoves and only gas fireplaces assumed

Area Coating - Default CalEEMod VOC content. Modified non-residential interior and exterior area to be coated based on CalEEMod architectural coating surface area equations and adjusted for parking/asphalt surface and park land uses.

Energy Use - Updated Title 24 electricity and natural gas energy intensity to match 2013 Title 24 standards (25% reduction versus 2008 standards).

Water And Wastewater - Water and wastewater consumption and associated emissions calculated separately.

Construction Off-road Equipment Mitigation - Construction emissions calculated separately.

Mobile Land Use Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Project Setting: Suburban Center. Improve Pedestrian Network: Project Site and Connecting Off-Site. Provide Traffic Calming Measures: 100% Streets with Improvement, 100% Intersections with Improvement. Expand Transit Network: 50%.

Mobile Commute Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Voluntary Commute Trip Reduction Program: 50%

Energy Mitigation - Exceed 2013 Title 24, % Improvement: 25%.

Water Mitigation - Water reductions calculated separately.

Waste Mitigation - Percent Reduction in Waste Disposed: 75%. Waste diversion consistent with Assembly Bill 341 (not mitigation).

Note Regarding Emissions Presented in the Air Quality & Greenhouse Gas Technical Report: Project-generated unmitigated and mitigated emissions in the Technical Report reflect the unmitigated mobile source emissions reported in 2.0 Emissions Summary. No area source mitigation assumed. Unmitigated and mitigated energy source and solid waste emissions reported in the Technical Report as presented in 2.0 Emissions Summary. Water/wastewater and stationary source emissions calculated separately.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	10319764	3360409
tblAreaCoating	Area_Nonresidential_Interior	30959292	7345573
tblConstructionPhase	NumDays	155,000.00	5.00
tblEnergyUse	T24E	352.42	264.31
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	4.43	3.32
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.70	0.53
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	763.80	572.85
tblEnergyUse	T24E	4.88	3.66

tblEnergyUse	T24NG	14,007.38	10,505.53
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	54.53	40.90
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	5.56	4.17
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	23,622.31	17,716.73
tblEnergyUse	T24NG	8.10	6.08
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblLandUse	LandUseSquareFeet	350,000.00	98,751.81
tblLandUse	LandUseSquareFeet	98,751.81	350,000.00
tblLandUse	LandUseSquareFeet	105,000.00	525,000.00
tblLandUse	LandUseSquareFeet	525,000.00	105,000.00
tblLandUse	LandUseSquareFeet	52,500.00	210,000.00
tblLandUse	LandUseSquareFeet	210,000.00	52,500.00

tblLandUse	LotAcreage	0.64	2.45
tblLandUse	LotAcreage	34.13	128.27
tblLandUse	LotAcreage	0.14	0.51
tblLandUse	LotAcreage	6.89	22.69
tblLandUse	LotAcreage	0.48	1.85
tblLandUse	LotAcreage	12.40	41.19
tblLandUse	LotAcreage	5.72	15.00
tblLandUse	LotAcreage	4.57	5.00
tblLandUse	LotAcreage	8.03	27.25
tblLandUse	LotAcreage	2.27	20.00
tblLandUse	LotAcreage	1.21	4.09
tblLandUse	LotAcreage	2.41	8.18
tblLandUse	LotAcreage	12.05	40.88
tblLandUse	LotAcreage	1.21	4.09
tblLandUse	LotAcreage	2.41	8.18
tblLandUse	LotAcreage	4.82	16.35
tblLandUse	LotAcreage	0.51	2.89
tblLandUse	LotAcreage	0.55	3.11
tblLandUse	LotAcreage	168.13	269.00
tblLandUse	LotAcreage	1,556.82	1,227.00
tblLandUse	LotAcreage	0.41	2.35
tblLandUse	LotAcreage	20.53	114.30
tblLandUse	LotAcreage	3.44	19.39
tblLandUse	Population	7,693.00	8,608.00
tblLandUse	Population	13,714.00	15,344.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

tblProjectCharacteristics	CO2IntensityFactor	641.35	499.66
tblProjectCharacteristics	OperationalYear	2014	2025
tblTripsAndVMT	VendorTripNumber	4,183.00	0.00
tblTripsAndVMT	WorkerTripNumber	11,987.00	0.00
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
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tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62

tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
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tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62
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tblVehicleTrips	CW_TL	9.50	15.62
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tblVehicleTrips	CW_TL	9.50	15.62
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tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	26.00	0.00
tblVehicleTrips	DV_TP	28.00	0.00
tblVehicleTrips	DV_TP	21.00	0.00
tblVehicleTrips	DV_TP	25.00	0.00
tblVehicleTrips	DV_TP	21.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	34.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	20.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	7.00	0.00
tblVehicleTrips	DV_TP	25.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	30.00	0.00

tblVehicleTrips	DV_TP	6.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	35.00	0.00
tblVehicleTrips	DV_TP	15.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	30.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	HO_TL	7.50	15.62
tblVehicleTrips	HO_TL	7.50	15.62
tblVehicleTrips	HS_TL	7.30	15.62
tblVehicleTrips	HS_TL	7.30	15.62
tblVehicleTrips	HW_TL	10.80	15.62
tblVehicleTrips	HW_TL	10.80	15.62
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	47.00	0.00
tblVehicleTrips	PB_TP	6.00	0.00
tblVehicleTrips	PB_TP	65.00	0.00
tblVehicleTrips	PB_TP	12.00	0.00
tblVehicleTrips	PB_TP	50.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PB_TP	16.00	0.00
tblVehicleTrips	PB_TP	6.00	0.00
tblVehicleTrips	PB_TP	43.00	0.00
tblVehicleTrips	PB_TP	2.00	0.00
tblVehicleTrips	PB_TP	1.00	0.00
tblVehicleTrips	PB_TP	12.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	10.00	0.00

tblVehicleTrips	PB_TP	53.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	11.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	36.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	27.00	100.00
tblVehicleTrips	PR_TP	66.00	100.00
tblVehicleTrips	PR_TP	14.00	100.00
tblVehicleTrips	PR_TP	63.00	100.00
tblVehicleTrips	PR_TP	29.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	PR_TP	50.00	100.00
tblVehicleTrips	PR_TP	75.00	100.00
tblVehicleTrips	PR_TP	37.00	100.00
tblVehicleTrips	PR_TP	79.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	63.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	60.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	PR_TP	41.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	54.00	100.00
tblVehicleTrips	PR_TP	82.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00

tblVehicleTrips	PR_TP	34.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	7.16	5.89
tblVehicleTrips	ST_TR	86.32	5.23
tblVehicleTrips	ST_TR	1.59	1.54
tblVehicleTrips	ST_TR	1,448.33	59.54
tblVehicleTrips	ST_TR	722.03	50.58
tblVehicleTrips	ST_TR	1.50	0.55
tblVehicleTrips	ST_TR	1.32	0.55
tblVehicleTrips	ST_TR	2.37	1.93
tblVehicleTrips	ST_TR	0.61	0.50
tblVehicleTrips	ST_TR	158.37	43.29
tblVehicleTrips	ST_TR	2.49	1.99
tblVehicleTrips	ST_TR	11.23	1.73
tblVehicleTrips	ST_TR	1.49	1.13
tblVehicleTrips	ST_TR	8.96	2.23
tblVehicleTrips	ST_TR	90.06	8.98
tblVehicleTrips	ST_TR	2.59	2.90
tblVehicleTrips	ST_TR	49.97	40.45
tblVehicleTrips	ST_TR	1.90	2.10
tblVehicleTrips	ST_TR	10.08	8.16
tblVehicleTrips	ST_TR	177.59	60.37
tblVehicleTrips	ST_TR	2.59	2.90
tblVehicleTrips	SU_TR	6.07	4.99
tblVehicleTrips	SU_TR	31.90	1.94
tblVehicleTrips	SU_TR	1.59	1.54
tblVehicleTrips	SU_TR	1,182.08	48.59
tblVehicleTrips	SU_TR	542.72	38.02
tblVehicleTrips	SU_TR	1.50	0.20
tblVehicleTrips	SU_TR	0.68	0.28

tblVehicleTrips	SU_TR	0.98	0.80
tblVehicleTrips	SU_TR	0.25	0.20
tblVehicleTrips	SU_TR	131.84	36.04
tblVehicleTrips	SU_TR	0.73	0.59
tblVehicleTrips	SU_TR	1.21	0.19
tblVehicleTrips	SU_TR	0.62	0.47
tblVehicleTrips	SU_TR	1.55	0.38
tblVehicleTrips	SU_TR	90.06	8.98
tblVehicleTrips	SU_TR	2.59	2.90
tblVehicleTrips	SU_TR	25.24	20.43
tblVehicleTrips	SU_TR	1.11	1.23
tblVehicleTrips	SU_TR	8.77	7.10
tblVehicleTrips	SU_TR	166.44	56.58
tblVehicleTrips	SU_TR	2.59	2.90
tblVehicleTrips	WD_TR	6.59	5.41
tblVehicleTrips	WD_TR	148.15	8.98
tblVehicleTrips	WD_TR	1.59	1.54
tblVehicleTrips	WD_TR	845.60	34.76
tblVehicleTrips	WD_TR	1.29	1.05
tblVehicleTrips	WD_TR	496.12	34.76
tblVehicleTrips	WD_TR	1.50	2.90
tblVehicleTrips	WD_TR	6.97	2.90
tblVehicleTrips	WD_TR	11.01	8.98
tblVehicleTrips	WD_TR	68.93	8.98
tblVehicleTrips	WD_TR	1.71	1.39
tblVehicleTrips	WD_TR	127.15	34.76
tblVehicleTrips	WD_TR	6.96	5.56
tblVehicleTrips	WD_TR	27.49	4.23
tblVehicleTrips	WD_TR	1.62	1.32
tblVehicleTrips	WD_TR	3.82	2.90

tblVehicleTrips	WD_TR	36.13	8.98
tblVehicleTrips	WD_TR	90.06	8.98
tblVehicleTrips	WD_TR	2.59	2.90
tblVehicleTrips	WD_TR	42.94	34.76
tblVehicleTrips	WD_TR	8.11	8.98
tblVehicleTrips	WD_TR	9.57	7.75
tblVehicleTrips	WD_TR	102.24	34.76
tblVehicleTrips	WD_TR	2.59	2.90
tblWater	IndoorWaterUseRate	175,264,328.92	0.00
tblWater	IndoorWaterUseRate	1,109,441.72	0.00
tblWater	IndoorWaterUseRate	1,333,305.39	0.00
tblWater	IndoorWaterUseRate	7,229,083.68	0.00
tblWater	IndoorWaterUseRate	6,738,448.42	0.00
tblWater	IndoorWaterUseRate	12,140,625.00	0.00
tblWater	IndoorWaterUseRate	24,281,250.00	0.00
tblWater	IndoorWaterUseRate	264,218,989.77	0.00
tblWater	IndoorWaterUseRate	1,191,958.12	0.00
tblWater	IndoorWaterUseRate	6,607,440.00	0.00
tblWater	IndoorWaterUseRate	7,284,809.10	0.00
tblWater	IndoorWaterUseRate	121,406,250.00	0.00
tblWater	IndoorWaterUseRate	17,167,161.38	0.00
tblWater	IndoorWaterUseRate	2,036,361.60	0.00
tblWater	IndoorWaterUseRate	12,140,625.00	0.00
tblWater	IndoorWaterUseRate	37,644,161.27	0.00
tblWater	IndoorWaterUseRate	1,479,397.99	0.00
tblWater	IndoorWaterUseRate	24,281,250.00	0.00
tblWater	IndoorWaterUseRate	66,235,648.71	0.00
tblWater	IndoorWaterUseRate	265,514,731.49	0.00
tblWater	IndoorWaterUseRate	312,413,552.85	0.00
tblWater	IndoorWaterUseRate	18,490,232.23	0.00

tblWater	IndoorWaterUseRate	48,562,500.00	0.00
tblWater	OutdoorWaterUseRate	110,492,729.10	0.00
tblWater	OutdoorWaterUseRate	679,980.41	0.00
tblWater	OutdoorWaterUseRate	81,020,731.78	0.00
tblWater	OutdoorWaterUseRate	817,187.17	0.00
tblWater	OutdoorWaterUseRate	18,589,072.32	0.00
tblWater	OutdoorWaterUseRate	430,113.73	0.00
tblWater	OutdoorWaterUseRate	161,940,671.15	0.00
tblWater	OutdoorWaterUseRate	730,554.97	0.00
tblWater	OutdoorWaterUseRate	16,990,560.00	0.00
tblWater	OutdoorWaterUseRate	464,987.81	0.00
tblWater	OutdoorWaterUseRate	26,851,201.13	0.00
tblWater	OutdoorWaterUseRate	5,236,358.40	0.00
tblWater	OutdoorWaterUseRate	7,170,316.43	0.00
tblWater	OutdoorWaterUseRate	906,727.80	0.00
tblWater	OutdoorWaterUseRate	40,596,042.76	0.00
tblWater	OutdoorWaterUseRate	196,956,370.28	0.00
tblWater	OutdoorWaterUseRate	571,862.85	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	789.1841	7.1165	618.4483	0.0327		8.9483	8.9483		8.8902	8.8902	0.0000	88,292.4606	88,292.4606	2.7417	1.5983	88,845.4996
Energy	6.3389	55.2248	30.7928	0.3458		4.3796	4.3796		4.3796	4.3796		69,151.9296	69,151.9296	1.3254	1.2678	69,572.7767
Mobile	708.2954	2,791.7733	8,620.0054	35.7748	1,693.9367	76.4739	1,770.4107	455.6745	70.4200	526.0944		2,882,321.2658	2,882,321.2658	54.3678		2,883,462.9894
Total	**1,503.8184**	**2,854.1145**	**9,269.2464**	**36.1532**	**1,693.9367**	**89.8019**	**1,783.7386**	**455.6745**	**83.6898**	**539.3642**	**0.0000**	**3,039,765.6559**	**3,039,765.6559**	**58.4349**	**2.8661**	**3,041,881.2657**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	789.1841	7.1165	618.4483	0.0327		8.9483	8.9483		8.8902	8.8902	0.0000	88,292.4606	88,292.4606	2.7417	1.5983	88,845.4996
Energy	5.0698	44.1436	24.4464	0.2765		3.5028	3.5028		3.5028	3.5028		55,307.1928	55,307.1928	1.0601	1.0140	55,643.7832
Mobile	687.8778	2,664.2541	8,310.8817	33.8718	1,602.1616	72.4105	1,674.5720	430.9867	66.6785	497.6652		2,728,969.2843	2,728,969.2843	51.5932		2,730,052.7417
Total	**1,482.1317**	**2,715.5142**	**8,953.7764**	**34.1810**	**1,602.1616**	**84.8616**	**1,687.0231**	**430.9867**	**79.0715**	**510.0582**	**0.0000**	**2,872,568.9377**	**2,872,568.9377**	**55.3950**	**2.6122**	**2,874,542.0245**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.44**	**4.86**	**3.40**	**5.46**	**5.42**	**5.50**	**5.42**	**5.42**	**5.52**	**5.43**	**0.00**	**5.50**	**5.50**	**5.20**	**8.86**	**5.50**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

Provide Traffic Calming Measures

Expand Transit Network

Implement Trip Reduction Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	687.8778	2,664.2541	8,310.8817	33.8718	1,602.1616	72.4105	1,674.5720	430.9867	66.6785	497.6652		2,728,969.2843	2,728,969.2843	51.5932		2,730,052.7417
Unmitigated	708.2954	2,791.7733	8,620.0054	35.7748	1,693.9367	76.4739	1,770.4107	455.6745	70.4200	526.0944		2,882,321.2658	2,882,321.2658	54.3678		2,883,462.9894

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	14,552.90	15,844.10	13423.10	82,874,228	78,384,216
Bank (with Drive-Through)	251.44	146.44	54.32	1,184,213	1,120,054
City Park	104.72	104.72	104.72	595,404	563,146
Convenience Market with Gas Pumps	625.68	1,071.72	874.62	4,121,907	3,898,588
Elementary School	3,131.10	0.00	0.00	12,716,023	12,027,087
Fast Food Restaurant with Drive Thru	771.67	1,122.88	844.04	4,731,525	4,475,178
General Heavy Industry	152.25	28.88	10.50	650,300	615,067
General Light Industry	304.50	57.75	29.40	1,307,422	1,236,588
General Office Building	13,349.67	2,869.14	1189.28	57,512,081	54,396,156
Government Office Building	53.88	0.00	0.00	218,817	206,962
High School	2,085.00	750.00	300.00	9,320,454	8,815,485
High Turnover (Sit Down Restaurant)	834.24	1,038.96	864.96	4,934,455	4,667,113

Industrial Park	2,919.00	1,044.75	309.75	12,954,822	12,252,947
Junior College (2yr)	1,480.50	605.50	66.50	6,558,432	6,203,105
Junior High School	1,108.80	0.00	0.00	4,503,059	4,259,089
Manufacturing	152.25	59.33	24.68	686,546	649,350
Medical Office Building	2,694.00	669.00	114.00	11,576,857	10,949,639
Other Asphalt Surfaces	0.00	0.00	0.00		
Pharmacy/Drugstore w/o Drive Thru	188.58	188.58	188.58	1,072,206	1,014,115
Refrigerated Warehouse-No Rail	304.50	304.50	304.50	1,731,290	1,637,491
Regional Shopping Center	31,082.39	36,170.39	18268.51	170,449,259	161,214,553
Research & Development	4,849.20	1,134.00	664.20	21,154,141	20,008,039
Single Family Housing	37,161.25	39,127.20	34044.50	210,352,250	198,955,655
Supermarket	5,214.00	9,055.50	8487.00	35,423,817	33,504,603
Unrefrigerated Warehouse-No Rail	609.00	609.00	609.00	3,462,579	3,274,981
Total	123,980.52	112,002.32	80,776.16	660,092,088	624,329,208

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Bank (with Drive-Through)	15.62	15.62	15.62	6.60	74.40	19.00	100	0	0
City Park	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Convenience Market with Gas	15.62	15.62	15.62	0.80	80.20	19.00	100	0	0
Elementary School	15.62	15.62	15.62	65.00	30.00	5.00	100	0	0
Fast Food Restaurant with Drive Th	15.62	15.62	15.62	2.20	78.80	19.00	100	0	0
General Heavy Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Light Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Office Building	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Government Office Building	15.62	15.62	15.62	33.00	62.00	5.00	100	0	0
High School	15.62	15.62	15.62	77.80	17.20	5.00	100	0	0
High Turnover (Sit Down Rest	15.62	15.62	15.62	8.50	72.50	19.00	100	0	0
Industrial Park	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Junior College (2yr)	15.62	15.62	15.62	6.40	88.60	5.00	100	0	0
Junior High School	15.62	15.62	15.62	72.80	22.20	5.00	100	0	0
Manufacturing	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Medical Office Building	15.62	15.62	15.62	29.60	51.40	19.00	100	0	0
Other Asphalt Surfaces	15.62	15.62	15.62	0.00	0.00	0.00	100	0	0
Pharmacy/Drugstore w/o Drive Th	15.62	15.62	15.62	7.40	73.60	19.00	100	0	0
Refrigerated Warehouse-No Rail	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0
Regional Shopping Center	15.62	15.62	15.62	16.30	64.70	19.00	100	0	0

Research & Development	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Single Family Housing	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Supermarket	15.62	15.62	15.62	6.50	74.50	19.00	100	0	0
Unrefrigerated Warehouse-No	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.354417	0.053979	0.135300	0.180782	0.057193	0.010470	0.023391	0.171508	0.001499	0.001851	0.006071	0.001001	0.002538

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	5.0698	44.1436	24.4464	0.2765		3.5028	3.5028		3.5028	3.5028		55,307.1928	55,307.1928	1.0601	1.0140	55,643.7832
NaturalGas Unmitigated	6.3389	55.2248	30.7928	0.3458		4.3796	4.3796		4.3796	4.3796		69,151.9296	69,151.9296	1.3254	1.2678	69,572.7767

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Land Use	kBTU/yr	lb/day										lb/day				
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	222.904	2.4000e-003	0.0219	0.0184	1.3000e-004		1.6600e-003	1.6600e-003		1.6600e-003	1.6600e-003		26.2240	26.2240	5.0000e-004	4.8000e-004	26.3836
Elementary School	5839.89	0.0630	0.5725	0.4809	3.4400e-003		0.0435	0.0435		0.0435	0.0435		687.0459	687.0459	0.0132	0.0126	691.2271
Fast Food Restaurant with Drive Thru	5800.59	0.0626	0.5687	0.4777	3.4100e-003		0.0432	0.0432		0.0432	0.0432		682.4219	682.4219	0.0131	0.0125	686.5750
General Heavy Industry	1910.14	0.0206	0.1873	0.1573	1.1200e-003		0.0142	0.0142		0.0142	0.0142		224.7220	224.7220	4.3100e-003	4.1200e-003	226.0896
General Light Industry	19101.4	0.2060	1.8727	1.5731	0.0112		0.1423	0.1423		0.1423	0.1423		2,247.2200	2,247.2200	0.0431	0.0412	2,260.8962
General Office Building	56165	0.6057	5.5064	4.6254	0.0330		0.4185	0.4185		0.4185	0.4185		6,607.6435	6,607.6435	0.1267	0.1211	6,647.8565
Government Office Building	226.685	2.4400e-003	0.0222	0.0187	1.3000e-004		1.6900e-003	1.6900e-003		1.6900e-003	1.6900e-003		26.6688	26.6688	5.1000e-004	4.9000e-004	26.8311
High School	4661.31	0.0503	0.4570	0.3839	2.7400e-003		0.0347	0.0347		0.0347	0.0347		548.3891	548.3891	0.0105	0.0101	551.7265
High Turnover (Sit Down Restaurant)	6270.9	0.0676	0.6148	0.5164	3.6900e-003		0.0467	0.0467		0.0467	0.0467		737.7534	737.7534	0.0141	0.0135	742.2433
Industrial Park	3966.99	0.0428	0.3889	0.3267	2.3300e-003		0.0296	0.0296		0.0296	0.0296		466.7043	466.7043	8.9500e-003	8.5600e-003	469.5446
Junior College (2yr)	11157.6	0.1203	1.0939	0.9189	6.5600e-003		0.0831	0.0831		0.0831	0.0831		1,312.6590	1,312.6590	0.0252	0.0241	1,320.6477
Junior High School	8198.63	0.0884	0.8038	0.6752	4.8200e-003		0.0611	0.0611		0.0611	0.0611		964.5447	964.5447	0.0185	0.0177	970.4148
Manufacturing	7640.55	0.0824	0.7491	0.6292	4.4900e-003		0.0569	0.0569		0.0569	0.0569		898.8880	898.8880	0.0172	0.0165	904.3585
Medical Office Building	11334.2	0.1222	1.1112	0.9334	6.6700e-003		0.0845	0.0845		0.0845	0.0845		1,333.4408	1,333.4408	0.0256	0.0245	1,341.5559
Apartments Low Rise	95834.2	1.0335	8.8318	3.7582	0.0564		0.7141	0.7141		0.7141	0.7141		11,274.6159	11,274.6159	0.2161	0.2067	11,343.2313
Bank (with Drive-Through)	1018.74	0.0110	0.0999	0.0839	6.0000e-004		7.5900e-003	7.5900e-003		7.5900e-003	7.5900e-003		119.8517	119.8517	2.3000e-003	2.2000e-003	120.5811
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	260.055	2.8000e-003	0.0255	0.0214	1.5000e-004		1.9400e-003	1.9400e-003		1.9400e-003	1.9400e-003		30.5947	30.5947	5.9000e-004	5.6000e-004	30.7809
Refrigerated Warehouse-No Rail	2091.37	0.0226	0.2050	0.1722	1.2300e-003		0.0156	0.0156		0.0156	0.0156		246.0435	246.0435	4.7200e-003	4.5100e-003	247.5409
Regional Shopping Center	11073.4	0.1194	1.0856	0.9119	6.5100e-003		0.0825	0.0825		0.0825	0.0825		1,302.7507	1,302.7507	0.0250	0.0239	1,310.6790

Research & Development	19647.1	0.2119	1.9262	1.6180	0.0116		0.1464	0.1464		0.1464	0.1464		2,311.4263	2,311.4263	0.0443	0.0424	2,325.4932
Single Family Housing	312481	3.3699	28.7972	12.2541	0.1838		2.3283	2.3283		2.3283	2.3283		36,762.4343	36,762.4343	0.7046	0.6740	36,986.1643
Supermarket	2889.04	0.0312	0.2832	0.2379	1.7000e-003		0.0215	0.0215		0.0215	0.0215		339.8872	339.8872	6.5100e-003	6.2300e-003	341.9557
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**6.3389**	**55.2248**	**30.7928**	**0.3457**		**4.3796**	**4.3796**		**4.3796**	**4.3796**		**69,151.9296**	**69,151.9296**	**1.3254**	**1.2678**	**69,572.7768**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	0.168041	1.8100e-003	0.0165	0.0138	1.0000e-004		1.2500e-003	1.2500e-003		1.2500e-003	1.2500e-003		19.7695	19.7695	3.8000e-004	3.6000e-004	19.8899
Elementary School	4.45847	0.0481	0.4371	0.3672	2.6200e-003		0.0332	0.0332		0.0332	0.0332		524.5254	524.5254	0.0101	9.6200e-003	527.7176
Fast Food Restaurant with Drive Thru	5.58832	0.0603	0.5479	0.4602	3.2900e-003		0.0416	0.0416		0.0416	0.0416		657.4492	657.4492	0.0126	0.0121	661.4503
General Heavy Industry	1.43692	0.0155	0.1409	0.1183	8.5000e-004		0.0107	0.0107		0.0107	0.0107		169.0492	169.0492	3.2400e-003	3.1000e-003	170.0780
General Light Industry	14.3692	0.1550	1.4087	1.1833	8.4500e-003		0.1071	0.1071		0.1071	0.1071		1,690.4915	1,690.4915	0.0324	0.0310	1,700.7796
General Office Building	43.2234	0.4661	4.2376	3.5596	0.0254		0.3221	0.3221		0.3221	0.3221		5,085.1064	5,085.1064	0.0975	0.0932	5,116.0535
Government Office Building	0.174452	1.8800e-003	0.0171	0.0144	1.0000e-004		1.3000e-003	1.3000e-003		1.3000e-003	1.3000e-003		20.5238	20.5238	3.9000e-004	3.8000e-004	20.6487
High School	3.55868	0.0384	0.3489	0.2931	2.0900e-003		0.0265	0.0265		0.0265	0.0265		418.6678	418.6678	8.0200e-003	7.6800e-003	421.2157
High Turnover (Sit Down Restaurant)	6.04142	0.0652	0.5923	0.4975	3.5500e-003		0.0450	0.0450		0.0450	0.0450		710.7558	710.7558	0.0136	0.0130	715.0814
Industrial Park	3.05291	0.0329	0.2993	0.2514	1.8000e-003		0.0228	0.0228		0.0228	0.0228		359.1660	359.1660	6.8800e-003	6.5800e-003	361.3518
Junior College (2yr)	8.3912	0.0905	0.8227	0.6910	4.9400e-003		0.0625	0.0625		0.0625	0.0625		987.1998	987.1998	0.0189	0.0181	993.2077

Junior High School	6.25925	0.0675	0.6137	0.5155	3.6800e-003		0.0466	0.0466		0.0466	0.0466		736.3820	736.3820	0.0141	0.0135	740.8635
Manufacturing	5.74767	0.0620	0.5635	0.4733	3.3800e-003		0.0428	0.0428		0.0428	0.0428		676.1966	676.1966	0.0130	0.0124	680.3118
Medical Office Building	8.7226	0.0941	0.8552	0.7183	5.1300e-003		0.0650	0.0650		0.0650	0.0650		1,026.1886	1,026.1886	0.0197	0.0188	1,032.4338
Apartments Low Rise	76.4782	0.8248	7.0480	2.9991	0.0450		0.5698	0.5698		0.5698	0.5698		8,997.4301	8,997.4301	0.1725	0.1650	9,052.1869
Bank (with Drive-Through)	0.766356	8.2600e-003	0.0751	0.0631	4.5000e-004		5.7100e-003	5.7100e-003		5.7100e-003	5.7100e-003		90.1596	90.1596	1.7300e-003	1.6500e-003	90.7082
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	0.196048	2.1100e-003	0.0192	0.0162	1.2000e-004		1.4600e-003	1.4600e-003		1.4600e-003	1.4600e-003		23.0645	23.0645	4.4000e-004	4.2000e-004	23.2048
Refrigerated Warehouse-No Rail	1.79147	0.0193	0.1756	0.1475	1.0500e-003		0.0134	0.0134		0.0134	0.0134		210.7615	210.7615	4.0400e-003	3.8600e-003	212.0441
Regional Shopping Center	8.34791	0.0900	0.8184	0.6875	4.9100e-003		0.0622	0.0622		0.0622	0.0622		982.1069	982.1069	0.0188	0.0180	988.0838
Research & Development	14.7797	0.1594	1.4490	1.2172	8.6900e-003		0.1101	0.1101		0.1101	0.1101		1,738.7913	1,738.7913	0.0333	0.0319	1,749.3733
Single Family Housing	254.295	2.7424	23.4350	9.9723	0.1496		1.8947	1.8947		1.8947	1.8947		29,917.0096	29,917.0096	0.5734	0.5485	30,099.0795
Supermarket	2.26438	0.0244	0.2220	0.1865	1.3300e-003		0.0169	0.0169		0.0169	0.0169		266.3981	266.3981	5.1100e-003	4.8800e-003	268.0193
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**5.0698**	**44.1436**	**24.4464**	**0.2765**		**3.5028**	**3.5028**		**3.5028**	**3.5028**		**55,307.1928**	**55,307.1928**	**1.0600**	**1.0140**	**55,643.7832**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	789.1841	7.1165	618.4483	0.0327		8.9483	8.9483		8.8902	8.8902	0.0000	88,292.4606	88,292.4606	2.7417	1.5983	88,845.4996
Unmitigated	789.1841	7.1165	618.4483	0.0327		8.9483	8.9483		8.8902	8.8902	0.0000	88,292.4606	88,292.4606	2.7417	1.5983	88,845.4996

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	78.6160					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	683.9545					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	7.9913	3.6000e-004	0.4359	0.0000		5.5213	5.5213		5.4632	5.4632	0.0000	87,178.2353	87,178.2353	1.6709	1.5983	87,708.7875
Landscaping	18.6223	7.1161	618.0124	0.0327		3.4270	3.4270		3.4270	3.4270		1,114.2253	1,114.2253	1.0708		1,136.7121
Total	**789.1841**	**7.1165**	**618.4483**	**0.0327**		**8.9483**	**8.9483**		**8.8902**	**8.8902**	**0.0000**	**88,292.4606**	**88,292.4606**	**2.7417**	**1.5983**	**88,845.4996**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	78.6160					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	683.9545					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	7.9913	3.6000e-004	0.4359	0.0000		5.5213	5.5213		5.4632	5.4632	0.0000	87,178.2353	87,178.2353	1.6709	1.5983	87,708.7875
Landscaping	18.6223	7.1161	618.0124	0.0327		3.4270	3.4270		3.4270	3.4270		1,114.2253	1,114.2253	1.0708		1,136.7121
Total	**789.1841**	**7.1165**	**618.4483**	**0.0327**		**8.9483**	**8.9483**		**8.8902**	**8.8902**	**0.0000**	**88,292.4606**	**88,292.4606**	**2.7417**	**1.5983**	**88,845.4996**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Vegetation

CalEEMod Version: CalEEMod.2013.2.2

Date: 10/23/2015 12:22 PM

Grapevine Operational Year 2028 - Planning Areas 6A, 2, 1, 3 Buildout

Kern-San Joaquin County, Mitigation Report

Operational Percent Reduction Summary

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.76	3.76	3.76	3.75	3.76
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	2.95	4.60	3.02	5.31	5.31	5.31	0.00	5.32	5.32	5.09	0.00	5.32
Natural Gas	20.02	20.07	20.61	20.03	20.02	20.02	0.00	20.02	20.02	20.01	20.02	20.02
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting: Suburban Center

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value 3
No	Land Use	Increase Density	0.00	0.00	0.00	
No	Land Use	Increase Diversity	0.30	0.69		

No	Land Use	Improve Walkability Design	0.00	0.00		
No	Land Use	Improve Destination Accessibility	0.00	0.00		
No	Land Use	Increase Transit Accessibility	0.25	0.00		
No	Land Use	Integrate Below Market Rate Housing	0.00	0.00		
	Land Use	Land Use SubTotal	0.00			
Yes	Neighborhood Enhancements	Improve Pedestrian Network	2.00	Project Site and Connecting Off-Site		
Yes	Neighborhood Enhancements	Provide Traffic Calming Measures	1.00	100.00	100.00	
No	Neighborhood Enhancements	Implement NEV Network	0.01			
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.05			
No	Parking Policy Pricing	Limit Parking Supply	0.00	0.00		
No	Parking Policy Pricing	Unbundle Parking Costs	0.00	0.00		
No	Parking Policy Pricing	On-street Market Pricing	0.00	0.00		
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00			
No	Transit Improvements	Provide BRT System	0.00	0.00		
Yes	Transit Improvements	Expand Transit Network	0.00	50.00		
No	Transit Improvements	Increase Transit Frequency	0.00		0.00	
	Transit Improvements	Transit Improvements Subtotal	0.00			
		Land Use and Site Enhancement Subtotal	0.05			
Yes	Commute	Implement Trip Reduction Program		50.00	Voluntary	
No	Commute	Transit Subsidy	0.00	0.00		
No	Commute	Implement Employee Parking "Cash Out"	0.00	0.00		
No	Commute	Workplace Parking Charge	0.00	0.00		
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00	0.00	0.00	0.00
No	Commute	Market Commute Trip Reduction Option	0.00	0.00		

No	Commute	Employee Vanpool/Shuttle	0.00	0.00	2.00	
No	Commute	Provide Ride Sharing Program	0.00	0.00		
	Commute	Commute Subtotal	0.00			
No	School Trip	Implement School Bus Program	0.00	0.00		
		Total VMT Reduction	0.05			

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	150.00
No	Use Low VOC Paint (Residential Exterior)	150.00
No	Use Low VOC Paint (Non-residential Interior)	150.00
No	Use Low VOC Paint (Non-residential Exterior)	150.00
No	% Electric Lawnmower	
No	% Electric Leafblower	
No	% Electric Chainsaw	

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
Yes	Exceed Title 24	25.00	
No	Install High Efficiency Lighting		
No	On-site Renewable		

Appliance Type	Land Use Subtype	% Improvement

ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy	0.00	0.00
No	Use Reclaimed Water	0.00	0.00
No	Use Grey Water	0.00	
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction	0.00	
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape	0.00	0.00

Solid Waste Mitigation

Mitigation Measures	Input Value
Institute Recycling and Composting Services	75.00
Percent Reduction in Waste Disposed	

Grapevine Operational Year 2032 - Planning Areas 6A, 2, 1, 3, 4 Buildout

Kern-San Joaquin County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Bank (with Drive-Through)	32.00	1000sqft	2.95	32,000.00	0
General Office Building	1,535.40	1000sqft	134.37	1,535,400.00	0
Government Office Building	6.00	1000sqft	0.51	6,000.00	0
Medical Office Building	300.00	1000sqft	22.69	300,000.00	0
Pharmacy/Drugstore w/o Drive Thru	21.00	1000sqft	1.85	21,000.00	0
Research & Development	540.00	1000sqft	41.19	540,000.00	0
Elementary School	3,976.00	Student	20.00	332,407.00	0
High School	3,000.00	Student	10.00	397,982.93	0
Junior College (2yr)	350.00	1000sqft	27.25	350,000.00	0
Junior High School	1,680.00	Student	40.00	197,503.63	0
General Heavy Industry	52.50	1000sqft	4.09	52,500.00	0
General Light Industry	105.00	1000sqft	8.18	105,000.00	0
Industrial Park	525.00	1000sqft	40.88	525,000.00	0
Manufacturing	52.50	1000sqft	4.09	52,500.00	0
Refrigerated Warehouse-No Rail	105.00	1000sqft	8.18	105,000.00	0
Unrefrigerated Warehouse-No Rail	210.00	1000sqft	16.35	210,000.00	0
Other Asphalt Surfaces	355.00	Acre	355.00	15,463,800.00	0
City Park	126.00	Acre	126.00	5,488,560.00	0
Fast Food Restaurant with Drive Thru	24.40	1000sqft	3.16	24,400.00	0
High Turnover (Sit Down Restaurant)	24.00	1000sqft	3.11	24,000.00	0
Apartments Low Rise	3,260.00	Dwelling Unit	326.00	3,260,000.00	10432
Single Family Housing	6,645.00	Dwelling Unit	1,700.00	11,961,000.00	21264
Convenience Market with Gas Pumps	20.50	1000sqft	2.67	20,500.00	0
Regional Shopping Center	936.70	1000sqft	119.61	936,700.00	0
Supermarket	170.00	1000sqft	21.89	170,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	7			**Operational Year**	2030
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	372.88	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Planning Areas 6A, 2, 1, 3, 4. Kern County, San Joaquin Valley Air Basin. Operational Year 2030 was conservatively used for anticipated Operational Year 2032 since CalEEMod does not include year 2032 (options include 2030 and 2035). CO2 Intensity adjusted based on PG&E 50% Renewables by 2030.

Land Use - See 1.1 Land Usage. Population based on 3.2 persons per dwelling unit.

Construction Phase - Construction emissions calculated separately.

Vehicle Trips - Modified trip rates to match Trip Generation and VMT factors provided by Fehr & Peers.

Vehicle Emission Factors - Default CalEEMod values.

Woodstoves - No woodstoves and only gas fireplaces assumed

Area Coating - Default CalEEMod VOC content. Modified non-residential interior and exterior area to be coated based on CalEEMod architectural coating surface area equations and adjusted for parking/asphalt surface and park land uses.

Energy Use - Updated Title 24 electricity and natural gas energy intensity to match 2013 Title 24 standards (25% reduction versus 2008 standards).

Water And Wastewater - Water and wastewater consumption and associated emissions calculated separately.

Construction Off-road Equipment Mitigation - Construction emissions calculated separately.

Mobile Land Use Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Project Setting: Suburban Center. Improve Pedestrian Network: Project Site and Connecting Off-Site. Provide Traffic Calming Measures: 100% Streets with Improvement, 100% Intersections with Improvement. Expand Transit Network: 50%.

Mobile Commute Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Voluntary Commute Trip Reduction Program: 50%.

Energy Mitigation - Exceed 2013 Title 24, % Improvement: 25%.

Water Mitigation - Water reductions calculated separately.

Waste Mitigation - Percent Reduction in Waste Disposed: 75%. Waste diversion consistent with Assembly Bill 341 (not mitigation).

Note Regarding Emissions Presented in the Air Quality & Greenhouse Gas Technical Report: Project-generated unmitigated and mitigated emissions in the Technical Report reflect the unmitigated mobile source emissions reported in 2.0 Emissions Summary. No area source mitigation assumed. Unmitigated and mitigated energy source and solid waste emissions reported in the Technical Report as presented in 2.0 Emissions Summary. Water/wastewater and stationary source emissions calculated separately.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	13445127	3955043
tblAreaCoating	Area_Nonresidential_Interior	40335381	8096840
tblConstructionPhase	NumDays	155,000.00	5.00
tblEnergyUse	T24E	352.42	264.31
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	4.43	3.32
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.70	0.53
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	763.80	572.85
tblEnergyUse	T24E	4.88	3.66
tblEnergyUse	T24NG	14,007.38	10,505.53
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	10.78	8.09

tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	18.61	13.96
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tblEnergyUse	T24NG	54.53	40.90
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tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	23,622.31	17,716.73
tblEnergyUse	T24NG	8.10	6.08
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblLandUse	LotAcreage	0.73	2.95
tblLandUse	LotAcreage	35.25	134.37
tblLandUse	LotAcreage	0.14	0.51
tblLandUse	LotAcreage	6.89	22.69
tblLandUse	LotAcreage	0.48	1.85
tblLandUse	LotAcreage	12.40	41.19
tblLandUse	LotAcreage	7.63	20.00
tblLandUse	LotAcreage	9.14	10.00
tblLandUse	LotAcreage	8.03	27.25
tblLandUse	LotAcreage	4.53	40.00

tblLandUse	LotAcreage	1.21	4.09
tblLandUse	LotAcreage	2.41	8.18
tblLandUse	LotAcreage	12.05	40.88
tblLandUse	LotAcreage	1.21	4.09
tblLandUse	LotAcreage	2.41	8.18
tblLandUse	LotAcreage	4.82	16.35
tblLandUse	LotAcreage	0.56	3.16
tblLandUse	LotAcreage	0.55	3.11
tblLandUse	LotAcreage	203.75	326.00
tblLandUse	LotAcreage	2,157.47	1,700.00
tblLandUse	LotAcreage	0.47	2.67
tblLandUse	LotAcreage	21.50	119.61
tblLandUse	LotAcreage	3.90	21.89
tblLandUse	Population	9,324.00	10,432.00
tblLandUse	Population	19,005.00	21,264.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	372.88
tblProjectCharacteristics	OperationalYear	2014	2030
tblTripsAndVMT	VendorTripNumber	5,466.00	0.00
tblTripsAndVMT	WorkerTripNumber	15,677.00	0.00
tblVehicleTrips	CC_TL	7.30	15.62
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tblVehicleTrips	PR_TP	37.00	100.00
tblVehicleTrips	PR_TP	79.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	63.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	60.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	PR_TP	41.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	54.00	100.00
tblVehicleTrips	PR_TP	82.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	34.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	7.16	5.89
tblVehicleTrips	ST_TR	86.32	5.23
tblVehicleTrips	ST_TR	1.59	1.54
tblVehicleTrips	ST_TR	1,448.33	59.54
tblVehicleTrips	ST_TR	722.03	50.58
tblVehicleTrips	ST_TR	1.50	0.55
tblVehicleTrips	ST_TR	1.32	0.55
tblVehicleTrips	ST_TR	2.37	1.93

tblVehicleTrips	ST_TR	0.61	0.50
tblVehicleTrips	ST_TR	158.37	43.29
tblVehicleTrips	ST_TR	2.49	1.99
tblVehicleTrips	ST_TR	11.23	1.73
tblVehicleTrips	ST_TR	1.49	1.13
tblVehicleTrips	ST_TR	8.96	2.23
tblVehicleTrips	ST_TR	90.06	8.98
tblVehicleTrips	ST_TR	2.59	2.90
tblVehicleTrips	ST_TR	49.97	40.45
tblVehicleTrips	ST_TR	1.90	2.10
tblVehicleTrips	ST_TR	10.08	8.16
tblVehicleTrips	ST_TR	177.59	60.37
tblVehicleTrips	ST_TR	2.59	2.90
tblVehicleTrips	SU_TR	6.07	4.99
tblVehicleTrips	SU_TR	31.90	1.94
tblVehicleTrips	SU_TR	1.59	1.54
tblVehicleTrips	SU_TR	1,182.08	48.59
tblVehicleTrips	SU_TR	542.72	38.02
tblVehicleTrips	SU_TR	1.50	0.20
tblVehicleTrips	SU_TR	0.68	0.28
tblVehicleTrips	SU_TR	0.98	0.80
tblVehicleTrips	SU_TR	0.25	0.20
tblVehicleTrips	SU_TR	131.84	36.04
tblVehicleTrips	SU_TR	0.73	0.59
tblVehicleTrips	SU_TR	1.21	0.19
tblVehicleTrips	SU_TR	0.62	0.47
tblVehicleTrips	SU_TR	1.55	0.38
tblVehicleTrips	SU_TR	90.06	8.98
tblVehicleTrips	SU_TR	2.59	2.90
tblVehicleTrips	SU_TR	25.24	20.43

tblVehicleTrips	SU_TR	1.11	1.23
tblVehicleTrips	SU_TR	8.77	7.10
tblVehicleTrips	SU_TR	166.44	56.58
tblVehicleTrips	SU_TR	2.59	2.90
tblVehicleTrips	WD_TR	6.59	5.41
tblVehicleTrips	WD_TR	148.15	8.98
tblVehicleTrips	WD_TR	1.59	1.54
tblVehicleTrips	WD_TR	845.60	34.76
tblVehicleTrips	WD_TR	1.29	1.05
tblVehicleTrips	WD_TR	496.12	34.76
tblVehicleTrips	WD_TR	1.50	2.90
tblVehicleTrips	WD_TR	6.97	2.90
tblVehicleTrips	WD_TR	11.01	8.98
tblVehicleTrips	WD_TR	68.93	8.98
tblVehicleTrips	WD_TR	1.71	1.39
tblVehicleTrips	WD_TR	127.15	34.76
tblVehicleTrips	WD_TR	6.96	5.56
tblVehicleTrips	WD_TR	27.49	4.23
tblVehicleTrips	WD_TR	1.62	1.32
tblVehicleTrips	WD_TR	3.82	2.90
tblVehicleTrips	WD_TR	36.13	8.98
tblVehicleTrips	WD_TR	90.06	8.98
tblVehicleTrips	WD_TR	2.59	2.90
tblVehicleTrips	WD_TR	42.94	34.76
tblVehicleTrips	WD_TR	8.11	8.98
tblVehicleTrips	WD_TR	9.57	7.75
tblVehicleTrips	WD_TR	102.24	34.76

tblVehicleTrips	WD_TR	2.59	2.90
tblWater	IndoorWaterUseRate	212,402,123.53	0.00
tblWater	IndoorWaterUseRate	1,267,933.40	0.00
tblWater	IndoorWaterUseRate	1,518,486.69	0.00
tblWater	IndoorWaterUseRate	9,638,778.24	0.00
tblWater	IndoorWaterUseRate	7,406,222.58	0.00
tblWater	IndoorWaterUseRate	12,140,625.00	0.00
tblWater	IndoorWaterUseRate	24,281,250.00	0.00
tblWater	IndoorWaterUseRate	272,892,396.67	0.00
tblWater	IndoorWaterUseRate	1,191,958.12	0.00
tblWater	IndoorWaterUseRate	13,214,880.00	0.00
tblWater	IndoorWaterUseRate	7,284,809.10	0.00
tblWater	IndoorWaterUseRate	121,406,250.00	0.00
tblWater	IndoorWaterUseRate	17,167,161.38	0.00
tblWater	IndoorWaterUseRate	4,072,723.20	0.00
tblWater	IndoorWaterUseRate	12,140,625.00	0.00
tblWater	IndoorWaterUseRate	37,644,161.27	0.00
tblWater	IndoorWaterUseRate	1,479,397.99	0.00
tblWater	IndoorWaterUseRate	24,281,250.00	0.00
tblWater	IndoorWaterUseRate	69,383,730.87	0.00
tblWater	IndoorWaterUseRate	265,514,731.49	0.00
tblWater	IndoorWaterUseRate	432,948,500.25	0.00
tblWater	IndoorWaterUseRate	20,955,596.53	0.00
tblWater	IndoorWaterUseRate	48,562,500.00	0.00
tblWater	OutdoorWaterUseRate	133,905,686.57	0.00
tblWater	OutdoorWaterUseRate	777,120.47	0.00
tblWater	OutdoorWaterUseRate	150,126,650.06	0.00
tblWater	OutdoorWaterUseRate	930,685.39	0.00
tblWater	OutdoorWaterUseRate	24,785,429.76	0.00
tblWater	OutdoorWaterUseRate	472,737.61	0.00

tblWater	OutdoorWaterUseRate	167,256,630.22	0.00
tblWater	OutdoorWaterUseRate	730,554.97	0.00
tblWater	OutdoorWaterUseRate	33,981,120.00	0.00
tblWater	OutdoorWaterUseRate	464,987.81	0.00
tblWater	OutdoorWaterUseRate	26,851,201.13	0.00
tblWater	OutdoorWaterUseRate	10,472,716.80	0.00
tblWater	OutdoorWaterUseRate	7,170,316.43	0.00
tblWater	OutdoorWaterUseRate	906,727.80	0.00
tblWater	OutdoorWaterUseRate	42,525,512.47	0.00
tblWater	OutdoorWaterUseRate	272,945,793.64	0.00
tblWater	OutdoorWaterUseRate	648,111.23	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	185.5807	0.8468	73.5044	3.8900e-003		0.7079	0.7079		0.7047	0.7047	0.0000	4,411.3077	4,411.3077	0.1974	0.0787	4,439.8389
Energy	1.4927	12.9807	7.0755	0.0814		1.0313	1.0313		1.0313	1.0313	0.0000	35,230.7834	35,230.7834	1.8742	0.6000	35,456.1493
Mobile	112.9369	498.5659	1,467.0948	6.2420	307.6798	13.7439	321.4237	82.8876	12.6566	95.5442	0.0000	453,007.6575	453,007.6575	8.2377	0.0000	453,180.6485
Waste						0.0000	0.0000		0.0000	0.0000	4,044.1626	0.0000	4,044.1626	239.0032	0.0000	9,063.2289
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**300.0103**	**512.3933**	**1,547.6747**	**6.3273**	**307.6798**	**15.4831**	**323.1629**	**82.8876**	**14.3927**	**97.2802**	**4,044.1626**	**492,649.7487**	**496,693.9112**	**249.3124**	**0.6787**	**502,139.8657**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	185.5807	0.8468	73.5044	3.8900e-003		0.7079	0.7079		0.7047	0.7047	0.0000	4,411.3077	4,411.3077	0.1974	0.0787	4,439.8389
Energy	1.1953	10.3882	5.6234	0.0652		0.8258	0.8258		0.8258	0.8258	0.0000	31,529.8920	31,529.8920	1.7589	0.5339	31,732.3295
Mobile	109.5216	475.7949	1,422.6718	5.9102	291.0101	13.0159	304.0260	78.3968	11.9862	90.3830	0.0000	428,908.5503	428,908.5503	7.8172	0.0000	429,072.7110
Waste						0.0000	0.0000		0.0000	0.0000	1,011.0406	0.0000	1,011.0406	59.7508	0.0000	2,265.8072
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**296.2975**	**487.0298**	**1,501.7996**	**5.9793**	**291.0101**	**14.5496**	**305.5597**	**78.3968**	**13.5167**	**91.9136**	**1,011.0406**	**464,849.7500**	**465,860.7906**	**69.5242**	**0.6125**	**467,510.6866**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.24**	**4.95**	**2.96**	**5.50**	**5.42**	**6.03**	**5.45**	**5.42**	**6.09**	**5.52**	**75.00**	**5.64**	**6.21**	**72.11**	**9.75**	**6.90**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

Provide Traffic Calming Measures

Expand Transit Network

Implement Trip Reduction Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	109.5216	475.7949	1,422.6718	5.9102	291.0101	13.0159	304.0260	78.3968	11.9862	90.3830	0.0000	428,908.5503	428,908.5503	7.8172	0.0000	429,072.7110
Unmitigated	112.9369	498.5659	1,467.0948	6.2420	307.6798	13.7439	321.4237	82.8876	12.6566	95.5442	0.0000	453,007.6575	453,007.6575	8.2377	0.0000	453,180.6485

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	17,636.60	19,201.40	16267.40	100,434,938	94,993,511
Bank (with Drive-Through)	287.36	167.36	62.08	1,353,387	1,280,062
City Park	194.04	194.04	194.04	1,103,249	1,043,477
Convenience Market with Gas Pumps	712.58	1,220.57	996.10	4,694,394	4,440,058
Elementary School	4,174.80	0.00	0.00	16,954,698	16,036,116
Fast Food Restaurant with Drive Thru	848.14	1,234.15	927.69	5,200,415	4,918,664
General Heavy Industry	152.25	28.88	10.50	650,300	615,067
General Light Industry	304.50	57.75	29.40	1,307,422	1,236,588
General Office Building	13,787.89	2,963.32	1228.32	59,400,006	56,181,796
Government Office Building	53.88	0.00	0.00	218,817	206,962
High School	4,170.00	1,500.00	600.00	18,640,908	17,630,969
High Turnover (Sit Down Restaurant)	834.24	1,038.96	864.96	4,934,455	4,667,113
Industrial Park	2,919.00	1,044.75	309.75	12,954,822	12,252,947
Junior College (2yr)	1,480.50	605.50	66.50	6,558,432	6,203,105
Junior High School	2,217.60	0.00	0.00	9,006,117	8,518,178
Manufacturing	152.25	59.33	24.68	686,546	649,350
Medical Office Building	2,694.00	669.00	114.00	11,576,857	10,949,639
Other Asphalt Surfaces	0.00	0.00	0.00		

Pharmacy/Drugstore w/o Drive Thru	188.58	188.58	188.58	1,072,206	1,014,115
Refrigerated Warehouse-No Rail	304.50	304.50	304.50	1,731,290	1,637,491
Regional Shopping Center	32,559.69	37,889.52	19136.78	178,550,460	168,876,842
Research & Development	4,849.20	1,134.00	664.20	21,154,141	20,008,039
Single Family Housing	51,498.75	54,223.20	47179.50	291,510,053	275,716,439
Supermarket	5,909.20	10,262.90	9618.60	40,146,993	37,971,884
Unrefrigerated Warehouse-No Rail	609.00	609.00	609.00	3,462,579	3,274,981
Total	148,538.56	134,596.70	99,396.57	793,303,484	750,323,394

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Bank (with Drive-Through)	15.62	15.62	15.62	6.60	74.40	19.00	100	0	0
City Park	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Convenience Market with Gas	15.62	15.62	15.62	0.80	80.20	19.00	100	0	0
Elementary School	15.62	15.62	15.62	65.00	30.00	5.00	100	0	0
Fast Food Restaurant with Drive	15.62	15.62	15.62	2.20	78.80	19.00	100	0	0
General Heavy Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Light Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Office Building	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Government Office Building	15.62	15.62	15.62	33.00	62.00	5.00	100	0	0
High School	15.62	15.62	15.62	77.80	17.20	5.00	100	0	0
High Turnover (Sit Down	15.62	15.62	15.62	8.50	72.50	19.00	100	0	0
Industrial Park	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Junior College (2yr)	15.62	15.62	15.62	6.40	88.60	5.00	100	0	0
Junior High School	15.62	15.62	15.62	72.80	22.20	5.00	100	0	0
Manufacturing	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Medical Office Building	15.62	15.62	15.62	29.60	51.40	19.00	100	0	0
Other Asphalt Surfaces	15.62	15.62	15.62	0.00	0.00	0.00	100	0	0
Pharmacy/Drugstore w/o Drive	15.62	15.62	15.62	7.40	73.60	19.00	100	0	0
Refrigerated Warehouse-No Rail	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0
Regional Shopping Center	15.62	15.62	15.62	16.30	64.70	19.00	100	0	0
Research & Development	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Single Family Housing	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Supermarket	15.62	15.62	15.62	6.50	74.50	19.00	100	0	0
Unrefrigerated Warehouse-No	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.356304	0.054914	0.136221	0.180053	0.057165	0.010435	0.023295	0.168686	0.001480	0.001854	0.006117	0.000946	0.002529

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	19,700.9385	19,700.9385	1.5322	0.3170	19,831.3869
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	20,457.9417	20,457.9417	1.5911	0.3292	20,593.4026
NaturalGas Mitigated	1.1953	10.3882	5.6234	0.0652		0.8258	0.8258		0.8258	0.8258	0.0000	11,828.9535	11,828.9535	0.2267	0.2169	11,900.9426
NaturalGas Unmitigated	1.4927	12.9807	7.0755	0.0814		1.0313	1.0313		1.0313	1.0313	0.0000	14,772.8417	14,772.8417	0.2832	0.2708	14,862.7468

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					

Bank (with Drive-Through)	424960	2.2900e-003	0.0208	0.0175	1.2000e-004		1.5800e-003	1.5800e-003		1.5800e-003	1.5800e-003	0.0000	22.6775	22.6775	4.3000e-004	4.2000e-004	22.8155
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	92660	5.0000e-004	4.5400e-003	3.8200e-003	3.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	4.9447	4.9447	9.0000e-005	9.0000e-005	4.9748
Elementary School	2.84208e+006	0.0153	0.1393	0.1170	8.4000e-004		0.0106	0.0106		0.0106	0.0106	0.0000	151.6642	151.6642	2.9100e-003	2.7800e-003	152.5872
Fast Food Restaurant with Drive Thru	2.32703e+006	0.0126	0.1141	0.0958	6.8000e-004		8.6700e-003	8.6700e-003		8.6700e-003	8.6700e-003	0.0000	124.1791	124.1791	2.3800e-003	2.2800e-003	124.9348
General Heavy Industry	697200	3.7600e-003	0.0342	0.0287	2.1000e-004		2.6000e-003	2.6000e-003		2.6000e-003	2.6000e-003	0.0000	37.2053	37.2053	7.1000e-004	6.8000e-004	37.4317
General Light Industry	1.3944e+006	7.5200e-003	0.0684	0.0574	4.1000e-004		5.1900e-003	5.1900e-003		5.1900e-003	5.1900e-003	0.0000	74.4105	74.4105	1.4300e-003	1.3600e-003	74.8633
General Office Building	2.11732e+007	0.1142	1.0379	0.8718	6.2300e-003		0.0789	0.0789		0.0789	0.0789	0.0000	1,129.8808	1,129.8808	0.0217	0.0207	1,136.7570
Government Office Building	82740	4.5000e-004	4.0600e-003	3.4100e-003	2.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	4.4153	4.4153	8.0000e-005	8.0000e-005	4.4422
High School	3.40275e+006	0.0184	0.1668	0.1401	1.0000e-003		0.0127	0.0127		0.0127	0.0127	0.0000	181.5839	181.5839	3.4800e-003	3.3300e-003	182.6890
High Turnover (Sit Down Restaurant)	2.28888e+006	0.0123	0.1122	0.0943	6.7000e-004		8.5300e-003	8.5300e-003		8.5300e-003	8.5300e-003	0.0000	122.1434	122.1434	2.3400e-003	2.2400e-003	122.8867
Industrial Park	7.23975e+006	0.0390	0.3549	0.2981	2.1300e-003		0.0270	0.0270		0.0270	0.0270	0.0000	386.3406	386.3406	7.4000e-003	7.0800e-003	388.6918
Junior College (2yr)	1.4434e+007	0.0778	0.7076	0.5943	4.2500e-003		0.0538	0.0538		0.0538	0.0538	0.0000	770.2532	770.2532	0.0148	0.0141	774.9408
Junior High School	1.68866e+006	9.1100e-003	0.0828	0.0695	5.0000e-004		6.2900e-003	6.2900e-003		6.2900e-003	6.2900e-003	0.0000	90.1131	90.1131	1.7300e-003	1.6500e-003	90.6615
Manufacturing	697200	3.7600e-003	0.0342	0.0287	2.1000e-004		2.6000e-003	2.6000e-003		2.6000e-003	2.6000e-003	0.0000	37.2053	37.2053	7.1000e-004	6.8000e-004	37.4317
Apartments Low Rise	4.23915e+007	0.2286	1.9533	0.8312	0.0125		0.1579	0.1579		0.1579	0.1579	0.0000	2,262.1723	2,262.1723	0.0434	0.0415	2,275.9395
Medical Office Building	4.137e+006	0.0223	0.2028	0.1704	1.2200e-003		0.0154	0.0154		0.0154	0.0154	0.0000	220.7661	220.7661	4.2300e-003	4.0500e-003	222.1096
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	94920	5.1000e-004	4.6500e-003	3.9100e-003	3.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	5.0653	5.0653	1.0000e-004	9.0000e-005	5.0961
Refrigerated Warehouse-No Rail	763350	4.1200e-003	0.0374	0.0314	2.2000e-004		2.8400e-003	2.8400e-003		2.8400e-003	2.8400e-003	0.0000	40.7353	40.7353	7.8000e-004	7.5000e-004	40.9832
Regional Shopping Center	4.23388e+006	0.0228	0.2075	0.1743	1.2500e-003		0.0158	0.0158		0.0158	0.0158	0.0000	225.9362	225.9362	4.3300e-003	4.1400e-003	227.3112
Research & Development	7.1712e+006	0.0387	0.3515	0.2953	2.1100e-003		0.0267	0.0267		0.0267	0.0267	0.0000	382.6825	382.6825	7.3300e-003	7.0200e-003	385.0115
Single Family Housing	1.5806e+008	0.8523	7.2832	3.0992	0.0465		0.5889	0.5889		0.5889	0.5889	0.0000	8,434.6922	8,434.6922	0.1617	0.1546	8,486.0244

Supermarket	1.1951e+006	6.4400e-003	0.0586	0.0492	3.5000e-004		4.4500e-003	4.4500e-003		4.4500e-003	4.4500e-003	0.0000	63.7751	63.7751	1.2200e-003	1.1700e-003	64.1632
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.4927**	**12.9807**	**7.0756**	**0.0814**		**1.0313**	**1.0313**		**1.0313**	**1.0313**	**0.0000**	**14,772.8417**	**14,772.8417**	**0.2831**	**0.2708**	**14,862.7468**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas [illegible]	69853.8	3.8000e-004	3.4200e-003	2.8800e-003	2.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004	0.0000	3.7277	3.7277	7.0000e-005	7.0000e-005	3.7504
Elementary School	2.16979e+006	0.0117	0.1064	0.0893	6.4000e-004		8.0800e-003	8.0800e-003		8.0800e-003	8.0800e-003	0.0000	115.7881	115.7881	2.2200e-003	2.1200e-003	116.4928
Fast Food Restaurant with [illegible]	2.24187e+006	0.0121	0.1099	0.0923	6.6000e-004		8.3500e-003	8.3500e-003		8.3500e-003	8.3500e-003	0.0000	119.6348	119.6348	2.2900e-003	2.1900e-003	120.3629
General Heavy Industry	524475	2.8300e-003	0.0257	0.0216	1.5000e-004		1.9500e-003	1.9500e-003		1.9500e-003	1.9500e-003	0.0000	27.9880	27.9880	5.4000e-004	5.1000e-004	28.1583
General Light Industry	1.04895e+006	5.6600e-003	0.0514	0.0432	3.1000e-004		3.9100e-003	3.9100e-003		3.9100e-003	3.9100e-003	0.0000	55.9760	55.9760	1.0700e-003	1.0300e-003	56.3166
General Office Building	1.62944e+007	0.0879	0.7988	0.6710	4.7900e-003		0.0607	0.0607		0.0607	0.0607	0.0000	869.5330	869.5330	0.0167	0.0159	874.8248
Government Office Building	63675	3.4000e-004	3.1200e-003	2.6200e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	3.3979	3.3979	7.0000e-005	6.0000e-005	3.4186
High School	2.59783e+006	0.0140	0.1273	0.1070	7.6000e-004		9.6800e-003	9.6800e-003		9.6800e-003	9.6800e-003	0.0000	138.6303	138.6303	2.6600e-003	2.5400e-003	139.4740
High Turnover (Sit Down Restaurant)	2.20512e+006	0.0119	0.1081	0.0908	6.5000e-004		8.2200e-003	8.2200e-003		8.2200e-003	8.2200e-003	0.0000	117.6736	117.6736	2.2600e-003	2.1600e-003	118.3897
Industrial Park	5.57156e+006	0.0300	0.2731	0.2294	1.6400e-003		0.0208	0.0208		0.0208	0.0208	0.0000	297.3198	297.3198	5.7000e-003	5.4500e-003	299.1292
Junior College (2yr)	1.08552e+007	0.0585	0.5321	0.4470	3.1900e-003		0.0404	0.0404		0.0404	0.0404	0.0000	579.2775	579.2775	0.0111	0.0106	582.8029
Junior High School	1.2892e+006	6.9500e-003	0.0632	0.0531	3.8000e-004		4.8000e-003	4.8000e-003		4.8000e-003	4.8000e-003	0.0000	68.7969	68.7969	1.3200e-003	1.2600e-003	69.2156
Manufacturing	524475	2.8300e-003	0.0257	0.0216	1.5000e-004		1.9500e-003	1.9500e-003		1.9500e-003	1.9500e-003	0.0000	27.9880	27.9880	5.4000e-004	5.1000e-004	28.1583

Medical Office Building	3.18375e+006	0.0172	0.1561	0.1311	9.4000e-004		0.0119	0.0119		0.0119	0.0119	0.0000	169.8970	169.8970	3.2600e-003	3.1100e-003	170.9310
Apartments Low Rise	3.38295e+007	0.1824	1.5588	0.6633	9.9500e-003		0.1260	0.1260		0.1260	0.1260	0.0000	1,805.2710	1,805.2710	0.0346	0.0331	1,816.2576
Bank (with Drive-Through)	319680	1.7200e-003	0.0157	0.0132	9.0000e-005		1.1900e-003	1.1900e-003		1.1900e-003	1.1900e-003	0.0000	17.0593	17.0593	3.3000e-004	3.1000e-004	17.1632
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	71557.5	3.9000e-004	3.5100e-003	2.9500e-003	2.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004	0.0000	3.8186	3.8186	7.0000e-005	7.0000e-005	3.8418
Refrigerated Warehouse-No Rail	653888	3.5300e-003	0.0321	0.0269	1.9000e-004		2.4400e-003	2.4400e-003		2.4400e-003	2.4400e-003	0.0000	34.8939	34.8939	6.7000e-004	6.4000e-004	35.1063
Regional Shopping Center	3.19181e+006	0.0172	0.1565	0.1314	9.4000e-004		0.0119	0.0119		0.0119	0.0119	0.0000	170.3269	170.3269	3.2600e-003	3.1200e-003	171.3635
Research & Development	5.3946e+006	0.0291	0.2644	0.2221	1.5900e-003		0.0201	0.0201		0.0201	0.0201	0.0000	287.8764	287.8764	5.5200e-003	5.2800e-003	289.6284
Single Family Housing	1.28628e+008	0.6936	5.9270	2.5221	0.0378		0.4792	0.4792		0.4792	0.4792	0.0000	6,864.0930	6,864.0930	0.1316	0.1258	6,905.8667
Supermarket	936700	5.0500e-003	0.0459	0.0386	2.8000e-004		3.4900e-003	3.4900e-003		3.4900e-003	3.4900e-003	0.0000	49.9859	49.9859	9.6000e-004	9.2000e-004	50.2901
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.1953**	**10.3882**	**5.6234**	**0.0652**		**0.8258**	**0.8258**		**0.8258**	**0.8258**	**0.0000**	**11,828.9535**	**11,828.9535**	**0.2267**	**0.2169**	**11,900.9425**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	1.20801e+007	2,043.1729	0.1589	0.0329	2,056.7016
Bank (with Drive-Through)	80640	13.6391	1.0600e-003	2.2000e-004	13.7294
City Park	0	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	215455	36.4411	2.8300e-003	5.9000e-004	36.6824
Elementary School	2.54291e+006	430.0970	0.0335	6.9200e-003	432.9449

Fast Food Restaurant with Drive Thru	817156	138.2101	0.0108	2.2200e-003	139.1253
General Heavy Industry	132300	22.3766	1.7400e-003	3.6000e-004	22.5248
General Light Industry	264600	44.7533	3.4800e-003	7.2000e-004	45.0496
General Office Building	1.57225e+007	2,659.2326	0.2068	0.0428	2,676.8405
Government Office Building	61440	10.3917	8.1000e-004	1.7000e-004	10.4605
High School	3.04457e+006	514.9448	0.0401	8.2900e-003	518.3545
High Turnover (Sit Down Restaurant)	803760	135.9444	0.0106	2.1900e-003	136.8445
Industrial Park	5.376e+006	909.2726	0.0707	0.0146	915.2933
Junior College (2yr)	5.7155e+006	966.6941	0.0752	0.0156	973.0950
Junior High School	1.5109e+006	255.5473	0.0199	4.1100e-003	257.2394
Manufacturing	132300	22.3766	1.7400e-003	3.6000e-004	22.5248
Medical Office Building	3.072e+006	519.5843	0.0404	8.3600e-003	523.0247
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	220710	37.3299	2.9000e-003	6.0000e-004	37.5771
Refrigerated Warehouse-No Rail	3.06915e+006	519.1023	0.0404	8.3500e-003	522.5395
Regional Shopping Center	9.84472e+006	1,665.0914	0.1295	0.0268	1,676.1167
Research & Development	1.3608e+006	230.1596	0.0179	3.7000e-003	231.6836
Single Family Housing	4.83825e+007	8,183.2013	0.6364	0.1317	8,237.3858
Supermarket	6.5059e+006	1,100.3788	0.0856	0.0177	1,107.6649
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**20,457.9417**	**1.5911**	**0.3292**	**20,593.4026**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	1.18647e+007	2,006.7389	0.1561	0.0323	2,020.0264
Bank (with Drive-Through)	77680	13.1385	1.0200e-003	2.1000e-004	13.2254
City Park	0	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	200593	33.9273	2.6400e-003	5.5000e-004	34.1520
Elementary School	2.39499e+006	405.0783	0.0315	6.5200e-003	407.7605
Fast Food Restaurant with Drive Thru	773541	130.8333	0.0102	2.1100e-003	131.6996
General Heavy Industry	127444	21.5553	1.6800e-003	3.5000e-004	21.6980
General Light Industry	254887	43.1105	3.3500e-003	6.9000e-004	43.3960
General Office Building	1.47053e+007	2,487.1875	0.1934	0.0400	2,503.6563
Government Office Building	57465	9.7194	7.6000e-004	1.6000e-004	9.7837
High School	2.86747e+006	484.9905	0.0377	7.8000e-003	488.2019
High Turnover (Sit Down Restaurant)	760860	128.6885	0.0100	2.0700e-003	129.5406
Industrial Park	5.02819e+006	850.4451	0.0661	0.0137	856.0763
Junior College (2yr)	5.425e+006	917.5602	0.0714	0.0148	923.6358
Junior High School	1.42301e+006	240.6822	0.0187	3.8700e-003	242.2758
Manufacturing	127444	21.5553	1.6800e-003	3.5000e-004	21.6980
Medical Office Building	2.87325e+006	485.9686	0.0378	7.8200e-003	489.1865
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	205485	34.7548	2.7000e-003	5.6000e-004	34.9849

Refrigerated Warehouse-No Rail	3.05524e+006	516.7492	0.0402	8.3100e-003	520.1708
Regional Shopping Center	9.16561e+006	1,550.2302	0.1206	0.0249	1,560.4949
Research & Development	1.31085e+006	221.7113	0.0172	3.5700e-003	223.1794
Single Family Housing	4.74309e+007	8,022.2439	0.6239	0.1291	8,075.3627
Supermarket	6.35035e+006	1,074.0698	0.0835	0.0173	1,081.1817
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**19,700.9385**	**1.5322**	**0.3170**	**19,831.3869**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	185.5807	0.8468	73.5044	3.8900e-003		0.7079	0.7079		0.7047	0.7047	0.0000	4,411.3077	4,411.3077	0.1974	0.0787	4,439.8389
Unmitigated	185.5807	0.8468	73.5044	3.8900e-003		0.7079	0.7079		0.7047	0.7047	0.0000	4,411.3077	4,411.3077	0.1974	0.0787	4,439.8389

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					

Architectural Coating	18.4758					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	164.4655					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.4336	2.0000e-005	0.0237	0.0000		0.2996	0.2996		0.2964	0.2964	0.0000	4,290.9193	4,290.9193	0.0822	0.0787	4,317.0331
Landscaping	2.2058	0.8468	73.4807	3.8900e-003		0.4083	0.4083		0.4083	0.4083	0.0000	120.3885	120.3885	0.1151	0.0000	122.8058
Total	**185.5807**	**0.8468**	**73.5044**	**3.8900e-003**		**0.7079**	**0.7079**		**0.7047**	**0.7047**	**0.0000**	**4,411.3077**	**4,411.3077**	**0.1974**	**0.0787**	**4,439.8389**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	18.4758					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	164.4655					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.4336	2.0000e-005	0.0237	0.0000		0.2996	0.2996		0.2964	0.2964	0.0000	4,290.9193	4,290.9193	0.0822	0.0787	4,317.0331
Landscaping	2.2058	0.8468	73.4807	3.8900e-003		0.4083	0.4083		0.4083	0.4083	0.0000	120.3885	120.3885	0.1151	0.0000	122.8058
Total	**185.5807**	**0.8468**	**73.5044**	**3.8900e-003**		**0.7079**	**0.7079**		**0.7047**	**0.7047**	**0.0000**	**4,411.3077**	**4,411.3077**	**0.1974**	**0.0787**	**4,439.8389**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			

Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	0 / 0	0.0000	0.0000	0.0000	0.0000
Bank (with Drive-Through)	0 / 0	0.0000	0.0000	0.0000	0.0000
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	0 / 0	0.0000	0.0000	0.0000	0.0000
Elementary School	0 / 0	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant with Drive-Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
General Heavy Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Government Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
High School	0 / 0	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	0 / 0	0.0000	0.0000	0.0000	0.0000
Industrial Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Junior College (2yr)	0 / 0	0.0000	0.0000	0.0000	0.0000

Junior High School	0 / 0	0.0000	0.0000	0.0000	0.0000
Manufacturing	0 / 0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0 / 0	0.0000	0.0000	0.0000	0.0000
Research & Development	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Supermarket	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	0 / 0	0.0000	0.0000	0.0000	0.0000
Bank (with Drive-Through)	0 / 0	0.0000	0.0000	0.0000	0.0000
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	0 / 0	0.0000	0.0000	0.0000	0.0000
Elementary School	0 / 0	0.0000	0.0000	0.0000	0.0000

Fast Food Restaurant with Drive Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
General Heavy Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Government Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
High School	0 / 0	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	0 / 0	0.0000	0.0000	0.0000	0.0000
Industrial Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Junior College (2yr)	0 / 0	0.0000	0.0000	0.0000	0.0000
Junior High School	0 / 0	0.0000	0.0000	0.0000	0.0000
Manufacturing	0 / 0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0 / 0	0.0000	0.0000	0.0000	0.0000
Research & Development	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Supermarket	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Unmitigated	4,044.1626	239.0032	0.0000	9,063.2289
Mitigated	1,011.0406	59.7508	0.0000	2,265.8072

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	1499.6	304.4053	17.9898	0.0000	682.1918
Bank (with Drive-Through)	29.86	6.0613	0.3582	0.0000	13.5838
City Park	10.84	2.2004	0.1300	0.0000	4.9313
Convenience Market with Gas Pumps	61.61	12.5063	0.7391	0.0000	28.0274
Elementary School	725.62	147.2943	8.7048	0.0000	330.0960
Fast Food Restaurant with Drive-Thru	281.06	57.0526	3.3717	0.0000	127.8586
General Heavy Industry	65.1	13.2147	0.7810	0.0000	29.6150

General Light Industry	130.2	26.4294	1.5619	0.0000	59.2300
General Office Building	1427.92	289.8549	17.1299	0.0000	649.5834
Government Office Building	5.58	1.1327	0.0669	0.0000	2.5384
High School	547.5	111.1376	6.5680	0.0000	249.0664
High Turnover (Sit Down Restaurant)	285.6	57.9742	3.4262	0.0000	129.9240
Industrial Park	651	132.1471	7.8097	0.0000	296.1502
Junior College (2yr)	455	92.3609	5.4584	0.0000	206.9867
Junior High School	306.6	62.2370	3.6781	0.0000	139.4772
Manufacturing	65.1	13.2147	0.7810	0.0000	29.6150
Medical Office Building	3240	657.6907	38.8684	0.0000	1,473.9273
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	63.15	12.8189	0.7576	0.0000	28.7279
Refrigerated Warehouse-No Rail	98.7	20.0352	1.1841	0.0000	44.9002
Regional Shopping Center	983.54	199.6497	11.7990	0.0000	447.4279
Research & Development	41.04	8.3308	0.4923	0.0000	18.6698
Single Family Housing	7792.05	1,581.7157	93.4767	0.0000	3,544.7269
Supermarket	958.8	194.6277	11.5022	0.0000	436.1733
Unrefrigerated Warehouse-No Rail	197.4	40.0704	2.3681	0.0000	89.8004
Total		**4,044.1626**	**239.0031**	**0.0000**	**9,063.2289**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	374.9	76.1013	4.4975	0.0000	170.5479
Bank (with Drive-Through)	7.465	1.5153	0.0896	0.0000	3.3960
City Park	2.71	0.5501	0.0325	0.0000	1.2328
Convenience Market with Gas Pumps	15.4025	3.1266	0.1848	0.0000	7.0068
Elementary School	181.405	36.8236	2.1762	0.0000	82.5240
Fast Food Restaurant with Drive-Thru	70.265	14.2632	0.8429	0.0000	31.9647
General Heavy Industry	16.275	3.3037	0.1952	0.0000	7.4038
General Light Industry	32.55	6.6074	0.3905	0.0000	14.8075
General Office Building	356.98	72.4637	4.2825	0.0000	162.3959
Government Office Building	1.395	0.2832	0.0167	0.0000	0.6346
High School	136.875	27.7844	1.6420	0.0000	62.2666
High Turnover (Sit Down Restaurant)	71.4	14.4936	0.8565	0.0000	32.4810
Industrial Park	162.75	33.0368	1.9524	0.0000	74.0376
Junior College (2yr)	113.75	23.0902	1.3646	0.0000	51.7467
Junior High School	76.65	15.5593	0.9195	0.0000	34.8693
Manufacturing	16.275	3.3037	0.1952	0.0000	7.4038
Medical Office Building	810	164.4227	9.7171	0.0000	368.4818
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	15.7875	3.2047	0.1894	0.0000	7.1820
Refrigerated Warehouse-No Rail	24.675	5.0088	0.2960	0.0000	11.2251

Regional Shopping Center	245.885	49.9124	2.9497	0.0000	111.8570
Research & Development	10.26	2.0827	0.1231	0.0000	4.6674
Single Family Housing	1948.01	395.4289	23.3692	0.0000	886.1817
Supermarket	239.7	48.6569	2.8755	0.0000	109.0433
Unrefrigerated Warehouse-No Rail	49.35	10.0176	0.5920	0.0000	22.4501
Total		**1,011.0406**	**59.7508**	**0.0000**	**2,265.8072**

9.0 Operational Offroad

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

10.0 Vegetation

Grapevine Operational Year 2032 - Planning Areas 6A, 2, 1, 3, 4 Buildout

Kern-San Joaquin County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Bank (with Drive-Through)	32.00	1000sqft	2.95	32,000.00	0
General Office Building	1,535.40	1000sqft	134.37	1,535,400.00	0
Government Office Building	6.00	1000sqft	0.51	6,000.00	0
Medical Office Building	300.00	1000sqft	22.69	300,000.00	0
Pharmacy/Drugstore w/o Drive Thru	21.00	1000sqft	1.85	21,000.00	0
Research & Development	540.00	1000sqft	41.19	540,000.00	0
Elementary School	3,976.00	Student	20.00	332,407.00	0
High School	3,000.00	Student	10.00	397,982.93	0
Junior College (2yr)	350.00	1000sqft	27.25	350,000.00	0
Junior High School	1,680.00	Student	40.00	197,503.63	0
General Heavy Industry	52.50	1000sqft	4.09	52,500.00	0
General Light Industry	105.00	1000sqft	8.18	105,000.00	0
Industrial Park	525.00	1000sqft	40.88	525,000.00	0
Manufacturing	52.50	1000sqft	4.09	52,500.00	0
Refrigerated Warehouse-No Rail	105.00	1000sqft	8.18	105,000.00	0
Unrefrigerated Warehouse-No Rail	210.00	1000sqft	16.35	210,000.00	0
Other Asphalt Surfaces	355.00	Acre	355.00	15,463,800.00	0
City Park	126.00	Acre	126.00	5,488,560.00	0
Fast Food Restaurant with Drive Thru	24.40	1000sqft	3.16	24,400.00	0
High Turnover (Sit Down Restaurant)	24.00	1000sqft	3.11	24,000.00	0
Apartments Low Rise	3,260.00	Dwelling Unit	326.00	3,260,000.00	10432
Single Family Housing	6,645.00	Dwelling Unit	1,700.00	11,961,000.00	21264

Convenience Market with Gas Pumps	20.50	1000sqft	2.67	20,500.00	0
Regional Shopping Center	936.70	1000sqft	119.61	936,700.00	0
Supermarket	170.00	1000sqft	21.89	170,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	7			**Operational Year**	2030
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	372.88	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Planning Areas 6A, 2, 1, 3, 4. Kern County, San Joaquin Valley Air Basin. Operational Year 2030 was conservatively used for anticipated Operational Year 2032 since CalEEMod does not include year 2032 (options include 2030 and 2035). CO2 Intensity adjusted based on PG&E 50% Renewables by 2030.

Land Use - See 1.1 Land Usage. Population based on 3.2 persons per dwelling unit.

Construction Phase - Construction emissions calculated separately.

Vehicle Trips - Modified trip rates to match Trip Generation and VMT factors provided by Fehr & Peers.

Vehicle Emission Factors - Default CalEEMod values.

Woodstoves - No woodstoves and only gas fireplaces assumed

Area Coating - Default CalEEMod VOC content. Modified non-residential interior and exterior area to be coated based on CalEEMod architectural coating surface area equations and adjusted for parking/asphalt surface and park land uses.

Energy Use - Updated Title 24 electricity and natural gas energy intensity to match 2013 Title 24 standards (25% reduction versus 2008 standards).

Water And Wastewater - Water and wastewater consumption and associated emissions calculated separately.

Construction Off-road Equipment Mitigation - Construction emissions calculated separately.

Mobile Land Use Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Project Setting: Suburban Center. Improve Pedestrian Network: Project Site and Connecting Off-Site. Provide Traffic Calming Measures: 100% Streets with Improvement, 100% Intersections with Improvement. Expand Transit Network: 50%.

Mobile Commute Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Voluntary Commute Trip Reduction Program: 50%.

Energy Mitigation - Exceed 2013 Title 24, % Improvement: 25%.

Water Mitigation - Water reductions calculated separately.

Waste Mitigation - Percent Reduction in Waste Disposed: 75%. Waste diversion consistent with Assembly Bill 341 (not mitigation).

Note Regarding Emissions Presented in the Air Quality & Greenhouse Gas Technical Report: Project-generated unmitigated and mitigated emissions in the Technical Report reflect the unmitigated mobile source emissions reported in 2.0 Emissions Summary. No area source mitigation assumed. Unmitigated and mitigated energy source and solid waste emissions reported in the Technical Report as presented in 2.0 Emissions Summary. Water/wastewater and stationary source emissions calculated separately.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	13445127	3955043
tblAreaCoating	Area_Nonresidential_Interior	40335381	8096840
tblConstructionPhase	NumDays	155,000.00	5.00
tblEnergyUse	T24E	352.42	264.31
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	4.43	3.32
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.70	0.53
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	763.80	572.85
tblEnergyUse	T24E	4.88	3.66

tblEnergyUse	T24NG	14,007.38	10,505.53
tblEnergyUse	T24NG	17.55	13.16
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tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	54.53	40.90
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71
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tblEnergyUse	T24NG	5.56	4.17
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tblEnergyUse	T24NG	8.10	6.08
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblLandUse	LotAcreage	0.73	2.95
tblLandUse	LotAcreage	35.25	134.37
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tblLandUse	LotAcreage	6.89	22.69
tblLandUse	LotAcreage	0.48	1.85
tblLandUse	LotAcreage	12.40	41.19

tblLandUse	LotAcreage	7.63	20.00
tblLandUse	LotAcreage	9.14	10.00
tblLandUse	LotAcreage	8.03	27.25
tblLandUse	LotAcreage	4.53	40.00
tblLandUse	LotAcreage	1.21	4.09
tblLandUse	LotAcreage	2.41	8.18
tblLandUse	LotAcreage	12.05	40.88
tblLandUse	LotAcreage	1.21	4.09
tblLandUse	LotAcreage	2.41	8.18
tblLandUse	LotAcreage	4.82	16.35
tblLandUse	LotAcreage	0.56	3.16
tblLandUse	LotAcreage	0.55	3.11
tblLandUse	LotAcreage	203.75	326.00
tblLandUse	LotAcreage	2,157.47	1,700.00
tblLandUse	LotAcreage	0.47	2.67
tblLandUse	LotAcreage	21.50	119.61
tblLandUse	LotAcreage	3.90	21.89
tblLandUse	Population	9,324.00	10,432.00
tblLandUse	Population	19,005.00	21,264.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	372.88
tblProjectCharacteristics	OperationalYear	2014	2030
tblTripsAndVMT	VendorTripNumber	5,466.00	0.00
tblTripsAndVMT	WorkerTripNumber	15,677.00	0.00
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tblVehicleTrips	PR_TP	34.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	7.16	5.89
tblVehicleTrips	ST_TR	86.32	5.23
tblVehicleTrips	ST_TR	1.59	1.54
tblVehicleTrips	ST_TR	1,448.33	59.54

tblVehicleTrips	ST_TR	722.03	50.58
tblVehicleTrips	ST_TR	1.50	0.55
tblVehicleTrips	ST_TR	1.32	0.55
tblVehicleTrips	ST_TR	2.37	1.93
tblVehicleTrips	ST_TR	0.61	0.50
tblVehicleTrips	ST_TR	158.37	43.29
tblVehicleTrips	ST_TR	2.49	1.99
tblVehicleTrips	ST_TR	11.23	1.73
tblVehicleTrips	ST_TR	1.49	1.13
tblVehicleTrips	ST_TR	8.96	2.23
tblVehicleTrips	ST_TR	90.06	8.98
tblVehicleTrips	ST_TR	2.59	2.90
tblVehicleTrips	ST_TR	49.97	40.45
tblVehicleTrips	ST_TR	1.90	2.10
tblVehicleTrips	ST_TR	10.08	8.16
tblVehicleTrips	ST_TR	177.59	60.37
tblVehicleTrips	ST_TR	2.59	2.90
tblVehicleTrips	SU_TR	6.07	4.99
tblVehicleTrips	SU_TR	31.90	1.94
tblVehicleTrips	SU_TR	1.59	1.54
tblVehicleTrips	SU_TR	1,182.08	48.59
tblVehicleTrips	SU_TR	542.72	38.02
tblVehicleTrips	SU_TR	1.50	0.20
tblVehicleTrips	SU_TR	0.68	0.28
tblVehicleTrips	SU_TR	0.98	0.80
tblVehicleTrips	SU_TR	0.25	0.20
tblVehicleTrips	SU_TR	131.84	36.04
tblVehicleTrips	SU_TR	0.73	0.59
tblVehicleTrips	SU_TR	1.21	0.19
tblVehicleTrips	SU_TR	0.62	0.47

tblVehicleTrips	SU_TR	1.55	0.38
tblVehicleTrips	SU_TR	90.06	8.98
tblVehicleTrips	SU_TR	2.59	2.90
tblVehicleTrips	SU_TR	25.24	20.43
tblVehicleTrips	SU_TR	1.11	1.23
tblVehicleTrips	SU_TR	8.77	7.10
tblVehicleTrips	SU_TR	166.44	56.58
tblVehicleTrips	SU_TR	2.59	2.90
tblVehicleTrips	WD_TR	6.59	5.41
tblVehicleTrips	WD_TR	148.15	8.98
tblVehicleTrips	WD_TR	1.59	1.54
tblVehicleTrips	WD_TR	845.60	34.76
tblVehicleTrips	WD_TR	1.29	1.05
tblVehicleTrips	WD_TR	496.12	34.76
tblVehicleTrips	WD_TR	1.50	2.90
tblVehicleTrips	WD_TR	6.97	2.90
tblVehicleTrips	WD_TR	11.01	8.98
tblVehicleTrips	WD_TR	68.93	8.98
tblVehicleTrips	WD_TR	1.71	1.39
tblVehicleTrips	WD_TR	127.15	34.76
tblVehicleTrips	WD_TR	6.96	5.56
tblVehicleTrips	WD_TR	27.49	4.23
tblVehicleTrips	WD_TR	1.62	1.32
tblVehicleTrips	WD_TR	3.82	2.90
tblVehicleTrips	WD_TR	36.13	8.98
tblVehicleTrips	WD_TR	90.06	8.98
tblVehicleTrips	WD_TR	2.59	2.90
tblVehicleTrips	WD_TR	42.94	34.76
tblVehicleTrips	WD_TR	8.11	8.98
tblVehicleTrips	WD_TR	9.57	7.75

tblVehicleTrips	WD_TR	102.24	34.76
tblVehicleTrips	WD_TR	2.59	2.90
tblWater	IndoorWaterUseRate	212,402,123.53	0.00
tblWater	IndoorWaterUseRate	1,267,933.40	0.00
tblWater	IndoorWaterUseRate	1,518,486.69	0.00
tblWater	IndoorWaterUseRate	9,638,778.24	0.00
tblWater	IndoorWaterUseRate	7,406,222.58	0.00
tblWater	IndoorWaterUseRate	12,140,625.00	0.00
tblWater	IndoorWaterUseRate	24,281,250.00	0.00
tblWater	IndoorWaterUseRate	272,892,396.67	0.00
tblWater	IndoorWaterUseRate	1,191,958.12	0.00
tblWater	IndoorWaterUseRate	13,214,880.00	0.00
tblWater	IndoorWaterUseRate	7,284,809.10	0.00
tblWater	IndoorWaterUseRate	121,406,250.00	0.00
tblWater	IndoorWaterUseRate	17,167,161.38	0.00
tblWater	IndoorWaterUseRate	4,072,723.20	0.00
tblWater	IndoorWaterUseRate	12,140,625.00	0.00
tblWater	IndoorWaterUseRate	37,644,161.27	0.00
tblWater	IndoorWaterUseRate	1,479,397.99	0.00
tblWater	IndoorWaterUseRate	24,281,250.00	0.00
tblWater	IndoorWaterUseRate	69,383,730.87	0.00
tblWater	IndoorWaterUseRate	265,514,731.49	0.00
tblWater	IndoorWaterUseRate	432,948,500.25	0.00
tblWater	IndoorWaterUseRate	20,955,596.53	0.00
tblWater	IndoorWaterUseRate	48,562,500.00	0.00
tblWater	OutdoorWaterUseRate	133,905,686.57	0.00
tblWater	OutdoorWaterUseRate	777,120.47	0.00
tblWater	OutdoorWaterUseRate	150,126,650.06	0.00
tblWater	OutdoorWaterUseRate	930,685.39	0.00
tblWater	OutdoorWaterUseRate	24,785,429.76	0.00

tblWater	OutdoorWaterUseRate	472,737.61	0.00
tblWater	OutdoorWaterUseRate	167,256,630.22	0.00
tblWater	OutdoorWaterUseRate	730,554.97	0.00
tblWater	OutdoorWaterUseRate	33,981,120.00	0.00
tblWater	OutdoorWaterUseRate	464,987.81	0.00
tblWater	OutdoorWaterUseRate	26,851,201.13	0.00
tblWater	OutdoorWaterUseRate	10,472,716.80	0.00
tblWater	OutdoorWaterUseRate	7,170,316.43	0.00
tblWater	OutdoorWaterUseRate	906,727.80	0.00
tblWater	OutdoorWaterUseRate	42,525,512.47	0.00
tblWater	OutdoorWaterUseRate	272,945,793.64	0.00
tblWater	OutdoorWaterUseRate	648,111.23	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1,037.5022	9.4090	817.0295	0.0433		11.8433	11.8433		11.7663	11.7663	0.0000	116,838.6243	116,838.6243	3.6210	2.1150	117,570.3183
Energy	8.1793	71.1269	38.7700	0.4461		5.6512	5.6512		5.6512	5.6512		89,228.8795	89,228.8795	1.7102	1.6359	89,771.9116
Mobile	747.4916	3,305.8761	10,613.3284	39.4438	2,019.3788	88.7906	2,108.1694	543.1252	81.7659	624.8911		3,165,172.5592	3,165,172.5592	58.7195		3,166,405.6676
Total	**1,793.1732**	**3,386.4120**	**11,469.1279**	**39.9332**	**2,019.3788**	**106.2850**	**2,125.6638**	**543.1252**	**99.1834**	**642.3086**	**0.0000**	**3,371,240.0629**	**3,371,240.0629**	**64.0507**	**3.7509**	**3,373,747.8974**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1,037.5022	9.4090	817.0295	0.0433		11.8433	11.8433		11.7663	11.7663	0.0000	116,838.6243	116,838.6243	3.6210	2.1150	117,570.3183
Energy	6.5494	56.9215	30.8134	0.3572		4.5250	4.5250		4.5250	4.5250		71,447.6123	71,447.6123	1.3694	1.3099	71,882.4306
Mobile	725.5161	3,154.5758	10,336.2753	37.3472	1,909.9716	84.0942	1,994.0658	513.6995	77.4414	591.1409		2,996,680.3201	2,996,680.3201	55.7296		2,997,850.6408
Total	**1,769.5676**	**3,220.9063**	**11,184.1182**	**37.7477**	**1,909.9716**	**100.4625**	**2,010.4341**	**513.6995**	**93.7328**	**607.4322**	**0.0000**	**3,184,966.5567**	**3,184,966.5567**	**60.7200**	**3.4249**	**3,187,303.3897**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.32**	**4.89**	**2.49**	**5.47**	**5.42**	**5.48**	**5.42**	**5.42**	**5.50**	**5.43**	**0.00**	**5.53**	**5.53**	**5.20**	**8.69**	**5.53**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

Provide Traffic Calming Measures

Expand Transit Network

Implement Trip Reduction Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	725.5161	3,154.5758	10,336.2753	37.3472	1,909.9716	84.0942	1,994.0658	513.6995	77.4414	591.1409		2,996,680.3201	2,996,680.3201	55.7296		2,997,850.6408
Unmitigated	747.4916	3,305.8761	10,613.3284	39.4438	2,019.3788	88.7906	2,108.1694	543.1252	81.7659	624.8911		3,165,172.5592	3,165,172.5592	58.7195		3,166,405.6676

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	17,636.60	19,201.40	16267.40	100,434,938	94,993,511
Bank (with Drive-Through)	287.36	167.36	62.08	1,353,387	1,280,062
City Park	194.04	194.04	194.04	1,103,249	1,043,477
Convenience Market with Gas Pumps	712.58	1,220.57	996.10	4,694,394	4,440,058
Elementary School	4,174.80	0.00	0.00	16,954,698	16,036,116
Fast Food Restaurant with Drive Thru	848.14	1,234.15	927.69	5,200,415	4,918,664
General Heavy Industry	152.25	28.88	10.50	650,300	615,067
General Light Industry	304.50	57.75	29.40	1,307,422	1,236,588
General Office Building	13,787.89	2,963.32	1228.32	59,400,006	56,181,796
Government Office Building	53.88	0.00	0.00	218,817	206,962
High School	4,170.00	1,500.00	600.00	18,640,908	17,630,969
High Turnover (Sit Down Restaurant)	834.24	1,038.96	864.96	4,934,455	4,667,113

Industrial Park	2,919.00	1,044.75	309.75	12,954,822	12,252,947
Junior College (2yr)	1,480.50	605.50	66.50	6,558,432	6,203,105
Junior High School	2,217.60	0.00	0.00	9,006,117	8,518,178
Manufacturing	152.25	59.33	24.68	686,546	649,350
Medical Office Building	2,694.00	669.00	114.00	11,576,857	10,949,639
Other Asphalt Surfaces	0.00	0.00	0.00		
Pharmacy/Drugstore w/o Drive Thru	188.58	188.58	188.58	1,072,206	1,014,115
Refrigerated Warehouse-No Rail	304.50	304.50	304.50	1,731,290	1,637,491
Regional Shopping Center	32,559.69	37,889.52	19136.78	178,550,460	168,876,842
Research & Development	4,849.20	1,134.00	664.20	21,154,141	20,008,039
Single Family Housing	51,498.75	54,223.20	47179.50	291,510,053	275,716,439
Supermarket	5,909.20	10,262.90	9618.60	40,146,993	37,971,884
Unrefrigerated Warehouse-No Rail	609.00	609.00	609.00	3,462,579	3,274,981
Total	148,538.56	134,596.70	99,396.57	793,303,484	750,323,394

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Bank (with Drive-Through)	15.62	15.62	15.62	6.60	74.40	19.00	100	0	0
City Park	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Convenience Market with Gas	15.62	15.62	15.62	0.80	80.20	19.00	100	0	0
Elementary School	15.62	15.62	15.62	65.00	30.00	5.00	100	0	0
Fast Food Restaurant with Drive Th	15.62	15.62	15.62	2.20	78.80	19.00	100	0	0
General Heavy Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Light Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Office Building	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Government Office Building	15.62	15.62	15.62	33.00	62.00	5.00	100	0	0
High School	15.62	15.62	15.62	77.80	17.20	5.00	100	0	0
High Turnover (Sit Down Rest	15.62	15.62	15.62	8.50	72.50	19.00	100	0	0
Industrial Park	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Junior College (2yr)	15.62	15.62	15.62	6.40	88.60	5.00	100	0	0
Junior High School	15.62	15.62	15.62	72.80	22.20	5.00	100	0	0
Manufacturing	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Medical Office Building	15.62	15.62	15.62	29.60	51.40	19.00	100	0	0
Other Asphalt Surfaces	15.62	15.62	15.62	0.00	0.00	0.00	100	0	0
Pharmacy/Drugstore w/o Drive Th	15.62	15.62	15.62	7.40	73.60	19.00	100	0	0
Refrigerated Warehouse-No Rail	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0
Regional Shopping Center	15.62	15.62	15.62	16.30	64.70	19.00	100	0	0

Research & Development	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Single Family Housing	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Supermarket	15.62	15.62	15.62	6.50	74.50	19.00	100	0	0
Unrefrigerated Warehouse-No	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.356304	0.054914	0.136221	0.180053	0.057165	0.010435	0.023295	0.168686	0.001480	0.001854	0.006117	0.000946	0.002529

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	6.5494	56.9215	30.8134	0.3572		4.5250	4.5250		4.5250	4.5250		71,447.6123	71,447.6123	1.3694	1.3099	71,882.4306
NaturalGas Unmitigated	8.1793	71.1269	38.7700	0.4461		5.6512	5.6512		5.6512	5.6512		89,228.8795	89,228.8795	1.7102	1.6359	89,771.9116

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Land Use	kBTU/yr	lb/day										lb/day				
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	253.863	2.7400e-003	0.0249	0.0209	1.5000e-004		1.8900e-003	1.8900e-003		1.8900e-003	1.8900e-003		29.8662	29.8662	5.7000e-004	5.5000e-004	30.0480
Elementary School	7786.52	0.0840	0.7634	0.6412	4.5800e-003		0.0580	0.0580		0.0580	0.0580		916.0612	916.0612	0.0176	0.0168	921.6362
Fast Food Restaurant with Drive Thru	6375.42	0.0688	0.6250	0.5250	3.7500e-003		0.0475	0.0475		0.0475	0.0475		750.0493	750.0493	0.0144	0.0138	754.6140
General Heavy Industry	1910.14	0.0206	0.1873	0.1573	1.1200e-003		0.0142	0.0142		0.0142	0.0142		224.7220	224.7220	4.3100e-003	4.1200e-003	226.0896
General Light Industry	3820.27	0.0412	0.3745	0.3146	2.2500e-003		0.0285	0.0285		0.0285	0.0285		449.4440	449.4440	8.6100e-003	8.2400e-003	452.1792
General Office Building	58008.7	0.6256	5.6871	4.7772	0.0341		0.4322	0.4322		0.4322	0.4322		6,824.5499	6,824.5499	0.1308	0.1251	6,866.0830
Government Office Building	226.685	2.4400e-003	0.0222	0.0187	1.3000e-004		1.6900e-003	1.6900e-003		1.6900e-003	1.6900e-003		26.6688	26.6688	5.1000e-004	4.9000e-004	26.8311
High School	9322.61	0.1005	0.9140	0.7677	5.4800e-003		0.0695	0.0695		0.0695	0.0695		1,096.7781	1,096.7781	0.0210	0.0201	1,103.4529
High Turnover (Sit Down Restaurant)	6270.9	0.0676	0.6148	0.5164	3.6900e-003		0.0467	0.0467		0.0467	0.0467		737.7534	737.7534	0.0141	0.0135	742.2433
Industrial Park	19834.9	0.2139	1.9446	1.6335	0.0117		0.1478	0.1478		0.1478	0.1478		2,333.5214	2,333.5214	0.0447	0.0428	2,347.7228
Junior College (2yr)	39545.2	0.4265	3.8770	3.2567	0.0233		0.2947	0.2947		0.2947	0.2947		4,652.3771	4,652.3771	0.0892	0.0853	4,680.6907
Junior High School	4626.45	0.0499	0.4536	0.3810	2.7200e-003		0.0345	0.0345		0.0345	0.0345		544.2888	544.2888	0.0104	9.9800e-003	547.6013
Manufacturing	1910.14	0.0206	0.1873	0.1573	1.1200e-003		0.0142	0.0142		0.0142	0.0142		224.7220	224.7220	4.3100e-003	4.1200e-003	226.0896
Apartments Low Rise	116141	1.2525	10.7032	4.5546	0.0683		0.8654	0.8654		0.8654	0.8654		13,663.6609	13,663.6609	0.2619	0.2505	13,746.8156
Bank (with Drive-Through)	1164.27	0.0126	0.1141	0.0959	6.8000e-004		8.6700e-003	8.6700e-003		8.6700e-003	8.6700e-003		136.9734	136.9734	2.6300e-003	2.5100e-003	137.8070
Medical Office Building	11334.2	0.1222	1.1112	0.9334	6.6700e-003		0.0845	0.0845		0.0845	0.0845		1,333.4408	1,333.4408	0.0256	0.0245	1,341.5559
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	260.055	2.8000e-003	0.0255	0.0214	1.5000e-004		1.9400e-003	1.9400e-003		1.9400e-003	1.9400e-003		30.5947	30.5947	5.9000e-004	5.6000e-004	30.7809
Refrigerated Warehouse-No Rail	2091.37	0.0226	0.2050	0.1722	1.2300e-003		0.0156	0.0156		0.0156	0.0156		246.0435	246.0435	4.7200e-003	4.5100e-003	247.5409
Regional Shopping Center	11599.7	0.1251	1.1372	0.9553	6.8200e-003		0.0864	0.0864		0.0864	0.0864		1,364.6685	1,364.6685	0.0262	0.0250	1,372.9736

Research & Development	19647.1	0.2119	1.9262	1.6180	0.0116		0.1464	0.1464		0.1464	0.1464		2,311.4263	2,311.4263	0.0443	0.0424	2,325.4932
Single Family Housing	433042	4.6701	39.9078	16.9820	0.2547		3.2266	3.2266		3.2266	3.2266		50,946.0638	50,946.0638	0.9765	0.9340	51,256.1130
Supermarket	3274.25	0.0353	0.3210	0.2696	1.9300e-003		0.0244	0.0244		0.0244	0.0244		385.2055	385.2055	7.3800e-003	7.0600e-003	387.5498
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**8.1793**	**71.1269**	**38.7700**	**0.4461**		**5.6511**	**5.6511**		**5.6511**	**5.6511**		**89,228.8795**	**89,228.8795**	**1.7102**	**1.6359**	**89,771.9116**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	0.19138	2.0600e-003	0.0188	0.0158	1.1000e-004		1.4300e-003	1.4300e-003		1.4300e-003	1.4300e-003		22.5153	22.5153	4.3000e-004	4.1000e-004	22.6523
Elementary School	5.94462	0.0641	0.5828	0.4896	3.5000e-003		0.0443	0.0443		0.0443	0.0443		699.3672	699.3672	0.0134	0.0128	703.6234
Fast Food Restaurant with Drive Thru	6.14212	0.0662	0.6022	0.5058	3.6100e-003		0.0458	0.0458		0.0458	0.0458		722.6018	722.6018	0.0139	0.0133	726.9994
General Heavy Industry	1.43692	0.0155	0.1409	0.1183	8.5000e-004		0.0107	0.0107		0.0107	0.0107		169.0492	169.0492	3.2400e-003	3.1000e-003	170.0780
General Light Industry	2.87384	0.0310	0.2818	0.2367	1.6900e-003		0.0214	0.0214		0.0214	0.0214		338.0983	338.0983	6.4800e-003	6.2000e-003	340.1559
General Office Building	44.6423	0.4814	4.3767	3.6764	0.0263		0.3326	0.3326		0.3326	0.3326		5,252.0330	5,252.0330	0.1007	0.0963	5,283.9960
Government Office Building	0.174452	1.8800e-003	0.0171	0.0144	1.0000e-004		1.3000e-003	1.3000e-003		1.3000e-003	1.3000e-003		20.5238	20.5238	3.9000e-004	3.8000e-004	20.6487
High School	7.11735	0.0768	0.6978	0.5861	4.1900e-003		0.0530	0.0530		0.0530	0.0530		837.3356	837.3356	0.0161	0.0154	842.4314
High Turnover (Sit Down Restaurant)	6.04142	0.0652	0.5923	0.4975	3.5500e-003		0.0450	0.0450		0.0450	0.0450		710.7558	710.7558	0.0136	0.0130	715.0814
Industrial Park	15.2646	0.1646	1.4965	1.2571	8.9800e-003		0.1137	0.1137		0.1137	0.1137		1,795.8300	1,795.8300	0.0344	0.0329	1,806.7591
Junior College (2yr)	29.7404	0.3207	2.9157	2.4492	0.0175		0.2216	0.2216		0.2216	0.2216		3,498.8719	3,498.8719	0.0671	0.0642	3,520.1654

Junior High School	3.53207	0.0381	0.3463	0.2909	2.0800e-003		0.0263	0.0263		0.0263	0.0263		415.5375	415.5375	7.9600e-003	7.6200e-003	418.0663
Manufacturing	1.43692	0.0155	0.1409	0.1183	8.5000e-004		0.0107	0.0107		0.0107	0.0107		169.0492	169.0492	3.2400e-003	3.1000e-003	170.0780
Medical Office Building	8.7226	0.0941	0.8552	0.7183	5.1300e-003		0.0650	0.0650		0.0650	0.0650		1,026.1886	1,026.1886	0.0197	0.0188	1,032.4338
Apartments Low Rise	92.6836	0.9995	8.5414	3.6347	0.0545		0.6906	0.6906		0.6906	0.6906		10,903.9487	10,903.9487	0.2090	0.1999	10,970.3083
Bank (with Drive-Through)	0.875836	9.4500e-003	0.0859	0.0721	5.2000e-004		6.5300e-003	6.5300e-003		6.5300e-003	6.5300e-003		103.0395	103.0395	1.9700e-003	1.8900e-003	103.6666
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	0.196048	2.1100e-003	0.0192	0.0162	1.2000e-004		1.4600e-003	1.4600e-003		1.4600e-003	1.4600e-003		23.0645	23.0645	4.4000e-004	4.2000e-004	23.2048
Refrigerated Warehouse-No Rail	1.79147	0.0193	0.1756	0.1475	1.0500e-003		0.0134	0.0134		0.0134	0.0134		210.7615	210.7615	4.0400e-003	3.8600e-003	212.0441
Regional Shopping Center	8.74467	0.0943	0.8573	0.7202	5.1400e-003		0.0652	0.0652		0.0652	0.0652		1,028.7849	1,028.7849	0.0197	0.0189	1,035.0460
Research & Development	14.7797	0.1594	1.4490	1.2172	8.6900e-003		0.1101	0.1101		0.1101	0.1101		1,738.7913	1,738.7913	0.0333	0.0319	1,749.3733
Single Family Housing	352.406	3.8005	32.4767	13.8199	0.2073		2.6258	2.6258		2.6258	2.6258		41,459.5472	41,459.5472	0.7946	0.7601	41,711.8631
Supermarket	2.5663	0.0277	0.2516	0.2113	1.5100e-003		0.0191	0.0191		0.0191	0.0191		301.9178	301.9178	5.7900e-003	5.5400e-003	303.7552
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**6.5494**	**56.9215**	**30.8134**	**0.3572**		**4.5250**	**4.5250**		**4.5250**	**4.5250**		**71,447.6123**	**71,447.6123**	**1.3694**	**1.3099**	**71,882.4306**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1,037.5022	9.4090	817.0295	0.0433		11.8433	11.8433		11.7663	11.7663	0.0000	116,838.6243	116,838.6243	3.6210	2.1150	117,570.3183
Unmitigated	1,037.5022	9.4090	817.0295	0.0433		11.8433	11.8433		11.7663	11.7663	0.0000	116,838.6243	116,838.6243	3.6210	2.1150	117,570.3183

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	101.2371					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	901.1808					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	10.5750	4.8000e-004	0.5768	0.0000		7.3064	7.3064		7.2295	7.2295	0.0000	115,364.1177	115,364.1177	2.2112	2.1150	116,066.2044
Landscaping	24.5092	9.4086	816.4527	0.0433		4.5369	4.5369		4.5369	4.5369		1,474.5066	1,474.5066	1.4099		1,504.1138
Total	**1,037.5022**	**9.4090**	**817.0295**	**0.0433**		**11.8432**	**11.8432**		**11.7663**	**11.7663**	**0.0000**	**116,838.6243**	**116,838.6243**	**3.6210**	**2.1150**	**117,570.3183**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	101.2371					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	901.1808					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	10.5750	4.8000e-004	0.5768	0.0000		7.3064	7.3064		7.2295	7.2295	0.0000	115,364.1177	115,364.1177	2.2112	2.1150	116,066.2044
Landscaping	24.5092	9.4086	816.4527	0.0433		4.5369	4.5369		4.5369	4.5369		1,474.5066	1,474.5066	1.4099		1,504.1138
Total	**1,037.5022**	**9.4090**	**817.0295**	**0.0433**		**11.8432**	**11.8432**		**11.7663**	**11.7663**	**0.0000**	**116,838.6243**	**116,838.6243**	**3.6210**	**2.1150**	**117,570.3183**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Vegetation

Grapevine Operational Year 2032 - Planning Areas 6A, 2, 1, 3, 4 Buildout

Kern-San Joaquin County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Bank (with Drive-Through)	32.00	1000sqft	2.95	32,000.00	0
General Office Building	1,535.40	1000sqft	134.37	1,535,400.00	0
Government Office Building	6.00	1000sqft	0.51	6,000.00	0
Medical Office Building	300.00	1000sqft	22.69	300,000.00	0
Pharmacy/Drugstore w/o Drive Thru	21.00	1000sqft	1.85	21,000.00	0
Research & Development	540.00	1000sqft	41.19	540,000.00	0
Elementary School	3,976.00	Student	20.00	332,407.00	0
High School	3,000.00	Student	10.00	397,982.93	0
Junior College (2yr)	350.00	1000sqft	27.25	350,000.00	0
Junior High School	1,680.00	Student	40.00	197,503.63	0
General Heavy Industry	52.50	1000sqft	4.09	52,500.00	0
General Light Industry	105.00	1000sqft	8.18	105,000.00	0
Industrial Park	525.00	1000sqft	40.88	525,000.00	0
Manufacturing	52.50	1000sqft	4.09	52,500.00	0
Refrigerated Warehouse-No Rail	105.00	1000sqft	8.18	105,000.00	0
Unrefrigerated Warehouse-No Rail	210.00	1000sqft	16.35	210,000.00	0
Other Asphalt Surfaces	355.00	Acre	355.00	15,463,800.00	0
City Park	126.00	Acre	126.00	5,488,560.00	0
Fast Food Restaurant with Drive Thru	24.40	1000sqft	3.16	24,400.00	0
High Turnover (Sit Down Restaurant)	24.00	1000sqft	3.11	24,000.00	0
Apartments Low Rise	3,260.00	Dwelling Unit	326.00	3,260,000.00	10432
Single Family Housing	6,645.00	Dwelling Unit	1,700.00	11,961,000.00	21264

Convenience Market with Gas Pumps	20.50	1000sqft	2.67	20,500.00	0
Regional Shopping Center	936.70	1000sqft	119.61	936,700.00	0
Supermarket	170.00	1000sqft	21.89	170,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	7			**Operational Year**	2030
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	372.88	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Planning Areas 6A, 2, 1, 3, 4. Kern County, San Joaquin Valley Air Basin. Operational Year 2030 was conservatively used for anticipated Operational Year 2032 since CalEEMod does not include year 2032 (options include 2030 and 2035). CO2 Intensity adjusted based on PG&E 50% Renewables by 2030.

Land Use - See 1.1 Land Usage. Population based on 3.2 persons per dwelling unit.

Construction Phase - Construction emissions calculated separately.

Vehicle Trips - Modified trip rates to match Trip Generation and VMT factors provided by Fehr & Peers.

Vehicle Emission Factors - Default CalEEMod values.

Woodstoves - No woodstoves and only gas fireplaces assumed

Area Coating - Default CalEEMod VOC content. Modified non-residential interior and exterior area to be coated based on CalEEMod architectural coating surface area equations and adjusted for parking/asphalt surface and park land uses.

Energy Use - Updated Title 24 electricity and natural gas energy intensity to match 2013 Title 24 standards (25% reduction versus 2008 standards).

Water And Wastewater - Water and wastewater consumption and associated emissions calculated separately.

Construction Off-road Equipment Mitigation - Construction emissions calculated separately.

Mobile Land Use Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Project Setting: Suburban Center. Improve Pedestrian Network: Project Site and Connecting Off-Site. Provide Traffic Calming Measures: 100% Streets with Improvement, 100% Intersections with Improvement. Expand Transit Network: 50%.

Mobile Commute Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Voluntary Commute Trip Reduction Program: 50%.

Energy Mitigation - Exceed 2013 Title 24, % Improvement: 25%.

Water Mitigation - Water reductions calculated separately.

Waste Mitigation - Percent Reduction in Waste Disposed: 75%. Waste diversion consistent with Assembly Bill 341 (not mitigation).

Note Regarding Emissions Presented in the Air Quality & Greenhouse Gas Technical Report: Project-generated unmitigated and mitigated emissions in the Technical Report reflect the unmitigated mobile source emissions reported in 2.0 Emissions Summary. No area source mitigation assumed. Unmitigated and mitigated energy source and solid waste emissions reported in the Technical Report as presented in 2.0 Emissions Summary. Water/wastewater and stationary source emissions calculated separately.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	13445127	3955043
tblAreaCoating	Area_Nonresidential_Interior	40335381	8096840
tblConstructionPhase	NumDays	155,000.00	5.00
tblEnergyUse	T24E	352.42	264.31
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	4.43	3.32
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.70	0.53
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	763.80	572.85
tblEnergyUse	T24E	4.88	3.66

tblEnergyUse	T24NG	14,007.38	10,505.53
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	54.53	40.90
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	5.56	4.17
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	23,622.31	17,716.73
tblEnergyUse	T24NG	8.10	6.08
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblLandUse	LotAcreage	0.73	2.95
tblLandUse	LotAcreage	35.25	134.37
tblLandUse	LotAcreage	0.14	0.51
tblLandUse	LotAcreage	6.89	22.69
tblLandUse	LotAcreage	0.48	1.85
tblLandUse	LotAcreage	12.40	41.19

tblLandUse	LotAcreage	7.63	20.00
tblLandUse	LotAcreage	9.14	10.00
tblLandUse	LotAcreage	8.03	27.25
tblLandUse	LotAcreage	4.53	40.00
tblLandUse	LotAcreage	1.21	4.09
tblLandUse	LotAcreage	2.41	8.18
tblLandUse	LotAcreage	12.05	40.88
tblLandUse	LotAcreage	1.21	4.09
tblLandUse	LotAcreage	2.41	8.18
tblLandUse	LotAcreage	4.82	16.35
tblLandUse	LotAcreage	0.56	3.16
tblLandUse	LotAcreage	0.55	3.11
tblLandUse	LotAcreage	203.75	326.00
tblLandUse	LotAcreage	2,157.47	1,700.00
tblLandUse	LotAcreage	0.47	2.67
tblLandUse	LotAcreage	21.50	119.61
tblLandUse	LotAcreage	3.90	21.89
tblLandUse	Population	9,324.00	10,432.00
tblLandUse	Population	19,005.00	21,264.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	372.88
tblProjectCharacteristics	OperationalYear	2014	2030
tblTripsAndVMT	VendorTripNumber	5,466.00	0.00
tblTripsAndVMT	WorkerTripNumber	15,677.00	0.00
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62

tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
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tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
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tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62
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tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62

tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	26.00	0.00
tblVehicleTrips	DV_TP	28.00	0.00
tblVehicleTrips	DV_TP	21.00	0.00
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tblVehicleTrips	DV_TP	21.00	0.00
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tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	34.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	20.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	7.00	0.00
tblVehicleTrips	DV_TP	25.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	30.00	0.00
tblVehicleTrips	DV_TP	6.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	35.00	0.00
tblVehicleTrips	DV_TP	15.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	30.00	0.00

tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	HO_TL	7.50	15.62
tblVehicleTrips	HO_TL	7.50	15.62
tblVehicleTrips	HS_TL	7.30	15.62
tblVehicleTrips	HS_TL	7.30	15.62
tblVehicleTrips	HW_TL	10.80	15.62
tblVehicleTrips	HW_TL	10.80	15.62
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	47.00	0.00
tblVehicleTrips	PB_TP	6.00	0.00
tblVehicleTrips	PB_TP	65.00	0.00
tblVehicleTrips	PB_TP	12.00	0.00
tblVehicleTrips	PB_TP	50.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PB_TP	16.00	0.00
tblVehicleTrips	PB_TP	6.00	0.00
tblVehicleTrips	PB_TP	43.00	0.00
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tblVehicleTrips	PB_TP	1.00	0.00
tblVehicleTrips	PB_TP	12.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	10.00	0.00
tblVehicleTrips	PB_TP	53.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	11.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	36.00	0.00

tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	27.00	100.00
tblVehicleTrips	PR_TP	66.00	100.00
tblVehicleTrips	PR_TP	14.00	100.00
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tblVehicleTrips	PR_TP	29.00	100.00
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tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	PR_TP	50.00	100.00
tblVehicleTrips	PR_TP	75.00	100.00
tblVehicleTrips	PR_TP	37.00	100.00
tblVehicleTrips	PR_TP	79.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	63.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	60.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	PR_TP	41.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	54.00	100.00
tblVehicleTrips	PR_TP	82.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	34.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	7.16	5.89
tblVehicleTrips	ST_TR	86.32	5.23
tblVehicleTrips	ST_TR	1.59	1.54
tblVehicleTrips	ST_TR	1,448.33	59.54

tblVehicleTrips	ST_TR	722.03	50.58
tblVehicleTrips	ST_TR	1.50	0.55
tblVehicleTrips	ST_TR	1.32	0.55
tblVehicleTrips	ST_TR	2.37	1.93
tblVehicleTrips	ST_TR	0.61	0.50
tblVehicleTrips	ST_TR	158.37	43.29
tblVehicleTrips	ST_TR	2.49	1.99
tblVehicleTrips	ST_TR	11.23	1.73
tblVehicleTrips	ST_TR	1.49	1.13
tblVehicleTrips	ST_TR	8.96	2.23
tblVehicleTrips	ST_TR	90.06	8.98
tblVehicleTrips	ST_TR	2.59	2.90
tblVehicleTrips	ST_TR	49.97	40.45
tblVehicleTrips	ST_TR	1.90	2.10
tblVehicleTrips	ST_TR	10.08	8.16
tblVehicleTrips	ST_TR	177.59	60.37
tblVehicleTrips	ST_TR	2.59	2.90
tblVehicleTrips	SU_TR	6.07	4.99
tblVehicleTrips	SU_TR	31.90	1.94
tblVehicleTrips	SU_TR	1.59	1.54
tblVehicleTrips	SU_TR	1,182.08	48.59
tblVehicleTrips	SU_TR	542.72	38.02
tblVehicleTrips	SU_TR	1.50	0.20
tblVehicleTrips	SU_TR	0.68	0.28
tblVehicleTrips	SU_TR	0.98	0.80
tblVehicleTrips	SU_TR	0.25	0.20
tblVehicleTrips	SU_TR	131.84	36.04
tblVehicleTrips	SU_TR	0.73	0.59
tblVehicleTrips	SU_TR	1.21	0.19
tblVehicleTrips	SU_TR	0.62	0.47

tblVehicleTrips	SU_TR	1.55	0.38
tblVehicleTrips	SU_TR	90.06	8.98
tblVehicleTrips	SU_TR	2.59	2.90
tblVehicleTrips	SU_TR	25.24	20.43
tblVehicleTrips	SU_TR	1.11	1.23
tblVehicleTrips	SU_TR	8.77	7.10
tblVehicleTrips	SU_TR	166.44	56.58
tblVehicleTrips	SU_TR	2.59	2.90
tblVehicleTrips	WD_TR	6.59	5.41
tblVehicleTrips	WD_TR	148.15	8.98
tblVehicleTrips	WD_TR	1.59	1.54
tblVehicleTrips	WD_TR	845.60	34.76
tblVehicleTrips	WD_TR	1.29	1.05
tblVehicleTrips	WD_TR	496.12	34.76
tblVehicleTrips	WD_TR	1.50	2.90
tblVehicleTrips	WD_TR	6.97	2.90
tblVehicleTrips	WD_TR	11.01	8.98
tblVehicleTrips	WD_TR	68.93	8.98
tblVehicleTrips	WD_TR	1.71	1.39
tblVehicleTrips	WD_TR	127.15	34.76
tblVehicleTrips	WD_TR	6.96	5.56
tblVehicleTrips	WD_TR	27.49	4.23
tblVehicleTrips	WD_TR	1.62	1.32
tblVehicleTrips	WD_TR	3.82	2.90
tblVehicleTrips	WD_TR	36.13	8.98
tblVehicleTrips	WD_TR	90.06	8.98
tblVehicleTrips	WD_TR	2.59	2.90
tblVehicleTrips	WD_TR	42.94	34.76
tblVehicleTrips	WD_TR	8.11	8.98
tblVehicleTrips	WD_TR	9.57	7.75

tblVehicleTrips	WD_TR	102.24	34.76
tblVehicleTrips	WD_TR	2.59	2.90
tblWater	IndoorWaterUseRate	212,402,123.53	0.00
tblWater	IndoorWaterUseRate	1,267,933.40	0.00
tblWater	IndoorWaterUseRate	1,518,486.69	0.00
tblWater	IndoorWaterUseRate	9,638,778.24	0.00
tblWater	IndoorWaterUseRate	7,406,222.58	0.00
tblWater	IndoorWaterUseRate	12,140,625.00	0.00
tblWater	IndoorWaterUseRate	24,281,250.00	0.00
tblWater	IndoorWaterUseRate	272,892,396.67	0.00
tblWater	IndoorWaterUseRate	1,191,958.12	0.00
tblWater	IndoorWaterUseRate	13,214,880.00	0.00
tblWater	IndoorWaterUseRate	7,284,809.10	0.00
tblWater	IndoorWaterUseRate	121,406,250.00	0.00
tblWater	IndoorWaterUseRate	17,167,161.38	0.00
tblWater	IndoorWaterUseRate	4,072,723.20	0.00
tblWater	IndoorWaterUseRate	12,140,625.00	0.00
tblWater	IndoorWaterUseRate	37,644,161.27	0.00
tblWater	IndoorWaterUseRate	1,479,397.99	0.00
tblWater	IndoorWaterUseRate	24,281,250.00	0.00
tblWater	IndoorWaterUseRate	69,383,730.87	0.00
tblWater	IndoorWaterUseRate	265,514,731.49	0.00
tblWater	IndoorWaterUseRate	432,948,500.25	0.00
tblWater	IndoorWaterUseRate	20,955,596.53	0.00
tblWater	IndoorWaterUseRate	48,562,500.00	0.00
tblWater	OutdoorWaterUseRate	133,905,686.57	0.00
tblWater	OutdoorWaterUseRate	777,120.47	0.00
tblWater	OutdoorWaterUseRate	150,126,650.06	0.00
tblWater	OutdoorWaterUseRate	930,685.39	0.00
tblWater	OutdoorWaterUseRate	24,785,429.76	0.00

tblWater	OutdoorWaterUseRate	472,737.61	0.00
tblWater	OutdoorWaterUseRate	167,256,630.22	0.00
tblWater	OutdoorWaterUseRate	730,554.97	0.00
tblWater	OutdoorWaterUseRate	33,981,120.00	0.00
tblWater	OutdoorWaterUseRate	464,987.81	0.00
tblWater	OutdoorWaterUseRate	26,851,201.13	0.00
tblWater	OutdoorWaterUseRate	10,472,716.80	0.00
tblWater	OutdoorWaterUseRate	7,170,316.43	0.00
tblWater	OutdoorWaterUseRate	906,727.80	0.00
tblWater	OutdoorWaterUseRate	42,525,512.47	0.00
tblWater	OutdoorWaterUseRate	272,945,793.64	0.00
tblWater	OutdoorWaterUseRate	648,111.23	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1,037.5022	9.4090	817.0295	0.0433		11.8433	11.8433		11.7663	11.7663	0.0000	116,838.6243	116,838.6243	3.6210	2.1150	117,570.3183
Energy	8.1793	71.1269	38.7700	0.4461		5.6512	5.6512		5.6512	5.6512		89,228.8795	89,228.8795	1.7102	1.6359	89,771.9116
Mobile	764.5855	3,063.2259	9,275.8184	42.3620	2,019.3788	88.5589	2,107.9377	543.1252	81.5527	624.6780		3,359,668.8779	3,359,668.8779	58.4692		3,360,896.7301
Total	**1,810.2671**	**3,143.7618**	**10,131.6179**	**42.8514**	**2,019.3788**	**106.0533**	**2,125.4321**	**543.1252**	**98.9702**	**642.0955**	**0.0000**	**3,565,736.3816**	**3,565,736.3816**	**63.8004**	**3.7509**	**3,568,238.9599**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1,037.5022	9.4090	817.0295	0.0433		11.8433	11.8433		11.7663	11.7663	0.0000	116,838.6243	116,838.6243	3.6210	2.1150	117,570.3183
Energy	6.5494	56.9215	30.8134	0.3572		4.5250	4.5250		4.5250	4.5250		71,447.6123	71,447.6123	1.3694	1.3099	71,882.4306
Mobile	742.1357	2,924.2198	8,944.3625	40.1083	1,909.9716	83.8625	1,993.8341	513.6995	77.2283	590.9278		3,180,925.6848	3,180,925.6848	55.4793		3,182,090.7492
Total	**1,786.1872**	**2,990.5503**	**9,792.2054**	**40.5088**	**1,909.9716**	**100.2308**	**2,010.2024**	**513.6995**	**93.5197**	**607.2191**	**0.0000**	**3,369,211.9214**	**3,369,211.9214**	**60.4697**	**3.4249**	**3,371,543.4981**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.33**	**4.87**	**3.35**	**5.47**	**5.42**	**5.49**	**5.42**	**5.42**	**5.51**	**5.43**	**0.00**	**5.51**	**5.51**	**5.22**	**8.69**	**5.51**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

Provide Traffic Calming Measures

Expand Transit Network

Implement Trip Reduction Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	742.1357	2,924.2198	8,944.3625	40.1083	1,909.9716	83.8625	1,993.8341	513.6995	77.2283	590.9278		3,180,925.6848	3,180,925.6848	55.4793		3,182,090.7492
Unmitigated	764.5855	3,063.2259	9,275.8184	42.3620	2,019.3788	88.5589	2,107.9377	543.1252	81.5527	624.6780		3,359,668.8779	3,359,668.8779	58.4692		3,360,896.7301

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	17,636.60	19,201.40	16267.40	100,434,938	94,993,511
Bank (with Drive-Through)	287.36	167.36	62.08	1,353,387	1,280,062
City Park	194.04	194.04	194.04	1,103,249	1,043,477
Convenience Market with Gas Pumps	712.58	1,220.57	996.10	4,694,394	4,440,058
Elementary School	4,174.80	0.00	0.00	16,954,698	16,036,116
Fast Food Restaurant with Drive Thru	848.14	1,234.15	927.69	5,200,415	4,918,664
General Heavy Industry	152.25	28.88	10.50	650,300	615,067
General Light Industry	304.50	57.75	29.40	1,307,422	1,236,588
General Office Building	13,787.89	2,963.32	1228.32	59,400,006	56,181,796
Government Office Building	53.88	0.00	0.00	218,817	206,962
High School	4,170.00	1,500.00	600.00	18,640,908	17,630,969
High Turnover (Sit Down Restaurant)	834.24	1,038.96	864.96	4,934,455	4,667,113

Industrial Park	2,919.00	1,044.75	309.75	12,954,822	12,252,947
Junior College (2yr)	1,480.50	605.50	66.50	6,558,432	6,203,105
Junior High School	2,217.60	0.00	0.00	9,006,117	8,518,178
Manufacturing	152.25	59.33	24.68	686,546	649,350
Medical Office Building	2,694.00	669.00	114.00	11,576,857	10,949,639
Other Asphalt Surfaces	0.00	0.00	0.00		
Pharmacy/Drugstore w/o Drive Thru	188.58	188.58	188.58	1,072,206	1,014,115
Refrigerated Warehouse-No Rail	304.50	304.50	304.50	1,731,290	1,637,491
Regional Shopping Center	32,559.69	37,889.52	19136.78	178,550,460	168,876,842
Research & Development	4,849.20	1,134.00	664.20	21,154,141	20,008,039
Single Family Housing	51,498.75	54,223.20	47179.50	291,510,053	275,716,439
Supermarket	5,909.20	10,262.90	9618.60	40,146,993	37,971,884
Unrefrigerated Warehouse-No Rail	609.00	609.00	609.00	3,462,579	3,274,981
Total	148,538.56	134,596.70	99,396.57	793,303,484	750,323,394

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Bank (with Drive-Through)	15.62	15.62	15.62	6.60	74.40	19.00	100	0	0
City Park	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Convenience Market with Gas	15.62	15.62	15.62	0.80	80.20	19.00	100	0	0
Elementary School	15.62	15.62	15.62	65.00	30.00	5.00	100	0	0
Fast Food Restaurant with Drive Th	15.62	15.62	15.62	2.20	78.80	19.00	100	0	0
General Heavy Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Light Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Office Building	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Government Office Building	15.62	15.62	15.62	33.00	62.00	5.00	100	0	0
High School	15.62	15.62	15.62	77.80	17.20	5.00	100	0	0
High Turnover (Sit Down Rest	15.62	15.62	15.62	8.50	72.50	19.00	100	0	0
Industrial Park	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Junior College (2yr)	15.62	15.62	15.62	6.40	88.60	5.00	100	0	0
Junior High School	15.62	15.62	15.62	72.80	22.20	5.00	100	0	0
Manufacturing	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Medical Office Building	15.62	15.62	15.62	29.60	51.40	19.00	100	0	0
Other Asphalt Surfaces	15.62	15.62	15.62	0.00	0.00	0.00	100	0	0
Pharmacy/Drugstore w/o Drive Th	15.62	15.62	15.62	7.40	73.60	19.00	100	0	0
Refrigerated Warehouse-No Rail	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0
Regional Shopping Center	15.62	15.62	15.62	16.30	64.70	19.00	100	0	0

Research & Development	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Single Family Housing	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Supermarket	15.62	15.62	15.62	6.50	74.50	19.00	100	0	0
Unrefrigerated Warehouse-No	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.356304	0.054914	0.136221	0.180053	0.057165	0.010435	0.023295	0.168686	0.001480	0.001854	0.006117	0.000946	0.002529

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	6.5494	56.9215	30.8134	0.3572		4.5250	4.5250		4.5250	4.5250		71,447.6123	71,447.6123	1.3694	1.3099	71,882.4306
NaturalGas Unmitigated	8.1793	71.1269	38.7700	0.4461		5.6512	5.6512		5.6512	5.6512		89,228.8795	89,228.8795	1.7102	1.6359	89,771.9116

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Land Use	kBTU/yr	lb/day										lb/day				
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	253.863	2.7400e-003	0.0249	0.0209	1.5000e-004		1.8900e-003	1.8900e-003		1.8900e-003	1.8900e-003		29.8662	29.8662	5.7000e-004	5.5000e-004	30.0480
Elementary School	7786.52	0.0840	0.7634	0.6412	4.5800e-003		0.0580	0.0580		0.0580	0.0580		916.0612	916.0612	0.0176	0.0168	921.6362
Fast Food Restaurant with Drive Thru	6375.42	0.0688	0.6250	0.5250	3.7500e-003		0.0475	0.0475		0.0475	0.0475		750.0493	750.0493	0.0144	0.0138	754.6140
General Heavy Industry	1910.14	0.0206	0.1873	0.1573	1.1200e-003		0.0142	0.0142		0.0142	0.0142		224.7220	224.7220	4.3100e-003	4.1200e-003	226.0896
General Light Industry	3820.27	0.0412	0.3745	0.3146	2.2500e-003		0.0285	0.0285		0.0285	0.0285		449.4440	449.4440	8.6100e-003	8.2400e-003	452.1792
General Office Building	58008.7	0.6256	5.6871	4.7772	0.0341		0.4322	0.4322		0.4322	0.4322		6,824.5499	6,824.5499	0.1308	0.1251	6,866.0830
Government Office Building	226.685	2.4400e-003	0.0222	0.0187	1.3000e-004		1.6900e-003	1.6900e-003		1.6900e-003	1.6900e-003		26.6688	26.6688	5.1000e-004	4.9000e-004	26.8311
High School	9322.61	0.1005	0.9140	0.7677	5.4800e-003		0.0695	0.0695		0.0695	0.0695		1,096.7781	1,096.7781	0.0210	0.0201	1,103.4529
High Turnover (Sit Down Restaurant)	6270.9	0.0676	0.6148	0.5164	3.6900e-003		0.0467	0.0467		0.0467	0.0467		737.7534	737.7534	0.0141	0.0135	742.2433
Industrial Park	19834.9	0.2139	1.9446	1.6335	0.0117		0.1478	0.1478		0.1478	0.1478		2,333.5214	2,333.5214	0.0447	0.0428	2,347.7228
Junior College (2yr)	39545.2	0.4265	3.8770	3.2567	0.0233		0.2947	0.2947		0.2947	0.2947		4,652.3771	4,652.3771	0.0892	0.0853	4,680.6907
Junior High School	4626.45	0.0499	0.4536	0.3810	2.7200e-003		0.0345	0.0345		0.0345	0.0345		544.2888	544.2888	0.0104	9.9800e-003	547.6013
Manufacturing	1910.14	0.0206	0.1873	0.1573	1.1200e-003		0.0142	0.0142		0.0142	0.0142		224.7220	224.7220	4.3100e-003	4.1200e-003	226.0896
Medical Office Building	11334.2	0.1222	1.1112	0.9334	6.6700e-003		0.0845	0.0845		0.0845	0.0845		1,333.4408	1,333.4408	0.0256	0.0245	1,341.5559
Apartments Low Rise	116141	1.2525	10.7032	4.5546	0.0683		0.8654	0.8654		0.8654	0.8654		13,663.6609	13,663.6609	0.2619	0.2505	13,746.8156
Bank (with Drive-Through)	1164.27	0.0126	0.1141	0.0959	6.8000e-004		8.6700e-003	8.6700e-003		8.6700e-003	8.6700e-003		136.9734	136.9734	2.6300e-003	2.5100e-003	137.8070
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	260.055	2.8000e-003	0.0255	0.0214	1.5000e-004		1.9400e-003	1.9400e-003		1.9400e-003	1.9400e-003		30.5947	30.5947	5.9000e-004	5.6000e-004	30.7809
Refrigerated Warehouse-No Rail	2091.37	0.0226	0.2050	0.1722	1.2300e-003		0.0156	0.0156		0.0156	0.0156		246.0435	246.0435	4.7200e-003	4.5100e-003	247.5409
Regional Shopping Center	11599.7	0.1251	1.1372	0.9553	6.8200e-003		0.0864	0.0864		0.0864	0.0864		1,364.6685	1,364.6685	0.0262	0.0250	1,372.9736

Research & Development	19647.1	0.2119	1.9262	1.6180	0.0116		0.1464	0.1464		0.1464	0.1464		2,311.4263	2,311.4263	0.0443	0.0424	2,325.4932
Single Family Housing	433042	4.6701	39.9078	16.9820	0.2547		3.2266	3.2266		3.2266	3.2266		50,946.0638	50,946.0638	0.9765	0.9340	51,256.1130
Supermarket	3274.25	0.0353	0.3210	0.2696	1.9300e-003		0.0244	0.0244		0.0244	0.0244		385.2055	385.2055	7.3800e-003	7.0600e-003	387.5498
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**8.1793**	**71.1269**	**38.7700**	**0.4461**		**5.6511**	**5.6511**		**5.6511**	**5.6511**		**89,228.8795**	**89,228.8795**	**1.7102**	**1.6359**	**89,771.9116**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	0.19138	2.0600e-003	0.0188	0.0158	1.1000e-004		1.4300e-003	1.4300e-003		1.4300e-003	1.4300e-003		22.5153	22.5153	4.3000e-004	4.1000e-004	22.6523
Elementary School	5.94462	0.0641	0.5828	0.4896	3.5000e-003		0.0443	0.0443		0.0443	0.0443		699.3672	699.3672	0.0134	0.0128	703.6234
Fast Food Restaurant with Drive Thru	6.14212	0.0662	0.6022	0.5058	3.6100e-003		0.0458	0.0458		0.0458	0.0458		722.6018	722.6018	0.0139	0.0133	726.9994
General Heavy Industry	1.43692	0.0155	0.1409	0.1183	8.5000e-004		0.0107	0.0107		0.0107	0.0107		169.0492	169.0492	3.2400e-003	3.1000e-003	170.0780
General Light Industry	2.87384	0.0310	0.2818	0.2367	1.6900e-003		0.0214	0.0214		0.0214	0.0214		338.0983	338.0983	6.4800e-003	6.2000e-003	340.1559
General Office Building	44.6423	0.4814	4.3767	3.6764	0.0263		0.3326	0.3326		0.3326	0.3326		5,252.0330	5,252.0330	0.1007	0.0963	5,283.9960
Government Office Building	0.174452	1.8800e-003	0.0171	0.0144	1.0000e-004		1.3000e-003	1.3000e-003		1.3000e-003	1.3000e-003		20.5238	20.5238	3.9000e-004	3.8000e-004	20.6487
High School	7.11735	0.0768	0.6978	0.5861	4.1900e-003		0.0530	0.0530		0.0530	0.0530		837.3356	837.3356	0.0161	0.0154	842.4314
High Turnover (Sit Down Restaurant)	6.04142	0.0652	0.5923	0.4975	3.5500e-003		0.0450	0.0450		0.0450	0.0450		710.7558	710.7558	0.0136	0.0130	715.0814
Industrial Park	15.2646	0.1646	1.4965	1.2571	8.9800e-003		0.1137	0.1137		0.1137	0.1137		1,795.8300	1,795.8300	0.0344	0.0329	1,806.7591
Junior College (2yr)	29.7404	0.3207	2.9157	2.4492	0.0175		0.2216	0.2216		0.2216	0.2216		3,498.8719	3,498.8719	0.0671	0.0642	3,520.1654

Junior High School	3.53207	0.0381	0.3463	0.2909	2.0800e-003		0.0263	0.0263		0.0263	0.0263		415.5375	415.5375	7.9600e-003	7.6200e-003	418.0663
Manufacturing	1.43692	0.0155	0.1409	0.1183	8.5000e-004		0.0107	0.0107		0.0107	0.0107		169.0492	169.0492	3.2400e-003	3.1000e-003	170.0780
Medical Office Building	8.7226	0.0941	0.8552	0.7183	5.1300e-003		0.0650	0.0650		0.0650	0.0650		1,026.1886	1,026.1886	0.0197	0.0188	1,032.4338
Apartments Low Rise	92.6836	0.9995	8.5414	3.6347	0.0545		0.6906	0.6906		0.6906	0.6906		10,903.9487	10,903.9487	0.2090	0.1999	10,970.3083
Bank (with Drive-Through)	0.875836	9.4500e-003	0.0859	0.0721	5.2000e-004		6.5300e-003	6.5300e-003		6.5300e-003	6.5300e-003		103.0395	103.0395	1.9700e-003	1.8900e-003	103.6666
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	0.196048	2.1100e-003	0.0192	0.0162	1.2000e-004		1.4600e-003	1.4600e-003		1.4600e-003	1.4600e-003		23.0645	23.0645	4.4000e-004	4.2000e-004	23.2048
Refrigerated Warehouse-No Rail	1.79147	0.0193	0.1756	0.1475	1.0500e-003		0.0134	0.0134		0.0134	0.0134		210.7615	210.7615	4.0400e-003	3.8600e-003	212.0441
Regional Shopping Center	8.74467	0.0943	0.8573	0.7202	5.1400e-003		0.0652	0.0652		0.0652	0.0652		1,028.7849	1,028.7849	0.0197	0.0189	1,035.0460
Research & Development	14.7797	0.1594	1.4490	1.2172	8.6900e-003		0.1101	0.1101		0.1101	0.1101		1,738.7913	1,738.7913	0.0333	0.0319	1,749.3733
Single Family Housing	352.406	3.8005	32.4767	13.8199	0.2073		2.6258	2.6258		2.6258	2.6258		41,459.5472	41,459.5472	0.7946	0.7601	41,711.8631
Supermarket	2.5663	0.0277	0.2516	0.2113	1.5100e-003		0.0191	0.0191		0.0191	0.0191		301.9178	301.9178	5.7900e-003	5.5400e-003	303.7552
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**6.5494**	**56.9215**	**30.8134**	**0.3572**		**4.5250**	**4.5250**		**4.5250**	**4.5250**		**71,447.6123**	**71,447.6123**	**1.3694**	**1.3099**	**71,882.4306**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1,037.5022	9.4090	817.0295	0.0433		11.8433	11.8433		11.7663	11.7663	0.0000	116,838.6243	116,838.6243	3.6210	2.1150	117,570.3183
Unmitigated	1,037.5022	9.4090	817.0295	0.0433		11.8433	11.8433		11.7663	11.7663	0.0000	116,838.6243	116,838.6243	3.6210	2.1150	117,570.3183

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	101.2371					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	901.1808					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	10.5750	4.8000e-004	0.5768	0.0000		7.3064	7.3064		7.2295	7.2295	0.0000	115,364.1177	115,364.1177	2.2112	2.1150	116,066.2044
Landscaping	24.5092	9.4086	816.4527	0.0433		4.5369	4.5369		4.5369	4.5369		1,474.5066	1,474.5066	1.4099		1,504.1138
Total	**1,037.5022**	**9.4090**	**817.0295**	**0.0433**		**11.8432**	**11.8432**		**11.7663**	**11.7663**	**0.0000**	**116,838.6243**	**116,838.6243**	**3.6210**	**2.1150**	**117,570.3183**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	101.2371					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	901.1808					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	10.5750	4.8000e-004	0.5768	0.0000		7.3064	7.3064		7.2295	7.2295	0.0000	115,364.1177	115,364.1177	2.2112	2.1150	116,066.2044
Landscaping	24.5092	9.4086	816.4527	0.0433		4.5369	4.5369		4.5369	4.5369		1,474.5066	1,474.5066	1.4099		1,504.1138
Total	**1,037.5022**	**9.4090**	**817.0295**	**0.0433**		**11.8432**	**11.8432**		**11.7663**	**11.7663**	**0.0000**	**116,838.6243**	**116,838.6243**	**3.6210**	**2.1150**	**117,570.3183**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Vegetation

CalEEMod Version: CalEEMod.2013.2.2

Date: 10/23/2015 12:32 PM

Grapevine Operational Year 2032 - Planning Areas 6A, 2, 1, 3, 4 Buildout

Kern-San Joaquin County, Mitigation Report

Operational Percent Reduction Summary

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.70	3.70	3.70	3.71	3.70
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	3.02	4.57	3.03	5.32	5.30	5.30	0.00	5.32	5.32	5.10	0.00	5.32
Natural Gas	19.93	19.97	20.52	19.93	19.93	19.93	0.00	19.93	19.93	19.92	19.93	19.93
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting: Suburban Center

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value 3
No	Land Use	Increase Density	0.00	0.00	0.00	
No	Land Use	Increase Diversity	0.30	0.69		

No	Land Use	Improve Walkability Design	0.00	0.00		
No	Land Use	Improve Destination Accessibility	0.00	0.00		
No	Land Use	Increase Transit Accessibility	0.25	0.00		
No	Land Use	Integrate Below Market Rate Housing	0.00	0.00		
	Land Use	Land Use SubTotal	0.00			
Yes	Neighborhood Enhancements	Improve Pedestrian Network	2.00	Project Site and Connecting Off-Site		
Yes	Neighborhood Enhancements	Provide Traffic Calming Measures	1.00	100.00	100.00	
No	Neighborhood Enhancements	Implement NEV Network	0.01			
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.05			
No	Parking Policy Pricing	Limit Parking Supply	0.00	0.00		
No	Parking Policy Pricing	Unbundle Parking Costs	0.00	0.00		
No	Parking Policy Pricing	On-street Market Pricing	0.00	0.00		
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00			
No	Transit Improvements	Provide BRT System	0.00	0.00		
Yes	Transit Improvements	Expand Transit Network	0.00	50.00		
No	Transit Improvements	Increase Transit Frequency	0.00		0.00	
	Transit Improvements	Transit Improvements Subtotal	0.00			
		Land Use and Site Enhancement Subtotal	0.05			
Yes	Commute	Implement Trip Reduction Program		50.00	Voluntary	
No	Commute	Transit Subsidy	0.00	0.00		
No	Commute	Implement Employee Parking "Cash Out"	0.00	0.00		
No	Commute	Workplace Parking Charge	0.00	0.00		
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00	0.00	0.00	0.00
No	Commute	Market Commute Trip Reduction Option	0.00	0.00		

No	Commute	Employee Vanpool/Shuttle	0.00	0.00	2.00	
No	Commute	Provide Ride Sharing Program	0.00	0.00		
	Commute	Commute Subtotal	0.00			
No	School Trip	Implement School Bus Program	0.00	0.00		
		Total VMT Reduction	0.05			

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	150.00
No	Use Low VOC Paint (Residential Exterior)	150.00
No	Use Low VOC Paint (Non-residential Interior)	150.00
No	Use Low VOC Paint (Non-residential Exterior)	150.00
No	% Electric Lawnmower	
No	% Electric Leafblower	
No	% Electric Chainsaw	

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
Yes	Exceed Title 24	25.00	
No	Install High Efficiency Lighting		
No	On-site Renewable		

Appliance Type	Land Use Subtype	% Improvement

ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy	0.00	0.00
No	Use Reclaimed Water	0.00	0.00
No	Use Grey Water	0.00	
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction	0.00	
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape	0.00	0.00

Solid Waste Mitigation

Mitigation Measures	Input Value
Institute Recycling and Composting Services	75.00
Percent Reduction in Waste Disposed	

Grapevine Operational Year 2034 - Planning Areas 6A, 2, 1, 3, 4, 6C Buildout

Kern-San Joaquin County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Bank (with Drive-Through)	32.00	1000sqft	2.95	32,000.00	0
General Office Building	1,535.40	1000sqft	134.37	1,535,400.00	0
Government Office Building	6.00	1000sqft	0.51	6,000.00	0
Medical Office Building	300.00	1000sqft	22.69	300,000.00	0
Pharmacy/Drugstore w/o Drive Thru	21.00	1000sqft	1.85	21,000.00	0
Research & Development	540.00	1000sqft	41.19	540,000.00	0
Elementary School	3,976.00	Student	20.00	332,407.00	0
High School	3,000.00	Student	10.00	397,982.93	0
Junior College (2yr)	350.00	1000sqft	27.25	350,000.00	0
Junior High School	1,680.00	Student	40.00	197,503.63	0
General Heavy Industry	52.50	1000sqft	23.09	52,500.00	0
General Light Industry	105.00	1000sqft	27.18	105,000.00	0
Industrial Park	525.00	1000sqft	50.38	525,000.00	0
Manufacturing	52.50	1000sqft	99.09	52,500.00	0
Refrigerated Warehouse-No Rail	105.00	1000sqft	46.17	105,000.00	0
Unrefrigerated Warehouse-No Rail	210.00	1000sqft	206.35	210,000.00	0
Other Asphalt Surfaces	358.00	Acre	358.00	15,594,480.00	0
City Park	126.00	Acre	126.00	5,488,560.00	0
Fast Food Restaurant with Drive Thru	24.40	1000sqft	3.16	24,400.00	0
High Turnover (Sit Down Restaurant)	24.00	1000sqft	3.11	24,000.00	0
Apartments Low Rise	3,260.00	Dwelling Unit	326.00	3,260,000.00	10432
Single Family Housing	6,645.00	Dwelling Unit	1,700.00	11,961,000.00	21264
Convenience Market with Gas Pumps	20.50	1000sqft	2.67	20,500.00	0
Regional Shopping Center	936.70	1000sqft	119.61	936,700.00	0
Supermarket	170.00	1000sqft	21.89	170,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	7			**Operational Year**	2030
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	372.88	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Planning Areas 6A, 2, 1, 3, 4, 6C. Kern County, San Joaquin Valley Air Basin. Operational Year 2030 was conservatively used for anticipated Operational Year 2034 since CalEEMod does not include year 2034 (options include 2030 and 2035). CO2 Intensity adjusted based on PG&E 50% Renewables by 2030.

Land Use - See 1.1 Land Usage. Population based on 3.2 persons per dwelling unit.

Construction Phase - Construction emissions calculated separately.

Vehicle Trips - Modified trip rates to match Trip Generation and VMT factors provided by Fehr & Peers.

Vehicle Emission Factors - Default CalEEMod values.

Woodstoves - No woodstoves and only gas fireplaces assumed

Area Coating - Default CalEEMod VOC content. Modified non-residential interior and exterior area to be coated based on CalEEMod architectural coating surface area equations and adjusted for parking/asphalt surface and park land uses.

Energy Use - Updated Title 24 electricity and natural gas energy intensity to match 2013 Title 24 standards (25% reduction versus 2008 standards).

Water And Wastewater - Water and wastewater consumption and associated emissions calculated separately.

Construction Off-road Equipment Mitigation - Construction emissions calculated separately.

Mobile Land Use Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Project Setting: Suburban Center. Improve Pedestrian Network: Project Site and Connecting Off-Site. Provide Traffic Calming Measures: 100% Streets with Improvement, 100% Intersections with Improvement. Expand Transit Network: 50%.

Mobile Commute Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Voluntary Commute Trip Reduction Program: 50%.

Energy Mitigation - Exceed 2013 Title 24, % Improvement: 25%.

Water Mitigation - Water reductions calculated separately.

Waste Mitigation - Percent Reduction in Waste Disposed: 75%. Waste diversion consistent with Assembly Bill 341 (not mitigation).

Note Regarding Emissions Presented in the Air Quality & Greenhouse Gas Technical Report: Project-generated unmitigated and mitigated emissions in the Technical Report reflect the unmitigated mobile source emissions reported in 2.0 Emissions Summary. No area source mitigation assumed. Unmitigated and mitigated energy source and solid waste emissions reported in the Technical Report as presented in 2.0 Emissions Summary. Water/wastewater and stationary source emissions calculated separately.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	13510477	3955200
tblAreaCoating	Area_Nonresidential_Interior	40531431	8096840
tblConstructionPhase	NumDays	155,000.00	5.00
tblEnergyUse	T24E	352.42	264.31
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	4.43	3.32
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.70	0.53
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	763.80	572.85
tblEnergyUse	T24E	4.88	3.66
tblEnergyUse	T24NG	14,007.38	10,505.53

tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	54.53	40.90
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	5.56	4.17
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	23,622.31	17,716.73
tblEnergyUse	T24NG	8.10	6.08
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblLandUse	LotAcreage	0.73	2.95
tblLandUse	LotAcreage	35.25	134.37
tblLandUse	LotAcreage	0.14	0.51
tblLandUse	LotAcreage	6.89	22.69
tblLandUse	LotAcreage	0.48	1.85
tblLandUse	LotAcreage	12.40	41.19
tblLandUse	LotAcreage	7.63	20.00

tblLandUse	LotAcreage	9.14	10.00
tblLandUse	LotAcreage	8.03	27.25
tblLandUse	LotAcreage	4.53	40.00
tblLandUse	LotAcreage	1.21	23.09
tblLandUse	LotAcreage	2.41	27.18
tblLandUse	LotAcreage	12.05	50.38
tblLandUse	LotAcreage	1.21	99.09
tblLandUse	LotAcreage	2.41	46.17
tblLandUse	LotAcreage	4.82	206.35
tblLandUse	LotAcreage	0.56	3.16
tblLandUse	LotAcreage	0.55	3.11
tblLandUse	LotAcreage	203.75	326.00
tblLandUse	LotAcreage	2,157.47	1,700.00
tblLandUse	LotAcreage	0.47	2.67
tblLandUse	LotAcreage	21.50	119.61
tblLandUse	LotAcreage	3.90	21.89
tblLandUse	Population	9,324.00	10,432.00
tblLandUse	Population	19,005.00	21,264.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	372.88
tblProjectCharacteristics	OperationalYear	2014	2030
tblTripsAndVMT	VendorTripNumber	5,488.00	0.00
tblTripsAndVMT	WorkerTripNumber	15,732.00	0.00
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62

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tblVehicleTrips	PB_TP	3.00	0.00

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tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	60.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	PR_TP	41.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	54.00	100.00
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tblVehicleTrips	ST_TR	7.16	5.89
tblVehicleTrips	ST_TR	86.32	5.23
tblVehicleTrips	ST_TR	1.59	1.54
tblVehicleTrips	ST_TR	1,448.33	59.54
tblVehicleTrips	ST_TR	722.03	50.58

tblVehicleTrips	ST_TR	1.50	0.55
tblVehicleTrips	ST_TR	1.32	0.55
tblVehicleTrips	ST_TR	2.37	1.93
tblVehicleTrips	ST_TR	0.61	0.50
tblVehicleTrips	ST_TR	158.37	43.29
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tblVehicleTrips	ST_TR	1.49	1.13
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tblVehicleTrips	ST_TR	2.59	2.90
tblVehicleTrips	ST_TR	49.97	40.45
tblVehicleTrips	ST_TR	1.90	2.10
tblVehicleTrips	ST_TR	10.08	8.16
tblVehicleTrips	ST_TR	177.59	60.37
tblVehicleTrips	ST_TR	2.59	2.90
tblVehicleTrips	SU_TR	6.07	4.99
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tblVehicleTrips	SU_TR	1,182.08	48.59
tblVehicleTrips	SU_TR	542.72	38.02
tblVehicleTrips	SU_TR	1.50	0.20
tblVehicleTrips	SU_TR	0.68	0.28
tblVehicleTrips	SU_TR	0.98	0.80
tblVehicleTrips	SU_TR	0.25	0.20
tblVehicleTrips	SU_TR	131.84	36.04
tblVehicleTrips	SU_TR	0.73	0.59
tblVehicleTrips	SU_TR	1.21	0.19
tblVehicleTrips	SU_TR	0.62	0.47
tblVehicleTrips	SU_TR	1.55	0.38

tblVehicleTrips	SU_TR	90.06	8.98
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tblVehicleTrips	SU_TR	25.24	20.43
tblVehicleTrips	SU_TR	1.11	1.23
tblVehicleTrips	SU_TR	8.77	7.10
tblVehicleTrips	SU_TR	166.44	56.58
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tblVehicleTrips	WD_TR	148.15	8.98
tblVehicleTrips	WD_TR	1.59	1.54
tblVehicleTrips	WD_TR	845.60	34.76
tblVehicleTrips	WD_TR	1.29	1.05
tblVehicleTrips	WD_TR	496.12	34.76
tblVehicleTrips	WD_TR	1.50	2.90
tblVehicleTrips	WD_TR	6.97	2.90
tblVehicleTrips	WD_TR	11.01	8.98
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tblVehicleTrips	WD_TR	1.71	1.39
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tblVehicleTrips	WD_TR	36.13	8.98
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tblVehicleTrips	WD_TR	2.59	2.90
tblVehicleTrips	WD_TR	42.94	34.76
tblVehicleTrips	WD_TR	8.11	8.98
tblVehicleTrips	WD_TR	9.57	7.75
tblVehicleTrips	WD_TR	102.24	34.76

tblVehicleTrips	WD_TR	2.59	2.90
tblWater	IndoorWaterUseRate	212,402,123.53	0.00
tblWater	IndoorWaterUseRate	1,267,933.40	0.00
tblWater	IndoorWaterUseRate	1,518,486.69	0.00
tblWater	IndoorWaterUseRate	9,638,778.24	0.00
tblWater	IndoorWaterUseRate	7,406,222.58	0.00
tblWater	IndoorWaterUseRate	12,140,625.00	0.00
tblWater	IndoorWaterUseRate	24,281,250.00	0.00
tblWater	IndoorWaterUseRate	272,892,396.67	0.00
tblWater	IndoorWaterUseRate	1,191,958.12	0.00
tblWater	IndoorWaterUseRate	13,214,880.00	0.00
tblWater	IndoorWaterUseRate	7,284,809.10	0.00
tblWater	IndoorWaterUseRate	121,406,250.00	0.00
tblWater	IndoorWaterUseRate	17,167,161.38	0.00
tblWater	IndoorWaterUseRate	4,072,723.20	0.00
tblWater	IndoorWaterUseRate	12,140,625.00	0.00
tblWater	IndoorWaterUseRate	37,644,161.27	0.00
tblWater	IndoorWaterUseRate	1,479,397.99	0.00
tblWater	IndoorWaterUseRate	24,281,250.00	0.00
tblWater	IndoorWaterUseRate	69,383,730.87	0.00
tblWater	IndoorWaterUseRate	265,514,731.49	0.00
tblWater	IndoorWaterUseRate	432,948,500.25	0.00
tblWater	IndoorWaterUseRate	20,955,596.53	0.00
tblWater	IndoorWaterUseRate	48,562,500.00	0.00
tblWater	OutdoorWaterUseRate	133,905,686.57	0.00
tblWater	OutdoorWaterUseRate	777,120.47	0.00
tblWater	OutdoorWaterUseRate	150,126,650.06	0.00
tblWater	OutdoorWaterUseRate	930,685.39	0.00
tblWater	OutdoorWaterUseRate	24,785,429.76	0.00
tblWater	OutdoorWaterUseRate	472,737.61	0.00

tblWater	OutdoorWaterUseRate	167,256,630.22	0.00
tblWater	OutdoorWaterUseRate	730,554.97	0.00
tblWater	OutdoorWaterUseRate	33,981,120.00	0.00
tblWater	OutdoorWaterUseRate	464,987.81	0.00
tblWater	OutdoorWaterUseRate	26,851,201.13	0.00
tblWater	OutdoorWaterUseRate	10,472,716.80	0.00
tblWater	OutdoorWaterUseRate	7,170,316.43	0.00
tblWater	OutdoorWaterUseRate	906,727.80	0.00
tblWater	OutdoorWaterUseRate	42,525,512.47	0.00
tblWater	OutdoorWaterUseRate	272,945,793.64	0.00
tblWater	OutdoorWaterUseRate	648,111.23	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	186.0911	0.8468	73.5044	3.8900e-003		0.7079	0.7079		0.7047	0.7047	0.0000	4,411.3078	4,411.3078	0.1974	0.0787	4,439.8390
Energy	1.4927	12.9807	7.0755	0.0814		1.0313	1.0313		1.0313	1.0313	0.0000	35,230.7834	35,230.7834	1.8742	0.6000	35,456.1493
Mobile	112.9369	498.5659	1,467.0948	6.2420	307.6798	13.7439	321.4237	82.8876	12.6566	95.5442	0.0000	453,007.6575	453,007.6575	8.2377	0.0000	453,180.6485
Waste						0.0000	0.0000		0.0000	0.0000	4,044.1626	0.0000	4,044.1626	239.0032	0.0000	9,063.2289
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**300.5208**	**512.3933**	**1,547.6747**	**6.3273**	**307.6798**	**15.4831**	**323.1629**	**82.8876**	**14.3927**	**97.2802**	**4,044.1626**	**492,649.7487**	**496,693.9113**	**249.3124**	**0.6787**	**502,139.8657**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	186.0911	0.8468	73.5044	3.8900e-003		0.7079	0.7079		0.7047	0.7047	0.0000	4,411.3078	4,411.3078	0.1974	0.0787	4,439.8390
Energy	1.1953	10.3882	5.6234	0.0652		0.8258	0.8258		0.8258	0.8258	0.0000	31,529.8920	31,529.8920	1.7589	0.5339	31,732.3295
Mobile	109.5216	475.7949	1,422.6718	5.9102	291.0101	13.0159	304.0260	78.3968	11.9862	90.3830	0.0000	428,908.5503	428,908.5503	7.8172	0.0000	429,072.7110
Waste						0.0000	0.0000		0.0000	0.0000	1,011.0406	0.0000	1,011.0406	59.7508	0.0000	2,265.8072
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**296.8080**	**487.0298**	**1,501.7996**	**5.9793**	**291.0101**	**14.5496**	**305.5597**	**78.3968**	**13.5167**	**91.9136**	**1,011.0406**	**464,849.7500**	**465,860.7907**	**69.5242**	**0.6125**	**467,510.6866**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.24**	**4.95**	**2.96**	**5.50**	**5.42**	**6.03**	**5.45**	**5.42**	**6.09**	**5.52**	**75.00**	**5.64**	**6.21**	**72.11**	**9.75**	**6.90**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

Provide Traffic Calming Measures

Expand Transit Network

Implement Trip Reduction Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	109.5216	475.7949	1,422.6718	5.9102	291.0101	13.0159	304.0260	78.3968	11.9862	90.3830	0.0000	428,908.5503	428,908.5503	7.8172	0.0000	429,072.7110
Unmitigated	112.9369	498.5659	1,467.0948	6.2420	307.6798	13.7439	321.4237	82.8876	12.6566	95.5442	0.0000	453,007.6575	453,007.6575	8.2377	0.0000	453,180.6485

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	17,636.60	19,201.40	16267.40	100,434,938	94,993,511
Bank (with Drive-Through)	287.36	167.36	62.08	1,353,387	1,280,062
City Park	194.04	194.04	194.04	1,103,249	1,043,477
Convenience Market with Gas Pumps	712.58	1,220.57	996.10	4,694,394	4,440,058
Elementary School	4,174.80	0.00	0.00	16,954,698	16,036,116
Fast Food Restaurant with Drive Thru	848.14	1,234.15	927.69	5,200,415	4,918,664
General Heavy Industry	152.25	28.88	10.50	650,300	615,067
General Light Industry	304.50	57.75	29.40	1,307,422	1,236,588
General Office Building	13,787.89	2,963.32	1228.32	59,400,006	56,181,796
Government Office Building	53.88	0.00	0.00	218,817	206,962
High School	4,170.00	1,500.00	600.00	18,640,908	17,630,969
High Turnover (Sit Down Restaurant)	834.24	1,038.96	864.96	4,934,455	4,667,113
Industrial Park	2,919.00	1,044.75	309.75	12,954,822	12,252,947
Junior College (2yr)	1,480.50	605.50	66.50	6,558,432	6,203,105
Junior High School	2,217.60	0.00	0.00	9,006,117	8,518,178

Manufacturing	152.25	59.33	24.68	686,546	649,350
Medical Office Building	2,694.00	669.00	114.00	11,576,857	10,949,639
Other Asphalt Surfaces	0.00	0.00	0.00		
Pharmacy/Drugstore w/o Drive Thru	188.58	188.58	188.58	1,072,206	1,014,115
Refrigerated Warehouse-No Rail	304.50	304.50	304.50	1,731,290	1,637,491
Regional Shopping Center	32,559.69	37,889.52	19136.78	178,550,460	168,876,842
Research & Development	4,849.20	1,134.00	664.20	21,154,141	20,008,039
Single Family Housing	51,498.75	54,223.20	47179.50	291,510,053	275,716,439
Supermarket	5,909.20	10,262.90	9618.60	40,146,993	37,971,884
Unrefrigerated Warehouse-No Rail	609.00	609.00	609.00	3,462,579	3,274,981
Total	148,538.56	134,596.70	99,396.57	793,303,484	750,323,394

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Bank (with Drive-Through)	15.62	15.62	15.62	6.60	74.40	19.00	100	0	0
City Park	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Convenience Market with Gas	15.62	15.62	15.62	0.80	80.20	19.00	100	0	0
Elementary School	15.62	15.62	15.62	65.00	30.00	5.00	100	0	0
Fast Food Restaurant with Drive	15.62	15.62	15.62	2.20	78.80	19.00	100	0	0
General Heavy Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Light Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Office Building	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Government Office Building	15.62	15.62	15.62	33.00	62.00	5.00	100	0	0
High School	15.62	15.62	15.62	77.80	17.20	5.00	100	0	0
High Turnover (Sit Down	15.62	15.62	15.62	8.50	72.50	19.00	100	0	0
Industrial Park	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Junior College (2yr)	15.62	15.62	15.62	6.40	88.60	5.00	100	0	0
Junior High School	15.62	15.62	15.62	72.80	22.20	5.00	100	0	0
Manufacturing	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Medical Office Building	15.62	15.62	15.62	29.60	51.40	19.00	100	0	0
Other Asphalt Surfaces	15.62	15.62	15.62	0.00	0.00	0.00	100	0	0
Pharmacy/Drugstore w/o Drive	15.62	15.62	15.62	7.40	73.60	19.00	100	0	0
Refrigerated Warehouse-No Rail	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0
Regional Shopping Center	15.62	15.62	15.62	16.30	64.70	19.00	100	0	0
Research & Development	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Single Family Housing	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0

Supermarket	15.62	15.62	15.62	6.50	74.50	19.00	100	0	0
Unrefrigerated Warehouse-No	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.356304	0.054914	0.136221	0.180053	0.057165	0.010435	0.023295	0.168686	0.001480	0.001854	0.006117	0.000946	0.002529

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	19,700.9385	19,700.9385	1.5322	0.3170	19,831.3869
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	20,457.9417	20,457.9417	1.5911	0.3292	20,593.4026
NaturalGas Mitigated	1.1953	10.3882	5.6234	0.0652		0.8258	0.8258		0.8258	0.8258	0.0000	11,828.9535	11,828.9535	0.2267	0.2169	11,900.9426
NaturalGas Unmitigated	1.4927	12.9807	7.0755	0.0814		1.0313	1.0313		1.0313	1.0313	0.0000	14,772.8417	14,772.8417	0.2832	0.2708	14,862.7468

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Land Use	kBTU/yr	tons/yr										MT/yr					
Bank (with Drive-Through)	424960	2.2900e-003	0.0208	0.0175	1.2000e-004		1.5800e-003	1.5800e-003		1.5800e-003	1.5800e-003	0.0000	22.6775	22.6775	4.3000e-004	4.2000e-004	22.8155
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	92660	5.0000e-004	4.5400e-003	3.8200e-003	3.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	4.9447	4.9447	9.0000e-005	9.0000e-005	4.9748
Elementary School	2.84208e+006	0.0153	0.1393	0.1170	8.4000e-004		0.0106	0.0106		0.0106	0.0106	0.0000	151.6642	151.6642	2.9100e-003	2.7800e-003	152.5872
Fast Food Restaurant with Drive Thru	2.32703e+006	0.0126	0.1141	0.0958	6.8000e-004		8.6700e-003	8.6700e-003		8.6700e-003	8.6700e-003	0.0000	124.1791	124.1791	2.3800e-003	2.2800e-003	124.9348
General Heavy Industry	697200	3.7600e-003	0.0342	0.0287	2.1000e-004		2.6000e-003	2.6000e-003		2.6000e-003	2.6000e-003	0.0000	37.2053	37.2053	7.1000e-004	6.8000e-004	37.4317
General Light Industry	1.3944e+006	7.5200e-003	0.0684	0.0574	4.1000e-004		5.1900e-003	5.1900e-003		5.1900e-003	5.1900e-003	0.0000	74.4105	74.4105	1.4300e-003	1.3600e-003	74.8633
General Office Building	2.11732e+007	0.1142	1.0379	0.8718	6.2300e-003		0.0789	0.0789		0.0789	0.0789	0.0000	1,129.8808	1,129.8808	0.0217	0.0207	1,136.7570
Government Office Building	82740	4.5000e-004	4.0600e-003	3.4100e-003	2.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	4.4153	4.4153	8.0000e-005	8.0000e-005	4.4422
High School	3.40275e+006	0.0184	0.1668	0.1401	1.0000e-003		0.0127	0.0127		0.0127	0.0127	0.0000	181.5839	181.5839	3.4800e-003	3.3300e-003	182.6890
High Turnover (Sit Down Restaurant)	2.28888e+006	0.0123	0.1122	0.0943	6.7000e-004		8.5300e-003	8.5300e-003		8.5300e-003	8.5300e-003	0.0000	122.1434	122.1434	2.3400e-003	2.2400e-003	122.8867
Industrial Park	7.23975e+006	0.0390	0.3549	0.2981	2.1300e-003		0.0270	0.0270		0.0270	0.0270	0.0000	386.3406	386.3406	7.4000e-003	7.0800e-003	388.6918
Junior College (2yr)	1.4434e+007	0.0778	0.7076	0.5943	4.2500e-003		0.0538	0.0538		0.0538	0.0538	0.0000	770.2532	770.2532	0.0148	0.0141	774.9408
Junior High School	1.68866e+006	9.1100e-003	0.0828	0.0695	5.0000e-004		6.2900e-003	6.2900e-003		6.2900e-003	6.2900e-003	0.0000	90.1131	90.1131	1.7300e-003	1.6500e-003	90.6615
Manufacturing	697200	3.7600e-003	0.0342	0.0287	2.1000e-004		2.6000e-003	2.6000e-003		2.6000e-003	2.6000e-003	0.0000	37.2053	37.2053	7.1000e-004	6.8000e-004	37.4317
Apartments Low Rise	4.23915e+007	0.2286	1.9533	0.8312	0.0125		0.1579	0.1579		0.1579	0.1579	0.0000	2,262.1723	2,262.1723	0.0434	0.0415	2,275.9395
Medical Office Building	4.137e+006	0.0223	0.2028	0.1704	1.2200e-003		0.0154	0.0154		0.0154	0.0154	0.0000	220.7661	220.7661	4.2300e-003	4.0500e-003	222.1096
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	94920	5.1000e-004	4.6500e-003	3.9100e-003	3.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	5.0653	5.0653	1.0000e-004	9.0000e-005	5.0961
Refrigerated Warehouse-No Rail	763350	4.1200e-003	0.0374	0.0314	2.2000e-004		2.8400e-003	2.8400e-003		2.8400e-003	2.8400e-003	0.0000	40.7353	40.7353	7.8000e-004	7.5000e-004	40.9832
Regional Shopping Center	4.23388e+006	0.0228	0.2075	0.1743	1.2500e-003		0.0158	0.0158		0.0158	0.0158	0.0000	225.9362	225.9362	4.3300e-003	4.1400e-003	227.3112

Research & Development	7.1712e+006	0.0387	0.3515	0.2953	2.1100e-003		0.0267	0.0267		0.0267	0.0267	0.0000	382.6825	382.6825	7.3300e-003	7.0200e-003	385.0115
Single Family Housing	1.5806e+008	0.8523	7.2832	3.0992	0.0465		0.5889	0.5889		0.5889	0.5889	0.0000	8,434.6922	8,434.6922	0.1617	0.1546	8,486.0244
Supermarket	1.1951e+006	6.4400e-003	0.0586	0.0492	3.5000e-004		4.4500e-003	4.4500e-003		4.4500e-003	4.4500e-003	0.0000	63.7751	63.7751	1.2200e-003	1.1700e-003	64.1632
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.4927**	**12.9807**	**7.0756**	**0.0814**		**1.0313**	**1.0313**		**1.0313**	**1.0313**	**0.0000**	**14,772.8417**	**14,772.8417**	**0.2831**	**0.2708**	**14,862.7468**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	69853.8	3.8000e-004	3.4200e-003	2.8800e-003	2.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004	0.0000	3.7277	3.7277	7.0000e-005	7.0000e-005	3.7504
Elementary School	2.16979e+006	0.0117	0.1064	0.0893	6.4000e-004		8.0800e-003	8.0800e-003		8.0800e-003	8.0800e-003	0.0000	115.7881	115.7881	2.2200e-003	2.1200e-003	116.4928
Fast Food Restaurant with Drive Thru	2.24187e+006	0.0121	0.1099	0.0923	6.6000e-004		8.3500e-003	8.3500e-003		8.3500e-003	8.3500e-003	0.0000	119.6348	119.6348	2.2900e-003	2.1900e-003	120.3629
General Heavy Industry	524475	2.8300e-003	0.0257	0.0216	1.5000e-004		1.9500e-003	1.9500e-003		1.9500e-003	1.9500e-003	0.0000	27.9880	27.9880	5.4000e-004	5.1000e-004	28.1583
General Light Industry	1.04895e+006	5.6600e-003	0.0514	0.0432	3.1000e-004		3.9100e-003	3.9100e-003		3.9100e-003	3.9100e-003	0.0000	55.9760	55.9760	1.0700e-003	1.0300e-003	56.3166
General Office Building	1.62944e+007	0.0879	0.7988	0.6710	4.7900e-003		0.0607	0.0607		0.0607	0.0607	0.0000	869.5330	869.5330	0.0167	0.0159	874.8248
Government Office Building	63675	3.4000e-004	3.1200e-003	2.6200e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	3.3979	3.3979	7.0000e-005	6.0000e-005	3.4186
High School	2.59783e+006	0.0140	0.1273	0.1070	7.6000e-004		9.6800e-003	9.6800e-003		9.6800e-003	9.6800e-003	0.0000	138.6303	138.6303	2.6600e-003	2.5400e-003	139.4740
High Turnover (Sit Down Restaurant)	2.20512e+006	0.0119	0.1081	0.0908	6.5000e-004		8.2200e-003	8.2200e-003		8.2200e-003	8.2200e-003	0.0000	117.6736	117.6736	2.2600e-003	2.1600e-003	118.3897
Industrial Park	5.57156e+006	0.0300	0.2731	0.2294	1.6400e-003		0.0208	0.0208		0.0208	0.0208	0.0000	297.3198	297.3198	5.7000e-003	5.4500e-003	299.1292
Junior College (2yr)	1.08552e+007	0.0585	0.5321	0.4470	3.1900e-003		0.0404	0.0404		0.0404	0.0404	0.0000	579.2775	579.2775	0.0111	0.0106	582.8029

Junior High School	1.2892e+006	6.9500e-003	0.0632	0.0531	3.8000e-004		4.8000e-003	4.8000e-003		4.8000e-003	4.8000e-003	0.0000	68.7969	68.7969	1.3200e-003	1.2600e-003	69.2156
Manufacturing	524475	2.8300e-003	0.0257	0.0216	1.5000e-004		1.9500e-003	1.9500e-003		1.9500e-003	1.9500e-003	0.0000	27.9880	27.9880	5.4000e-004	5.1000e-004	28.1583
Medical Office Building	3.18375e+006	0.0172	0.1561	0.1311	9.4000e-004		0.0119	0.0119		0.0119	0.0119	0.0000	169.8970	169.8970	3.2600e-003	3.1100e-003	170.9310
Apartments Low Rise	3.38295e+007	0.1824	1.5588	0.6633	9.9500e-003		0.1260	0.1260		0.1260	0.1260	0.0000	1,805.2710	1,805.2710	0.0346	0.0331	1,816.2576
Bank (with Drive-Through)	319680	1.7200e-003	0.0157	0.0132	9.0000e-005		1.1900e-003	1.1900e-003		1.1900e-003	1.1900e-003	0.0000	17.0593	17.0593	3.3000e-004	3.1000e-004	17.1632
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	71557.5	3.9000e-004	3.5100e-003	2.9500e-003	2.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004	0.0000	3.8186	3.8186	7.0000e-005	7.0000e-005	3.8418
Refrigerated Warehouse-No Rail	653888	3.5300e-003	0.0321	0.0269	1.9000e-004		2.4400e-003	2.4400e-003		2.4400e-003	2.4400e-003	0.0000	34.8939	34.8939	6.7000e-004	6.4000e-004	35.1063
Regional Shopping Center	3.19181e+006	0.0172	0.1565	0.1314	9.4000e-004		0.0119	0.0119		0.0119	0.0119	0.0000	170.3269	170.3269	3.2600e-003	3.1200e-003	171.3635
Research & Development	5.3946e+006	0.0291	0.2644	0.2221	1.5900e-003		0.0201	0.0201		0.0201	0.0201	0.0000	287.8764	287.8764	5.5200e-003	5.2800e-003	289.6284
Single Family Housing	1.28628e+008	0.6936	5.9270	2.5221	0.0378		0.4792	0.4792		0.4792	0.4792	0.0000	6,864.0930	6,864.0930	0.1316	0.1258	6,905.8667
Supermarket	936700	5.0500e-003	0.0459	0.0386	2.8000e-004		3.4900e-003	3.4900e-003		3.4900e-003	3.4900e-003	0.0000	49.9859	49.9859	9.6000e-004	9.2000e-004	50.2901
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.1953**	**10.3882**	**5.6234**	**0.0652**		**0.8258**	**0.8258**		**0.8258**	**0.8258**	**0.0000**	**11,828.9535**	**11,828.9535**	**0.2267**	**0.2169**	**11,900.9425**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	1.20801e+007	2,043.1729	0.1589	0.0329	2,056.7016
Bank (with Drive-Through)	80640	13.6391	1.0600e-003	2.2000e-004	13.7294
City Park	0	0.0000	0.0000	0.0000	0.0000

Convenience Market with Gas Pumps	215455	36.4411	2.8300e-003	5.9000e-004	36.6824
Elementary School	2.54291e+006	430.0970	0.0335	6.9200e-003	432.9449
Fast Food Restaurant with Drive Thru	817156	138.2101	0.0108	2.2200e-003	139.1253
General Heavy Industry	132300	22.3766	1.7400e-003	3.6000e-004	22.5248
General Light Industry	264600	44.7533	3.4800e-003	7.2000e-004	45.0496
General Office Building	1.57225e+007	2,659.2326	0.2068	0.0428	2,676.8405
Government Office Building	61440	10.3917	8.1000e-004	1.7000e-004	10.4605
High School	3.04457e+006	514.9448	0.0401	8.2900e-003	518.3545
High Turnover (Sit Down Restaurant)	803760	135.9444	0.0106	2.1900e-003	136.8445
Industrial Park	5.376e+006	909.2726	0.0707	0.0146	915.2933
Junior College (2yr)	5.7155e+006	966.6941	0.0752	0.0156	973.0950
Junior High School	1.5109e+006	255.5473	0.0199	4.1100e-003	257.2394
Manufacturing	132300	22.3766	1.7400e-003	3.6000e-004	22.5248
Medical Office Building	3.072e+006	519.5843	0.0404	8.3600e-003	523.0247
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	220710	37.3299	2.9000e-003	6.0000e-004	37.5771
Refrigerated Warehouse-No Rail	3.06915e+006	519.1023	0.0404	8.3500e-003	522.5395
Regional Shopping Center	9.84472e+006	1,665.0914	0.1295	0.0268	1,676.1167
Research & Development	1.3608e+006	230.1596	0.0179	3.7000e-003	231.6836
Single Family Housing	4.83825e+007	8,183.2013	0.6364	0.1317	8,237.3858
Supermarket	6.5059e+006	1,100.3788	0.0856	0.0177	1,107.6649
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000

Total		**20,457.9417**	**1.5911**	**0.3292**	**20,593.4026**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	1.18647e+007	2,006.7389	0.1561	0.0323	2,020.0264
Bank (with Drive-Through)	77680	13.1385	1.0200e-003	2.1000e-004	13.2254
City Park	0	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas [illegible]	200593	33.9273	2.6400e-003	5.5000e-004	34.1520
Elementary School	2.39499e+006	405.0783	0.0315	6.5200e-003	407.7605
Fast Food Restaurant with [illegible]	773541	130.8333	0.0102	2.1100e-003	131.6996
General Heavy Industry	127444	21.5553	1.6800e-003	3.5000e-004	21.6980
General Light Industry	254887	43.1105	3.3500e-003	6.9000e-004	43.3960
General Office Building	1.47053e+007	2,487.1875	0.1934	0.0400	2,503.6563
Government Office Building	57465	9.7194	7.6000e-004	1.6000e-004	9.7837
High School	2.86747e+006	484.9905	0.0377	7.8000e-003	488.2019
High Turnover (Sit Down Restaurant)	760860	128.6885	0.0100	2.0700e-003	129.5406
Industrial Park	5.02819e+006	850.4451	0.0661	0.0137	856.0763
Junior College (2yr)	5.425e+006	917.5602	0.0714	0.0148	923.6358
Junior High School	1.42301e+006	240.6822	0.0187	3.8700e-003	242.2758
Manufacturing	127444	21.5553	1.6800e-003	3.5000e-004	21.6980

Medical Office Building	2.87325e+006	485.9686	0.0378	7.8200e-003	489.1865
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	205485	34.7548	2.7000e-003	5.6000e-004	34.9849
Refrigerated Warehouse-No Rail	3.05524e+006	516.7492	0.0402	8.3100e-003	520.1708
Regional Shopping Center	9.16561e+006	1,550.2302	0.1206	0.0249	1,560.4949
Research & Development	1.31085e+006	221.7113	0.0172	3.5700e-003	223.1794
Single Family Housing	4.74309e+007	8,022.2439	0.6239	0.1291	8,075.3627
Supermarket	6.35035e+006	1,074.0698	0.0835	0.0173	1,081.1817
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**19,700.9385**	**1.5322**	**0.3170**	**19,831.3869**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	186.0911	0.8468	73.5044	3.8900e-003		0.7079	0.7079		0.7047	0.7047	0.0000	4,411.3078	4,411.3078	0.1974	0.0787	4,439.8390
Unmitigated	186.0911	0.8468	73.5044	3.8900e-003		0.7079	0.7079		0.7047	0.7047	0.0000	4,411.3078	4,411.3078	0.1974	0.0787	4,439.8390

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	18.4758					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	164.9759					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.4336	2.0000e-005	0.0237	0.0000		0.2996	0.2996		0.2964	0.2964	0.0000	4,290.9193	4,290.9193	0.0822	0.0787	4,317.0331
Landscaping	2.2058	0.8468	73.4808	3.8900e-003		0.4083	0.4083		0.4083	0.4083	0.0000	120.3886	120.3886	0.1151	0.0000	122.8059
Total	**186.0911**	**0.8468**	**73.5044**	**3.8900e-003**		**0.7079**	**0.7079**		**0.7047**	**0.7047**	**0.0000**	**4,411.3078**	**4,411.3078**	**0.1974**	**0.0787**	**4,439.8390**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	18.4758					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	164.9759					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.4336	2.0000e-005	0.0237	0.0000		0.2996	0.2996		0.2964	0.2964	0.0000	4,290.9193	4,290.9193	0.0822	0.0787	4,317.0331
Landscaping	2.2058	0.8468	73.4808	3.8900e-003		0.4083	0.4083		0.4083	0.4083	0.0000	120.3886	120.3886	0.1151	0.0000	122.8059
Total	**186.0911**	**0.8468**	**73.5044**	**3.8900e-003**		**0.7079**	**0.7079**		**0.7047**	**0.7047**	**0.0000**	**4,411.3078**	**4,411.3078**	**0.1974**	**0.0787**	**4,439.8390**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	0 / 0	0.0000	0.0000	0.0000	0.0000
Bank (with Drive-Through)	0 / 0	0.0000	0.0000	0.0000	0.0000
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	0 / 0	0.0000	0.0000	0.0000	0.0000
Elementary School	0 / 0	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant with Drive-Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
General Heavy Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Government Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000

High School	0 / 0	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	0 / 0	0.0000	0.0000	0.0000	0.0000
Industrial Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Junior College (2yr)	0 / 0	0.0000	0.0000	0.0000	0.0000
Junior High School	0 / 0	0.0000	0.0000	0.0000	0.0000
Manufacturing	0 / 0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0 / 0	0.0000	0.0000	0.0000	0.0000
Research & Development	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Supermarket	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	0 / 0	0.0000	0.0000	0.0000	0.0000

Bank (with Drive-Through)	0 / 0	0.0000	0.0000	0.0000	0.0000
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	0 / 0	0.0000	0.0000	0.0000	0.0000
Elementary School	0 / 0	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant with Drive-Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
General Heavy Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Government Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
High School	0 / 0	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	0 / 0	0.0000	0.0000	0.0000	0.0000
Industrial Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Junior College (2yr)	0 / 0	0.0000	0.0000	0.0000	0.0000
Junior High School	0 / 0	0.0000	0.0000	0.0000	0.0000
Manufacturing	0 / 0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0 / 0	0.0000	0.0000	0.0000	0.0000
Research & Development	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Supermarket	0 / 0	0.0000	0.0000	0.0000	0.0000

Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Unmitigated	4,044.1626	239.0032	0.0000	9,063.2289
Mitigated	1,011.0406	59.7508	0.0000	2,265.8072

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	1499.6	304.4053	17.9898	0.0000	682.1918
Bank (with Drive-Through)	29.86	6.0613	0.3582	0.0000	13.5838
City Park	10.84	2.2004	0.1300	0.0000	4.9313

Convenience Market with Gas Pumps	61.61	12.5063	0.7391	0.0000	28.0274
Elementary School	725.62	147.2943	8.7048	0.0000	330.0960
Fast Food Restaurant with Drive Thru	281.06	57.0526	3.3717	0.0000	127.8586
General Heavy Industry	65.1	13.2147	0.7810	0.0000	29.6150
General Light Industry	130.2	26.4294	1.5619	0.0000	59.2300
General Office Building	1427.92	289.8549	17.1299	0.0000	649.5834
Government Office Building	5.58	1.1327	0.0669	0.0000	2.5384
High School	547.5	111.1376	6.5680	0.0000	249.0664
High Turnover (Sit Down Restaurant)	285.6	57.9742	3.4262	0.0000	129.9240
Industrial Park	651	132.1471	7.8097	0.0000	296.1502
Junior College (2yr)	455	92.3609	5.4584	0.0000	206.9867
Junior High School	306.6	62.2370	3.6781	0.0000	139.4772
Manufacturing	65.1	13.2147	0.7810	0.0000	29.6150
Medical Office Building	3240	657.6907	38.8684	0.0000	1,473.9273
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	63.15	12.8189	0.7576	0.0000	28.7279
Refrigerated Warehouse-No Rail	98.7	20.0352	1.1841	0.0000	44.9002
Regional Shopping Center	983.54	199.6497	11.7990	0.0000	447.4279
Research & Development	41.04	8.3308	0.4923	0.0000	18.6698
Single Family Housing	7792.05	1,581.7157	93.4767	0.0000	3,544.7269
Supermarket	958.8	194.6277	11.5022	0.0000	436.1733
Unrefrigerated Warehouse-No Rail	197.4	40.0704	2.3681	0.0000	89.8004

Total		**4,044.1626**	**239.0031**	**0.0000**	**9,063.2289**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	374.9	76.1013	4.4975	0.0000	170.5479
Bank (with Drive-Through)	7.465	1.5153	0.0896	0.0000	3.3960
City Park	2.71	0.5501	0.0325	0.0000	1.2328
Convenience Market with Gas Pumps	15.4025	3.1266	0.1848	0.0000	7.0068
Elementary School	181.405	36.8236	2.1762	0.0000	82.5240
Fast Food Restaurant with Drive-Thru	70.265	14.2632	0.8429	0.0000	31.9647
General Heavy Industry	16.275	3.3037	0.1952	0.0000	7.4038
General Light Industry	32.55	6.6074	0.3905	0.0000	14.8075
General Office Building	356.98	72.4637	4.2825	0.0000	162.3959
Government Office Building	1.395	0.2832	0.0167	0.0000	0.6346
High School	136.875	27.7844	1.6420	0.0000	62.2666
High Turnover (Sit Down Restaurant)	71.4	14.4936	0.8565	0.0000	32.4810
Industrial Park	162.75	33.0368	1.9524	0.0000	74.0376
Junior College (2yr)	113.75	23.0902	1.3646	0.0000	51.7467
Junior High School	76.65	15.5593	0.9195	0.0000	34.8693
Manufacturing	16.275	3.3037	0.1952	0.0000	7.4038

Medical Office Building	810	164.4227	9.7171	0.0000	368.4818
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	15.7875	3.2047	0.1894	0.0000	7.1820
Refrigerated Warehouse-No Rail	24.675	5.0088	0.2960	0.0000	11.2251
Regional Shopping Center	245.885	49.9124	2.9497	0.0000	111.8570
Research & Development	10.26	2.0827	0.1231	0.0000	4.6674
Single Family Housing	1948.01	395.4289	23.3692	0.0000	886.1817
Supermarket	239.7	48.6569	2.8755	0.0000	109.0433
Unrefrigerated Warehouse-No Rail	49.35	10.0176	0.5920	0.0000	22.4501
Total		**1,011.0406**	**59.7508**	**0.0000**	**2,265.8072**

9.0 Operational Offroad

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

10.0 Vegetation

Grapevine Operational Year 2034 - Planning Areas 6A, 2, 1, 3, 4, 6C Buildout

Kern-San Joaquin County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Bank (with Drive-Through)	32.00	1000sqft	2.95	32,000.00	0
General Office Building	1,535.40	1000sqft	134.37	1,535,400.00	0
Government Office Building	6.00	1000sqft	0.51	6,000.00	0
Medical Office Building	300.00	1000sqft	22.69	300,000.00	0
Pharmacy/Drugstore w/o Drive Thru	21.00	1000sqft	1.85	21,000.00	0
Research & Development	540.00	1000sqft	41.19	540,000.00	0
Elementary School	3,976.00	Student	20.00	332,407.00	0
High School	3,000.00	Student	10.00	397,982.93	0
Junior College (2yr)	350.00	1000sqft	27.25	350,000.00	0
Junior High School	1,680.00	Student	40.00	197,503.63	0
General Heavy Industry	52.50	1000sqft	23.09	52,500.00	0
General Light Industry	105.00	1000sqft	27.18	105,000.00	0
Industrial Park	525.00	1000sqft	50.38	525,000.00	0
Manufacturing	52.50	1000sqft	99.09	52,500.00	0
Refrigerated Warehouse-No Rail	105.00	1000sqft	46.17	105,000.00	0
Unrefrigerated Warehouse-No Rail	210.00	1000sqft	206.35	210,000.00	0
Other Asphalt Surfaces	358.00	Acre	358.00	15,594,480.00	0
City Park	126.00	Acre	126.00	5,488,560.00	0
Fast Food Restaurant with Drive Thru	24.40	1000sqft	3.16	24,400.00	0
High Turnover (Sit Down Restaurant)	24.00	1000sqft	3.11	24,000.00	0
Apartments Low Rise	3,260.00	Dwelling Unit	326.00	3,260,000.00	10432
Single Family Housing	6,645.00	Dwelling Unit	1,700.00	11,961,000.00	21264

Convenience Market with Gas Pumps	20.50	1000sqft	2.67	20,500.00	0
Regional Shopping Center	936.70	1000sqft	119.61	936,700.00	0
Supermarket	170.00	1000sqft	21.89	170,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	7			**Operational Year**	2030
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	372.88	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Planning Areas 6A, 2, 1, 3, 4, 6C. Kern County, San Joaquin Valley Air Basin. Operational Year 2030 was conservatively used for anticipated Operational Year 2034 since CalEEMod does not include year 2034 (options include 2030 and 2035). CO2 Intensity adjusted based on PG&E 50% Renewables by 2030.

Land Use - See 1.1 Land Usage. Population based on 3.2 persons per dwelling unit.

Construction Phase - Construction emissions calculated separately.

Vehicle Trips - Modified trip rates to match Trip Generation and VMT factors provided by Fehr & Peers.

Vehicle Emission Factors - Default CalEEMod values.

Woodstoves - No woodstoves and only gas fireplaces assumed

Area Coating - Default CalEEMod VOC content. Modified non-residential interior and exterior area to be coated based on CalEEMod architectural coating surface area equations and adjusted for parking/asphalt surface and park land uses.

Energy Use - Updated Title 24 electricity and natural gas energy intensity to match 2013 Title 24 standards (25% reduction versus 2008 standards).

Water And Wastewater - Water and wastewater consumption and associated emissions calculated separately.

Construction Off-road Equipment Mitigation - Construction emissions calculated separately.

Mobile Land Use Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Project Setting: Suburban Center. Improve Pedestrian Network: Project Site and Connecting Off-Site. Provide Traffic Calming Measures: 100% Streets with Improvement, 100% Intersections with Improvement. Expand Transit Network: 50%.

Mobile Commute Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Voluntary Commute Trip Reduction Program: 50%.

Energy Mitigation - Exceed 2013 Title 24, % Improvement: 25%.

Water Mitigation - Water reductions calculated separately.

Waste Mitigation - Percent Reduction in Waste Disposed: 75%. Waste diversion consistent with Assembly Bill 341 (not mitigation).

Note Regarding Emissions Presented in the Air Quality & Greenhouse Gas Technical Report: Project-generated unmitigated and mitigated emissions in the Technical Report reflect the unmitigated mobile source emissions reported in 2.0 Emissions Summary. No area source mitigation assumed. Unmitigated and mitigated energy source and solid waste emissions reported in the Technical Report as presented in 2.0 Emissions Summary. Water/wastewater and stationary source emissions calculated separately.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	13510477	3955200
tblAreaCoating	Area_Nonresidential_Interior	40531431	8096840
tblConstructionPhase	NumDays	155,000.00	5.00
tblEnergyUse	T24E	352.42	264.31
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	4.43	3.32
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.70	0.53
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	763.80	572.85
tblEnergyUse	T24E	4.88	3.66

tblEnergyUse	T24NG	14,007.38	10,505.53
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	54.53	40.90
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	5.56	4.17
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	23,622.31	17,716.73
tblEnergyUse	T24NG	8.10	6.08
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblLandUse	LotAcreage	0.73	2.95
tblLandUse	LotAcreage	35.25	134.37
tblLandUse	LotAcreage	0.14	0.51
tblLandUse	LotAcreage	6.89	22.69
tblLandUse	LotAcreage	0.48	1.85
tblLandUse	LotAcreage	12.40	41.19

tblLandUse	LotAcreage	7.63	20.00
tblLandUse	LotAcreage	9.14	10.00
tblLandUse	LotAcreage	8.03	27.25
tblLandUse	LotAcreage	4.53	40.00
tblLandUse	LotAcreage	1.21	23.09
tblLandUse	LotAcreage	2.41	27.18
tblLandUse	LotAcreage	12.05	50.38
tblLandUse	LotAcreage	1.21	99.09
tblLandUse	LotAcreage	2.41	46.17
tblLandUse	LotAcreage	4.82	206.35
tblLandUse	LotAcreage	0.56	3.16
tblLandUse	LotAcreage	0.55	3.11
tblLandUse	LotAcreage	203.75	326.00
tblLandUse	LotAcreage	2,157.47	1,700.00
tblLandUse	LotAcreage	0.47	2.67
tblLandUse	LotAcreage	21.50	119.61
tblLandUse	LotAcreage	3.90	21.89
tblLandUse	Population	9,324.00	10,432.00
tblLandUse	Population	19,005.00	21,264.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	372.88
tblProjectCharacteristics	OperationalYear	2014	2030
tblTripsAndVMT	VendorTripNumber	5,488.00	0.00
tblTripsAndVMT	WorkerTripNumber	15,732.00	0.00
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62

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tblVehicleTrips	CC_TL	7.30	15.62
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tblVehicleTrips	HO_TL	7.50	15.62
tblVehicleTrips	HS_TL	7.30	15.62
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tblVehicleTrips	PB_TP	1.00	0.00
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tblVehicleTrips	PB_TP	11.00	0.00
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tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	36.00	0.00

tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	27.00	100.00
tblVehicleTrips	PR_TP	66.00	100.00
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tblVehicleTrips	PR_TP	92.00	100.00
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tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	PR_TP	41.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	54.00	100.00
tblVehicleTrips	PR_TP	82.00	100.00
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tblVehicleTrips	ST_TR	7.16	5.89
tblVehicleTrips	ST_TR	86.32	5.23
tblVehicleTrips	ST_TR	1.59	1.54
tblVehicleTrips	ST_TR	1,448.33	59.54

tblVehicleTrips	ST_TR	722.03	50.58
tblVehicleTrips	ST_TR	1.50	0.55
tblVehicleTrips	ST_TR	1.32	0.55
tblVehicleTrips	ST_TR	2.37	1.93
tblVehicleTrips	ST_TR	0.61	0.50
tblVehicleTrips	ST_TR	158.37	43.29
tblVehicleTrips	ST_TR	2.49	1.99
tblVehicleTrips	ST_TR	11.23	1.73
tblVehicleTrips	ST_TR	1.49	1.13
tblVehicleTrips	ST_TR	8.96	2.23
tblVehicleTrips	ST_TR	90.06	8.98
tblVehicleTrips	ST_TR	2.59	2.90
tblVehicleTrips	ST_TR	49.97	40.45
tblVehicleTrips	ST_TR	1.90	2.10
tblVehicleTrips	ST_TR	10.08	8.16
tblVehicleTrips	ST_TR	177.59	60.37
tblVehicleTrips	ST_TR	2.59	2.90
tblVehicleTrips	SU_TR	6.07	4.99
tblVehicleTrips	SU_TR	31.90	1.94
tblVehicleTrips	SU_TR	1.59	1.54
tblVehicleTrips	SU_TR	1,182.08	48.59
tblVehicleTrips	SU_TR	542.72	38.02
tblVehicleTrips	SU_TR	1.50	0.20
tblVehicleTrips	SU_TR	0.68	0.28
tblVehicleTrips	SU_TR	0.98	0.80
tblVehicleTrips	SU_TR	0.25	0.20
tblVehicleTrips	SU_TR	131.84	36.04
tblVehicleTrips	SU_TR	0.73	0.59
tblVehicleTrips	SU_TR	1.21	0.19
tblVehicleTrips	SU_TR	0.62	0.47

tblVehicleTrips	SU_TR	1.55	0.38
tblVehicleTrips	SU_TR	90.06	8.98
tblVehicleTrips	SU_TR	2.59	2.90
tblVehicleTrips	SU_TR	25.24	20.43
tblVehicleTrips	SU_TR	1.11	1.23
tblVehicleTrips	SU_TR	8.77	7.10
tblVehicleTrips	SU_TR	166.44	56.58
tblVehicleTrips	SU_TR	2.59	2.90
tblVehicleTrips	WD_TR	6.59	5.41
tblVehicleTrips	WD_TR	148.15	8.98
tblVehicleTrips	WD_TR	1.59	1.54
tblVehicleTrips	WD_TR	845.60	34.76
tblVehicleTrips	WD_TR	1.29	1.05
tblVehicleTrips	WD_TR	496.12	34.76
tblVehicleTrips	WD_TR	1.50	2.90
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tblVehicleTrips	WD_TR	1.71	1.39
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tblVehicleTrips	WD_TR	27.49	4.23
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tblVehicleTrips	WD_TR	90.06	8.98
tblVehicleTrips	WD_TR	2.59	2.90
tblVehicleTrips	WD_TR	42.94	34.76
tblVehicleTrips	WD_TR	8.11	8.98
tblVehicleTrips	WD_TR	9.57	7.75

tblVehicleTrips	WD_TR	102.24	34.76
tblVehicleTrips	WD_TR	2.59	2.90
tblWater	IndoorWaterUseRate	212,402,123.53	0.00
tblWater	IndoorWaterUseRate	1,267,933.40	0.00
tblWater	IndoorWaterUseRate	1,518,486.69	0.00
tblWater	IndoorWaterUseRate	9,638,778.24	0.00
tblWater	IndoorWaterUseRate	7,406,222.58	0.00
tblWater	IndoorWaterUseRate	12,140,625.00	0.00
tblWater	IndoorWaterUseRate	24,281,250.00	0.00
tblWater	IndoorWaterUseRate	272,892,396.67	0.00
tblWater	IndoorWaterUseRate	1,191,958.12	0.00
tblWater	IndoorWaterUseRate	13,214,880.00	0.00
tblWater	IndoorWaterUseRate	7,284,809.10	0.00
tblWater	IndoorWaterUseRate	121,406,250.00	0.00
tblWater	IndoorWaterUseRate	17,167,161.38	0.00
tblWater	IndoorWaterUseRate	4,072,723.20	0.00
tblWater	IndoorWaterUseRate	12,140,625.00	0.00
tblWater	IndoorWaterUseRate	37,644,161.27	0.00
tblWater	IndoorWaterUseRate	1,479,397.99	0.00
tblWater	IndoorWaterUseRate	24,281,250.00	0.00
tblWater	IndoorWaterUseRate	69,383,730.87	0.00
tblWater	IndoorWaterUseRate	265,514,731.49	0.00
tblWater	IndoorWaterUseRate	432,948,500.25	0.00
tblWater	IndoorWaterUseRate	20,955,596.53	0.00
tblWater	IndoorWaterUseRate	48,562,500.00	0.00
tblWater	OutdoorWaterUseRate	133,905,686.57	0.00
tblWater	OutdoorWaterUseRate	777,120.47	0.00
tblWater	OutdoorWaterUseRate	150,126,650.06	0.00
tblWater	OutdoorWaterUseRate	930,685.39	0.00
tblWater	OutdoorWaterUseRate	24,785,429.76	0.00

tblWater	OutdoorWaterUseRate	472,737.61	0.00
tblWater	OutdoorWaterUseRate	167,256,630.22	0.00
tblWater	OutdoorWaterUseRate	730,554.97	0.00
tblWater	OutdoorWaterUseRate	33,981,120.00	0.00
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tblWater	OutdoorWaterUseRate	26,851,201.13	0.00
tblWater	OutdoorWaterUseRate	10,472,716.80	0.00
tblWater	OutdoorWaterUseRate	7,170,316.43	0.00
tblWater	OutdoorWaterUseRate	906,727.80	0.00
tblWater	OutdoorWaterUseRate	42,525,512.47	0.00
tblWater	OutdoorWaterUseRate	272,945,793.64	0.00
tblWater	OutdoorWaterUseRate	648,111.23	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1,040.2991	9.4090	817.0298	0.0433		11.8433	11.8433		11.7663	11.7663	0.0000	116,838.6249	116,838.6249	3.6210	2.1150	117,570.3190
Energy	8.1793	71.1269	38.7700	0.4461		5.6512	5.6512		5.6512	5.6512		89,228.8795	89,228.8795	1.7102	1.6359	89,771.9116
Mobile	747.4916	3,305.8761	10,613.3284	39.4438	2,019.3788	88.7906	2,108.1694	543.1252	81.7659	624.8911		3,165,172.5592	3,165,172.5592	58.7195		3,166,405.6676
Total	**1,795.9701**	**3,386.4120**	**11,469.1282**	**39.9332**	**2,019.3788**	**106.2850**	**2,125.6638**	**543.1252**	**99.1834**	**642.3086**	**0.0000**	**3,371,240.0636**	**3,371,240.0636**	**64.0507**	**3.7509**	**3,373,747.8981**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1,040.2991	9.4090	817.0298	0.0433		11.8433	11.8433		11.7663	11.7663	0.0000	116,838.6249	116,838.6249	3.6210	2.1150	117,570.3190
Energy	6.5494	56.9215	30.8134	0.3572		4.5250	4.5250		4.5250	4.5250		71,447.6123	71,447.6123	1.3694	1.3099	71,882.4306
Mobile	725.5161	3,154.5758	10,336.2753	37.3472	1,909.9716	84.0942	1,994.0658	513.6995	77.4414	591.1409		2,996,680.3201	2,996,680.3201	55.7296		2,997,850.6408
Total	**1,772.3645**	**3,220.9063**	**11,184.1185**	**37.7477**	**1,909.9716**	**100.4625**	**2,010.4341**	**513.6995**	**93.7328**	**607.4322**	**0.0000**	**3,184,966.5574**	**3,184,966.5574**	**60.7200**	**3.4249**	**3,187,303.3904**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.31**	**4.89**	**2.49**	**5.47**	**5.42**	**5.48**	**5.42**	**5.42**	**5.50**	**5.43**	**0.00**	**5.53**	**5.53**	**5.20**	**8.69**	**5.53**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

Provide Traffic Calming Measures

Expand Transit Network

Implement Trip Reduction Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	725.5161	3,154.5758	10,336.2753	37.3472	1,909.9716	84.0942	1,994.0658	513.6995	77.4414	591.1409		2,996,680.3201	2,996,680.3201	55.7296		2,997,850.6408
Unmitigated	747.4916	3,305.8761	10,613.3284	39.4438	2,019.3788	88.7906	2,108.1694	543.1252	81.7659	624.8911		3,165,172.5592	3,165,172.5592	58.7195		3,166,405.6676

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	17,636.60	19,201.40	16267.40	100,434,938	94,993,511
Bank (with Drive-Through)	287.36	167.36	62.08	1,353,387	1,280,062
City Park	194.04	194.04	194.04	1,103,249	1,043,477
Convenience Market with Gas Pumps	712.58	1,220.57	996.10	4,694,394	4,440,058
Elementary School	4,174.80	0.00	0.00	16,954,698	16,036,116
Fast Food Restaurant with Drive Thru	848.14	1,234.15	927.69	5,200,415	4,918,664
General Heavy Industry	152.25	28.88	10.50	650,300	615,067
General Light Industry	304.50	57.75	29.40	1,307,422	1,236,588
General Office Building	13,787.89	2,963.32	1228.32	59,400,006	56,181,796
Government Office Building	53.88	0.00	0.00	218,817	206,962
High School	4,170.00	1,500.00	600.00	18,640,908	17,630,969
High Turnover (Sit Down Restaurant)	834.24	1,038.96	864.96	4,934,455	4,667,113

Industrial Park	2,919.00	1,044.75	309.75	12,954,822	12,252,947
Junior College (2yr)	1,480.50	605.50	66.50	6,558,432	6,203,105
Junior High School	2,217.60	0.00	0.00	9,006,117	8,518,178
Manufacturing	152.25	59.33	24.68	686,546	649,350
Medical Office Building	2,694.00	669.00	114.00	11,576,857	10,949,639
Other Asphalt Surfaces	0.00	0.00	0.00		
Pharmacy/Drugstore w/o Drive Thru	188.58	188.58	188.58	1,072,206	1,014,115
Refrigerated Warehouse-No Rail	304.50	304.50	304.50	1,731,290	1,637,491
Regional Shopping Center	32,559.69	37,889.52	19136.78	178,550,460	168,876,842
Research & Development	4,849.20	1,134.00	664.20	21,154,141	20,008,039
Single Family Housing	51,498.75	54,223.20	47179.50	291,510,053	275,716,439
Supermarket	5,909.20	10,262.90	9618.60	40,146,993	37,971,884
Unrefrigerated Warehouse-No Rail	609.00	609.00	609.00	3,462,579	3,274,981
Total	148,538.56	134,596.70	99,396.57	793,303,484	750,323,394

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Bank (with Drive-Through)	15.62	15.62	15.62	6.60	74.40	19.00	100	0	0
City Park	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Convenience Market with Gas	15.62	15.62	15.62	0.80	80.20	19.00	100	0	0
Elementary School	15.62	15.62	15.62	65.00	30.00	5.00	100	0	0
Fast Food Restaurant with Drive Th	15.62	15.62	15.62	2.20	78.80	19.00	100	0	0
General Heavy Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Light Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Office Building	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Government Office Building	15.62	15.62	15.62	33.00	62.00	5.00	100	0	0
High School	15.62	15.62	15.62	77.80	17.20	5.00	100	0	0
High Turnover (Sit Down Rest	15.62	15.62	15.62	8.50	72.50	19.00	100	0	0
Industrial Park	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Junior College (2yr)	15.62	15.62	15.62	6.40	88.60	5.00	100	0	0
Junior High School	15.62	15.62	15.62	72.80	22.20	5.00	100	0	0
Manufacturing	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Medical Office Building	15.62	15.62	15.62	29.60	51.40	19.00	100	0	0
Other Asphalt Surfaces	15.62	15.62	15.62	0.00	0.00	0.00	100	0	0
Pharmacy/Drugstore w/o Drive Th	15.62	15.62	15.62	7.40	73.60	19.00	100	0	0
Refrigerated Warehouse-No Rail	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0
Regional Shopping Center	15.62	15.62	15.62	16.30	64.70	19.00	100	0	0

Research & Development	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Single Family Housing	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Supermarket	15.62	15.62	15.62	6.50	74.50	19.00	100	0	0
Unrefrigerated Warehouse-No	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.356304	0.054914	0.136221	0.180053	0.057165	0.010435	0.023295	0.168686	0.001480	0.001854	0.006117	0.000946	0.002529

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	6.5494	56.9215	30.8134	0.3572		4.5250	4.5250		4.5250	4.5250		71,447.6123	71,447.6123	1.3694	1.3099	71,882.4306
NaturalGas Unmitigated	8.1793	71.1269	38.7700	0.4461		5.6512	5.6512		5.6512	5.6512		89,228.8795	89,228.8795	1.7102	1.6359	89,771.9116

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Land Use	kBTU/yr	lb/day										lb/day				
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	253.863	2.7400e-003	0.0249	0.0209	1.5000e-004		1.8900e-003	1.8900e-003		1.8900e-003	1.8900e-003		29.8662	29.8662	5.7000e-004	5.5000e-004	30.0480
Elementary School	7786.52	0.0840	0.7634	0.6412	4.5800e-003		0.0580	0.0580		0.0580	0.0580		916.0612	916.0612	0.0176	0.0168	921.6362
Fast Food Restaurant with Drive Thru	6375.42	0.0688	0.6250	0.5250	3.7500e-003		0.0475	0.0475		0.0475	0.0475		750.0493	750.0493	0.0144	0.0138	754.6140
General Heavy Industry	1910.14	0.0206	0.1873	0.1573	1.1200e-003		0.0142	0.0142		0.0142	0.0142		224.7220	224.7220	4.3100e-003	4.1200e-003	226.0896
General Light Industry	3820.27	0.0412	0.3745	0.3146	2.2500e-003		0.0285	0.0285		0.0285	0.0285		449.4440	449.4440	8.6100e-003	8.2400e-003	452.1792
General Office Building	58008.7	0.6256	5.6871	4.7772	0.0341		0.4322	0.4322		0.4322	0.4322		6,824.5499	6,824.5499	0.1308	0.1251	6,866.0830
Government Office Building	226.685	2.4400e-003	0.0222	0.0187	1.3000e-004		1.6900e-003	1.6900e-003		1.6900e-003	1.6900e-003		26.6688	26.6688	5.1000e-004	4.9000e-004	26.8311
High School	9322.61	0.1005	0.9140	0.7677	5.4800e-003		0.0695	0.0695		0.0695	0.0695		1,096.7781	1,096.7781	0.0210	0.0201	1,103.4529
High Turnover (Sit Down Restaurant)	6270.9	0.0676	0.6148	0.5164	3.6900e-003		0.0467	0.0467		0.0467	0.0467		737.7534	737.7534	0.0141	0.0135	742.2433
Industrial Park	19834.9	0.2139	1.9446	1.6335	0.0117		0.1478	0.1478		0.1478	0.1478		2,333.5214	2,333.5214	0.0447	0.0428	2,347.7228
Junior College (2yr)	39545.2	0.4265	3.8770	3.2567	0.0233		0.2947	0.2947		0.2947	0.2947		4,652.3771	4,652.3771	0.0892	0.0853	4,680.6907
Junior High School	4626.45	0.0499	0.4536	0.3810	2.7200e-003		0.0345	0.0345		0.0345	0.0345		544.2888	544.2888	0.0104	9.9800e-003	547.6013
Manufacturing	1910.14	0.0206	0.1873	0.1573	1.1200e-003		0.0142	0.0142		0.0142	0.0142		224.7220	224.7220	4.3100e-003	4.1200e-003	226.0896
Apartments Low Rise	116141	1.2525	10.7032	4.5546	0.0683		0.8654	0.8654		0.8654	0.8654		13,663.6609	13,663.6609	0.2619	0.2505	13,746.8156
Bank (with Drive-Through)	1164.27	0.0126	0.1141	0.0959	6.8000e-004		8.6700e-003	8.6700e-003		8.6700e-003	8.6700e-003		136.9734	136.9734	2.6300e-003	2.5100e-003	137.8070
Medical Office Building	11334.2	0.1222	1.1112	0.9334	6.6700e-003		0.0845	0.0845		0.0845	0.0845		1,333.4408	1,333.4408	0.0256	0.0245	1,341.5559
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	260.055	2.8000e-003	0.0255	0.0214	1.5000e-004		1.9400e-003	1.9400e-003		1.9400e-003	1.9400e-003		30.5947	30.5947	5.9000e-004	5.6000e-004	30.7809
Refrigerated Warehouse-No Rail	2091.37	0.0226	0.2050	0.1722	1.2300e-003		0.0156	0.0156		0.0156	0.0156		246.0435	246.0435	4.7200e-003	4.5100e-003	247.5409
Regional Shopping Center	11599.7	0.1251	1.1372	0.9553	6.8200e-003		0.0864	0.0864		0.0864	0.0864		1,364.6685	1,364.6685	0.0262	0.0250	1,372.9736

Research & Development	19647.1	0.2119	1.9262	1.6180	0.0116		0.1464	0.1464		0.1464	0.1464		2,311.4263	2,311.4263	0.0443	0.0424	2,325.4932
Single Family Housing	433042	4.6701	39.9078	16.9820	0.2547		3.2266	3.2266		3.2266	3.2266		50,946.0638	50,946.0638	0.9765	0.9340	51,256.1130
Supermarket	3274.25	0.0353	0.3210	0.2696	1.9300e-003		0.0244	0.0244		0.0244	0.0244		385.2055	385.2055	7.3800e-003	7.0600e-003	387.5498
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**8.1793**	**71.1269**	**38.7700**	**0.4461**		**5.6511**	**5.6511**		**5.6511**	**5.6511**		**89,228.8795**	**89,228.8795**	**1.7102**	**1.6359**	**89,771.9116**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	0.19138	2.0600e-003	0.0188	0.0158	1.1000e-004		1.4300e-003	1.4300e-003		1.4300e-003	1.4300e-003		22.5153	22.5153	4.3000e-004	4.1000e-004	22.6523
Elementary School	5.94462	0.0641	0.5828	0.4896	3.5000e-003		0.0443	0.0443		0.0443	0.0443		699.3672	699.3672	0.0134	0.0128	703.6234
Fast Food Restaurant with Drive Thru	6.14212	0.0662	0.6022	0.5058	3.6100e-003		0.0458	0.0458		0.0458	0.0458		722.6018	722.6018	0.0139	0.0133	726.9994
General Heavy Industry	1.43692	0.0155	0.1409	0.1183	8.5000e-004		0.0107	0.0107		0.0107	0.0107		169.0492	169.0492	3.2400e-003	3.1000e-003	170.0780
General Light Industry	2.87384	0.0310	0.2818	0.2367	1.6900e-003		0.0214	0.0214		0.0214	0.0214		338.0983	338.0983	6.4800e-003	6.2000e-003	340.1559
General Office Building	44.6423	0.4814	4.3767	3.6764	0.0263		0.3326	0.3326		0.3326	0.3326		5,252.0330	5,252.0330	0.1007	0.0963	5,283.9960
Government Office Building	0.174452	1.8800e-003	0.0171	0.0144	1.0000e-004		1.3000e-003	1.3000e-003		1.3000e-003	1.3000e-003		20.5238	20.5238	3.9000e-004	3.8000e-004	20.6487
High School	7.11735	0.0768	0.6978	0.5861	4.1900e-003		0.0530	0.0530		0.0530	0.0530		837.3356	837.3356	0.0161	0.0154	842.4314
High Turnover (Sit Down Restaurant)	6.04142	0.0652	0.5923	0.4975	3.5500e-003		0.0450	0.0450		0.0450	0.0450		710.7558	710.7558	0.0136	0.0130	715.0814
Industrial Park	15.2646	0.1646	1.4965	1.2571	8.9800e-003		0.1137	0.1137		0.1137	0.1137		1,795.8300	1,795.8300	0.0344	0.0329	1,806.7591
Junior College (2yr)	29.7404	0.3207	2.9157	2.4492	0.0175		0.2216	0.2216		0.2216	0.2216		3,498.8719	3,498.8719	0.0671	0.0642	3,520.1654

Junior High School	3.53207	0.0381	0.3463	0.2909	2.0800e-003		0.0263	0.0263		0.0263	0.0263		415.5375	415.5375	7.9600e-003	7.6200e-003	418.0663
Manufacturing	1.43692	0.0155	0.1409	0.1183	8.5000e-004		0.0107	0.0107		0.0107	0.0107		169.0492	169.0492	3.2400e-003	3.1000e-003	170.0780
Medical Office Building	8.7226	0.0941	0.8552	0.7183	5.1300e-003		0.0650	0.0650		0.0650	0.0650		1,026.1886	1,026.1886	0.0197	0.0188	1,032.4338
Apartments Low Rise	92.6836	0.9995	8.5414	3.6347	0.0545		0.6906	0.6906		0.6906	0.6906		10,903.9487	10,903.9487	0.2090	0.1999	10,970.3083
Bank (with Drive-Through)	0.875836	9.4500e-003	0.0859	0.0721	5.2000e-004		6.5300e-003	6.5300e-003		6.5300e-003	6.5300e-003		103.0395	103.0395	1.9700e-003	1.8900e-003	103.6666
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	0.196048	2.1100e-003	0.0192	0.0162	1.2000e-004		1.4600e-003	1.4600e-003		1.4600e-003	1.4600e-003		23.0645	23.0645	4.4000e-004	4.2000e-004	23.2048
Refrigerated Warehouse-No Rail	1.79147	0.0193	0.1756	0.1475	1.0500e-003		0.0134	0.0134		0.0134	0.0134		210.7615	210.7615	4.0400e-003	3.8600e-003	212.0441
Regional Shopping Center	8.74467	0.0943	0.8573	0.7202	5.1400e-003		0.0652	0.0652		0.0652	0.0652		1,028.7849	1,028.7849	0.0197	0.0189	1,035.0460
Research & Development	14.7797	0.1594	1.4490	1.2172	8.6900e-003		0.1101	0.1101		0.1101	0.1101		1,738.7913	1,738.7913	0.0333	0.0319	1,749.3733
Single Family Housing	352.406	3.8005	32.4767	13.8199	0.2073		2.6258	2.6258		2.6258	2.6258		41,459.5472	41,459.5472	0.7946	0.7601	41,711.8631
Supermarket	2.5663	0.0277	0.2516	0.2113	1.5100e-003		0.0191	0.0191		0.0191	0.0191		301.9178	301.9178	5.7900e-003	5.5400e-003	303.7552
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**6.5494**	**56.9215**	**30.8134**	**0.3572**		**4.5250**	**4.5250**		**4.5250**	**4.5250**		**71,447.6123**	**71,447.6123**	**1.3694**	**1.3099**	**71,882.4306**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1,040.2991	9.4090	817.0298	0.0433		11.8433	11.8433		11.7663	11.7663	0.0000	116,838.6249	116,838.6249	3.6210	2.1150	117,570.3190
Unmitigated	1,040.2991	9.4090	817.0298	0.0433		11.8433	11.8433		11.7663	11.7663	0.0000	116,838.6249	116,838.6249	3.6210	2.1150	117,570.3190

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	101.2374					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	903.9774					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	10.5750	4.8000e-004	0.5768	0.0000		7.3064	7.3064		7.2295	7.2295	0.0000	115,364.1177	115,364.1177	2.2112	2.1150	116,066.2044
Landscaping	24.5093	9.4086	816.4530	0.0433		4.5369	4.5369		4.5369	4.5369		1,474.5073	1,474.5073	1.4099		1,504.1145
Total	**1,040.2991**	**9.4090**	**817.0298**	**0.0433**		**11.8433**	**11.8433**		**11.7663**	**11.7663**	**0.0000**	**116,838.6249**	**116,838.6249**	**3.6210**	**2.1150**	**117,570.3190**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	101.2374					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	903.9774					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	10.5750	4.8000e-004	0.5768	0.0000		7.3064	7.3064		7.2295	7.2295	0.0000	115,364.1177	115,364.1177	2.2112	2.1150	116,066.2044
Landscaping	24.5093	9.4086	816.4530	0.0433		4.5369	4.5369		4.5369	4.5369		1,474.5073	1,474.5073	1.4099		1,504.1145
Total	**1,040.2991**	**9.4090**	**817.0298**	**0.0433**		**11.8433**	**11.8433**		**11.7663**	**11.7663**	**0.0000**	**116,838.6249**	**116,838.6249**	**3.6210**	**2.1150**	**117,570.3190**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Vegetation

Grapevine Operational Year 2034 - Planning Areas 6A, 2, 1, 3, 4, 6C Buildout

Kern-San Joaquin County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Bank (with Drive-Through)	32.00	1000sqft	2.95	32,000.00	0
General Office Building	1,535.40	1000sqft	134.37	1,535,400.00	0
Government Office Building	6.00	1000sqft	0.51	6,000.00	0
Medical Office Building	300.00	1000sqft	22.69	300,000.00	0
Pharmacy/Drugstore w/o Drive Thru	21.00	1000sqft	1.85	21,000.00	0
Research & Development	540.00	1000sqft	41.19	540,000.00	0
Elementary School	3,976.00	Student	20.00	332,407.00	0
High School	3,000.00	Student	10.00	397,982.93	0
Junior College (2yr)	350.00	1000sqft	27.25	350,000.00	0
Junior High School	1,680.00	Student	40.00	197,503.63	0
General Heavy Industry	52.50	1000sqft	23.09	52,500.00	0
General Light Industry	105.00	1000sqft	27.18	105,000.00	0
Industrial Park	525.00	1000sqft	50.38	525,000.00	0
Manufacturing	52.50	1000sqft	99.09	52,500.00	0
Refrigerated Warehouse-No Rail	105.00	1000sqft	46.17	105,000.00	0
Unrefrigerated Warehouse-No Rail	210.00	1000sqft	206.35	210,000.00	0
Other Asphalt Surfaces	358.00	Acre	358.00	15,594,480.00	0
City Park	126.00	Acre	126.00	5,488,560.00	0
Fast Food Restaurant with Drive Thru	24.40	1000sqft	3.16	24,400.00	0
High Turnover (Sit Down Restaurant)	24.00	1000sqft	3.11	24,000.00	0
Apartments Low Rise	3,260.00	Dwelling Unit	326.00	3,260,000.00	10432
Single Family Housing	6,645.00	Dwelling Unit	1,700.00	11,961,000.00	21264

Convenience Market with Gas Pumps	20.50	1000sqft	2.67	20,500.00	0
Regional Shopping Center	936.70	1000sqft	119.61	936,700.00	0
Supermarket	170.00	1000sqft	21.89	170,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	7			**Operational Year**	2030
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	372.88	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Planning Areas 6A, 2, 1, 3, 4, 6C. Kern County, San Joaquin Valley Air Basin. Operational Year 2030 was conservatively used for anticipated Operational Year 2034 since CalEEMod does not include year 2034 (options include 2030 and 2035). CO2 Intensity adjusted based on PG&E 50% Renewables by 2030.

Land Use - See 1.1 Land Usage. Population based on 3.2 persons per dwelling unit.

Construction Phase - Construction emissions calculated separately.

Vehicle Trips - Modified trip rates to match Trip Generation and VMT factors provided by Fehr & Peers.

Vehicle Emission Factors - Default CalEEMod values.

Woodstoves - No woodstoves and only gas fireplaces assumed

Area Coating - Default CalEEMod VOC content. Modified non-residential interior and exterior area to be coated based on CalEEMod architectural coating surface area equations and adjusted for parking/asphalt surface and park land uses.

Energy Use - Updated Title 24 electricity and natural gas energy intensity to match 2013 Title 24 standards (25% reduction versus 2008 standards).

Water And Wastewater - Water and wastewater consumption and associated emissions calculated separately.

Construction Off-road Equipment Mitigation - Construction emissions calculated separately.

Mobile Land Use Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Project Setting: Suburban Center. Improve Pedestrian Network: Project Site and Connecting Off-Site. Provide Traffic Calming Measures: 100% Streets with Improvement, 100% Intersections with Improvement. Expand Transit Network: 50%.

Mobile Commute Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Voluntary Commute Trip Reduction Program: 50%.

Energy Mitigation - Exceed 2013 Title 24, % Improvement: 25%.

Water Mitigation - Water reductions calculated separately.

Waste Mitigation - Percent Reduction in Waste Disposed: 75%. Waste diversion consistent with Assembly Bill 341 (not mitigation).

Note Regarding Emissions Presented in the Air Quality & Greenhouse Gas Technical Report: Project-generated unmitigated and mitigated emissions in the Technical Report reflect the unmitigated mobile source emissions reported in 2.0 Emissions Summary. No area source mitigation assumed. Unmitigated and mitigated energy source and solid waste emissions reported in the Technical Report as presented in 2.0 Emissions Summary. Water/wastewater and stationary source emissions calculated separately.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	13510477	3955200
tblAreaCoating	Area_Nonresidential_Interior	40531431	8096840
tblConstructionPhase	NumDays	155,000.00	5.00
tblEnergyUse	T24E	352.42	264.31
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	4.43	3.32
tblEnergyUse	T24E	2.38	1.78
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tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.70	0.53
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	763.80	572.85
tblEnergyUse	T24E	4.88	3.66

tblEnergyUse	T24NG	14,007.38	10,505.53
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	18.61	13.96
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tblEnergyUse	T24NG	54.53	40.90
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tblEnergyUse	T24NG	17.55	13.16
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tblEnergyUse	T24NG	5.56	4.17
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tblEnergyUse	T24NG	23,622.31	17,716.73
tblEnergyUse	T24NG	8.10	6.08
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblLandUse	LotAcreage	0.73	2.95
tblLandUse	LotAcreage	35.25	134.37
tblLandUse	LotAcreage	0.14	0.51
tblLandUse	LotAcreage	6.89	22.69
tblLandUse	LotAcreage	0.48	1.85
tblLandUse	LotAcreage	12.40	41.19

tblLandUse	LotAcreage	7.63	20.00
tblLandUse	LotAcreage	9.14	10.00
tblLandUse	LotAcreage	8.03	27.25
tblLandUse	LotAcreage	4.53	40.00
tblLandUse	LotAcreage	1.21	23.09
tblLandUse	LotAcreage	2.41	27.18
tblLandUse	LotAcreage	12.05	50.38
tblLandUse	LotAcreage	1.21	99.09
tblLandUse	LotAcreage	2.41	46.17
tblLandUse	LotAcreage	4.82	206.35
tblLandUse	LotAcreage	0.56	3.16
tblLandUse	LotAcreage	0.55	3.11
tblLandUse	LotAcreage	203.75	326.00
tblLandUse	LotAcreage	2,157.47	1,700.00
tblLandUse	LotAcreage	0.47	2.67
tblLandUse	LotAcreage	21.50	119.61
tblLandUse	LotAcreage	3.90	21.89
tblLandUse	Population	9,324.00	10,432.00
tblLandUse	Population	19,005.00	21,264.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	372.88
tblProjectCharacteristics	OperationalYear	2014	2030
tblTripsAndVMT	VendorTripNumber	5,488.00	0.00
tblTripsAndVMT	WorkerTripNumber	15,732.00	0.00
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tblVehicleTrips	SU_TR	1,182.08	48.59
tblVehicleTrips	SU_TR	542.72	38.02
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tblVehicleTrips	SU_TR	0.68	0.28
tblVehicleTrips	SU_TR	0.98	0.80
tblVehicleTrips	SU_TR	0.25	0.20
tblVehicleTrips	SU_TR	131.84	36.04
tblVehicleTrips	SU_TR	0.73	0.59
tblVehicleTrips	SU_TR	1.21	0.19
tblVehicleTrips	SU_TR	0.62	0.47

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tblVehicleTrips	WD_TR	127.15	34.76
tblVehicleTrips	WD_TR	6.96	5.56
tblVehicleTrips	WD_TR	27.49	4.23
tblVehicleTrips	WD_TR	1.62	1.32
tblVehicleTrips	WD_TR	3.82	2.90
tblVehicleTrips	WD_TR	36.13	8.98
tblVehicleTrips	WD_TR	90.06	8.98
tblVehicleTrips	WD_TR	2.59	2.90
tblVehicleTrips	WD_TR	42.94	34.76
tblVehicleTrips	WD_TR	8.11	8.98
tblVehicleTrips	WD_TR	9.57	7.75

tblVehicleTrips	WD_TR	102.24	34.76
tblVehicleTrips	WD_TR	2.59	2.90
tblWater	IndoorWaterUseRate	212,402,123.53	0.00
tblWater	IndoorWaterUseRate	1,267,933.40	0.00
tblWater	IndoorWaterUseRate	1,518,486.69	0.00
tblWater	IndoorWaterUseRate	9,638,778.24	0.00
tblWater	IndoorWaterUseRate	7,406,222.58	0.00
tblWater	IndoorWaterUseRate	12,140,625.00	0.00
tblWater	IndoorWaterUseRate	24,281,250.00	0.00
tblWater	IndoorWaterUseRate	272,892,396.67	0.00
tblWater	IndoorWaterUseRate	1,191,958.12	0.00
tblWater	IndoorWaterUseRate	13,214,880.00	0.00
tblWater	IndoorWaterUseRate	7,284,809.10	0.00
tblWater	IndoorWaterUseRate	121,406,250.00	0.00
tblWater	IndoorWaterUseRate	17,167,161.38	0.00
tblWater	IndoorWaterUseRate	4,072,723.20	0.00
tblWater	IndoorWaterUseRate	12,140,625.00	0.00
tblWater	IndoorWaterUseRate	37,644,161.27	0.00
tblWater	IndoorWaterUseRate	1,479,397.99	0.00
tblWater	IndoorWaterUseRate	24,281,250.00	0.00
tblWater	IndoorWaterUseRate	69,383,730.87	0.00
tblWater	IndoorWaterUseRate	265,514,731.49	0.00
tblWater	IndoorWaterUseRate	432,948,500.25	0.00
tblWater	IndoorWaterUseRate	20,955,596.53	0.00
tblWater	IndoorWaterUseRate	48,562,500.00	0.00
tblWater	OutdoorWaterUseRate	133,905,686.57	0.00
tblWater	OutdoorWaterUseRate	777,120.47	0.00
tblWater	OutdoorWaterUseRate	150,126,650.06	0.00
tblWater	OutdoorWaterUseRate	930,685.39	0.00
tblWater	OutdoorWaterUseRate	24,785,429.76	0.00

tblWater	OutdoorWaterUseRate	472,737.61	0.00
tblWater	OutdoorWaterUseRate	167,256,630.22	0.00
tblWater	OutdoorWaterUseRate	730,554.97	0.00
tblWater	OutdoorWaterUseRate	33,981,120.00	0.00
tblWater	OutdoorWaterUseRate	464,987.81	0.00
tblWater	OutdoorWaterUseRate	26,851,201.13	0.00
tblWater	OutdoorWaterUseRate	10,472,716.80	0.00
tblWater	OutdoorWaterUseRate	7,170,316.43	0.00
tblWater	OutdoorWaterUseRate	906,727.80	0.00
tblWater	OutdoorWaterUseRate	42,525,512.47	0.00
tblWater	OutdoorWaterUseRate	272,945,793.64	0.00
tblWater	OutdoorWaterUseRate	648,111.23	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1,040.2991	9.4090	817.0298	0.0433		11.8433	11.8433		11.7663	11.7663	0.0000	116,838.6249	116,838.6249	3.6210	2.1150	117,570.3190
Energy	8.1793	71.1269	38.7700	0.4461		5.6512	5.6512		5.6512	5.6512		89,228.8795	89,228.8795	1.7102	1.6359	89,771.9116
Mobile	764.5855	3,063.2259	9,275.8184	42.3620	2,019.3788	88.5589	2,107.9377	543.1252	81.5527	624.6780		3,359,668.8779	3,359,668.8779	58.4692		3,360,896.7301
Total	**1,813.0639**	**3,143.7618**	**10,131.6182**	**42.8514**	**2,019.3788**	**106.0533**	**2,125.4321**	**543.1252**	**98.9702**	**642.0955**	**0.0000**	**3,565,736.3823**	**3,565,736.3823**	**63.8004**	**3.7509**	**3,568,238.9606**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1,040.2991	9.4090	817.0298	0.0433		11.8433	11.8433		11.7663	11.7663	0.0000	116,838.6249	116,838.6249	3.6210	2.1150	117,570.3190
Energy	6.5494	56.9215	30.8134	0.3572		4.5250	4.5250		4.5250	4.5250		71,447.6123	71,447.6123	1.3694	1.3099	71,882.4306
Mobile	742.1357	2,924.2198	8,944.3625	40.1083	1,909.9716	83.8625	1,993.8341	513.6995	77.2283	590.9278		3,180,925.6848	3,180,925.6848	55.4793		3,182,090.7492
Total	**1,788.9841**	**2,990.5503**	**9,792.2057**	**40.5088**	**1,909.9716**	**100.2308**	**2,010.2024**	**513.6995**	**93.5197**	**607.2191**	**0.0000**	**3,369,211.9220**	**3,369,211.9220**	**60.4697**	**3.4249**	**3,371,543.4988**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.33**	**4.87**	**3.35**	**5.47**	**5.42**	**5.49**	**5.42**	**5.42**	**5.51**	**5.43**	**0.00**	**5.51**	**5.51**	**5.22**	**8.69**	**5.51**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

Provide Traffic Calming Measures

Expand Transit Network

Implement Trip Reduction Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	742.1357	2,924.2198	8,944.3625	40.1083	1,909.9716	83.8625	1,993.8341	513.6995	77.2283	590.9278		3,180,925.6848	3,180,925.6848	55.4793		3,182,090.7492
Unmitigated	764.5855	3,063.2259	9,275.8184	42.3620	2,019.3788	88.5589	2,107.9377	543.1252	81.5527	624.6780		3,359,668.8779	3,359,668.8779	58.4692		3,360,896.7301

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	17,636.60	19,201.40	16267.40	100,434,938	94,993,511
Bank (with Drive-Through)	287.36	167.36	62.08	1,353,387	1,280,062
City Park	194.04	194.04	194.04	1,103,249	1,043,477
Convenience Market with Gas Pumps	712.58	1,220.57	996.10	4,694,394	4,440,058
Elementary School	4,174.80	0.00	0.00	16,954,698	16,036,116
Fast Food Restaurant with Drive Thru	848.14	1,234.15	927.69	5,200,415	4,918,664
General Heavy Industry	152.25	28.88	10.50	650,300	615,067
General Light Industry	304.50	57.75	29.40	1,307,422	1,236,588
General Office Building	13,787.89	2,963.32	1228.32	59,400,006	56,181,796
Government Office Building	53.88	0.00	0.00	218,817	206,962
High School	4,170.00	1,500.00	600.00	18,640,908	17,630,969
High Turnover (Sit Down Restaurant)	834.24	1,038.96	864.96	4,934,455	4,667,113

Industrial Park	2,919.00	1,044.75	309.75	12,954,822	12,252,947
Junior College (2yr)	1,480.50	605.50	66.50	6,558,432	6,203,105
Junior High School	2,217.60	0.00	0.00	9,006,117	8,518,178
Manufacturing	152.25	59.33	24.68	686,546	649,350
Medical Office Building	2,694.00	669.00	114.00	11,576,857	10,949,639
Other Asphalt Surfaces	0.00	0.00	0.00		
Pharmacy/Drugstore w/o Drive Thru	188.58	188.58	188.58	1,072,206	1,014,115
Refrigerated Warehouse-No Rail	304.50	304.50	304.50	1,731,290	1,637,491
Regional Shopping Center	32,559.69	37,889.52	19136.78	178,550,460	168,876,842
Research & Development	4,849.20	1,134.00	664.20	21,154,141	20,008,039
Single Family Housing	51,498.75	54,223.20	47179.50	291,510,053	275,716,439
Supermarket	5,909.20	10,262.90	9618.60	40,146,993	37,971,884
Unrefrigerated Warehouse-No Rail	609.00	609.00	609.00	3,462,579	3,274,981
Total	148,538.56	134,596.70	99,396.57	793,303,484	750,323,394

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Bank (with Drive-Through)	15.62	15.62	15.62	6.60	74.40	19.00	100	0	0
City Park	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Convenience Market with Gas	15.62	15.62	15.62	0.80	80.20	19.00	100	0	0
Elementary School	15.62	15.62	15.62	65.00	30.00	5.00	100	0	0
Fast Food Restaurant with Drive Th	15.62	15.62	15.62	2.20	78.80	19.00	100	0	0
General Heavy Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Light Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Office Building	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Government Office Building	15.62	15.62	15.62	33.00	62.00	5.00	100	0	0
High School	15.62	15.62	15.62	77.80	17.20	5.00	100	0	0
High Turnover (Sit Down Rest	15.62	15.62	15.62	8.50	72.50	19.00	100	0	0
Industrial Park	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Junior College (2yr)	15.62	15.62	15.62	6.40	88.60	5.00	100	0	0
Junior High School	15.62	15.62	15.62	72.80	22.20	5.00	100	0	0
Manufacturing	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Medical Office Building	15.62	15.62	15.62	29.60	51.40	19.00	100	0	0
Other Asphalt Surfaces	15.62	15.62	15.62	0.00	0.00	0.00	100	0	0
Pharmacy/Drugstore w/o Drive Th	15.62	15.62	15.62	7.40	73.60	19.00	100	0	0
Refrigerated Warehouse-No Rail	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0
Regional Shopping Center	15.62	15.62	15.62	16.30	64.70	19.00	100	0	0

Research & Development	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Single Family Housing	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Supermarket	15.62	15.62	15.62	6.50	74.50	19.00	100	0	0
Unrefrigerated Warehouse-No	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.356304	0.054914	0.136221	0.180053	0.057165	0.010435	0.023295	0.168686	0.001480	0.001854	0.006117	0.000946	0.002529

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	6.5494	56.9215	30.8134	0.3572		4.5250	4.5250		4.5250	4.5250		71,447.6123	71,447.6123	1.3694	1.3099	71,882.4306
NaturalGas Unmitigated	8.1793	71.1269	38.7700	0.4461		5.6512	5.6512		5.6512	5.6512		89,228.8795	89,228.8795	1.7102	1.6359	89,771.9116

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Land Use	kBTU/yr	lb/day										lb/day				
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	253.863	2.7400e-003	0.0249	0.0209	1.5000e-004		1.8900e-003	1.8900e-003		1.8900e-003	1.8900e-003		29.8662	29.8662	5.7000e-004	5.5000e-004	30.0480
Elementary School	7786.52	0.0840	0.7634	0.6412	4.5800e-003		0.0580	0.0580		0.0580	0.0580		916.0612	916.0612	0.0176	0.0168	921.6362
Fast Food Restaurant with Drive Thru	6375.42	0.0688	0.6250	0.5250	3.7500e-003		0.0475	0.0475		0.0475	0.0475		750.0493	750.0493	0.0144	0.0138	754.6140
General Heavy Industry	1910.14	0.0206	0.1873	0.1573	1.1200e-003		0.0142	0.0142		0.0142	0.0142		224.7220	224.7220	4.3100e-003	4.1200e-003	226.0896
General Light Industry	3820.27	0.0412	0.3745	0.3146	2.2500e-003		0.0285	0.0285		0.0285	0.0285		449.4440	449.4440	8.6100e-003	8.2400e-003	452.1792
General Office Building	58008.7	0.6256	5.6871	4.7772	0.0341		0.4322	0.4322		0.4322	0.4322		6,824.5499	6,824.5499	0.1308	0.1251	6,866.0830
Government Office Building	226.685	2.4400e-003	0.0222	0.0187	1.3000e-004		1.6900e-003	1.6900e-003		1.6900e-003	1.6900e-003		26.6688	26.6688	5.1000e-004	4.9000e-004	26.8311
High School	9322.61	0.1005	0.9140	0.7677	5.4800e-003		0.0695	0.0695		0.0695	0.0695		1,096.7781	1,096.7781	0.0210	0.0201	1,103.4529
High Turnover (Sit Down Restaurant)	6270.9	0.0676	0.6148	0.5164	3.6900e-003		0.0467	0.0467		0.0467	0.0467		737.7534	737.7534	0.0141	0.0135	742.2433
Industrial Park	19834.9	0.2139	1.9446	1.6335	0.0117		0.1478	0.1478		0.1478	0.1478		2,333.5214	2,333.5214	0.0447	0.0428	2,347.7228
Junior College (2yr)	39545.2	0.4265	3.8770	3.2567	0.0233		0.2947	0.2947		0.2947	0.2947		4,652.3771	4,652.3771	0.0892	0.0853	4,680.6907
Junior High School	4626.45	0.0499	0.4536	0.3810	2.7200e-003		0.0345	0.0345		0.0345	0.0345		544.2888	544.2888	0.0104	9.9800e-003	547.6013
Manufacturing	1910.14	0.0206	0.1873	0.1573	1.1200e-003		0.0142	0.0142		0.0142	0.0142		224.7220	224.7220	4.3100e-003	4.1200e-003	226.0896
Medical Office Building	11334.2	0.1222	1.1112	0.9334	6.6700e-003		0.0845	0.0845		0.0845	0.0845		1,333.4408	1,333.4408	0.0256	0.0245	1,341.5559
Apartments Low Rise	116141	1.2525	10.7032	4.5546	0.0683		0.8654	0.8654		0.8654	0.8654		13,663.6609	13,663.6609	0.2619	0.2505	13,746.8156
Bank (with Drive-Through)	1164.27	0.0126	0.1141	0.0959	6.8000e-004		8.6700e-003	8.6700e-003		8.6700e-003	8.6700e-003		136.9734	136.9734	2.6300e-003	2.5100e-003	137.8070
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	260.055	2.8000e-003	0.0255	0.0214	1.5000e-004		1.9400e-003	1.9400e-003		1.9400e-003	1.9400e-003		30.5947	30.5947	5.9000e-004	5.6000e-004	30.7809
Refrigerated Warehouse-No Rail	2091.37	0.0226	0.2050	0.1722	1.2300e-003		0.0156	0.0156		0.0156	0.0156		246.0435	246.0435	4.7200e-003	4.5100e-003	247.5409
Regional Shopping Center	11599.7	0.1251	1.1372	0.9553	6.8200e-003		0.0864	0.0864		0.0864	0.0864		1,364.6685	1,364.6685	0.0262	0.0250	1,372.9736

Research & Development	19647.1	0.2119	1.9262	1.6180	0.0116		0.1464	0.1464		0.1464	0.1464		2,311.4263	2,311.4263	0.0443	0.0424	2,325.4932
Single Family Housing	433042	4.6701	39.9078	16.9820	0.2547		3.2266	3.2266		3.2266	3.2266		50,946.0638	50,946.0638	0.9765	0.9340	51,256.1130
Supermarket	3274.25	0.0353	0.3210	0.2696	1.9300e-003		0.0244	0.0244		0.0244	0.0244		385.2055	385.2055	7.3800e-003	7.0600e-003	387.5498
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**8.1793**	**71.1269**	**38.7700**	**0.4461**		**5.6511**	**5.6511**		**5.6511**	**5.6511**		**89,228.8795**	**89,228.8795**	**1.7102**	**1.6359**	**89,771.9116**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	0.19138	2.0600e-003	0.0188	0.0158	1.1000e-004		1.4300e-003	1.4300e-003		1.4300e-003	1.4300e-003		22.5153	22.5153	4.3000e-004	4.1000e-004	22.6523
Elementary School	5.94462	0.0641	0.5828	0.4896	3.5000e-003		0.0443	0.0443		0.0443	0.0443		699.3672	699.3672	0.0134	0.0128	703.6234
Fast Food Restaurant with Drive Thru	6.14212	0.0662	0.6022	0.5058	3.6100e-003		0.0458	0.0458		0.0458	0.0458		722.6018	722.6018	0.0139	0.0133	726.9994
General Heavy Industry	1.43692	0.0155	0.1409	0.1183	8.5000e-004		0.0107	0.0107		0.0107	0.0107		169.0492	169.0492	3.2400e-003	3.1000e-003	170.0780
General Light Industry	2.87384	0.0310	0.2818	0.2367	1.6900e-003		0.0214	0.0214		0.0214	0.0214		338.0983	338.0983	6.4800e-003	6.2000e-003	340.1559
General Office Building	44.6423	0.4814	4.3767	3.6764	0.0263		0.3326	0.3326		0.3326	0.3326		5,252.0330	5,252.0330	0.1007	0.0963	5,283.9960
Government Office Building	0.174452	1.8800e-003	0.0171	0.0144	1.0000e-004		1.3000e-003	1.3000e-003		1.3000e-003	1.3000e-003		20.5238	20.5238	3.9000e-004	3.8000e-004	20.6487
High School	7.11735	0.0768	0.6978	0.5861	4.1900e-003		0.0530	0.0530		0.0530	0.0530		837.3356	837.3356	0.0161	0.0154	842.4314
High Turnover (Sit Down Restaurant)	6.04142	0.0652	0.5923	0.4975	3.5500e-003		0.0450	0.0450		0.0450	0.0450		710.7558	710.7558	0.0136	0.0130	715.0814
Industrial Park	15.2646	0.1646	1.4965	1.2571	8.9800e-003		0.1137	0.1137		0.1137	0.1137		1,795.8300	1,795.8300	0.0344	0.0329	1,806.7591
Junior College (2yr)	29.7404	0.3207	2.9157	2.4492	0.0175		0.2216	0.2216		0.2216	0.2216		3,498.8719	3,498.8719	0.0671	0.0642	3,520.1654

Junior High School	3.53207	0.0381	0.3463	0.2909	2.0800e-003		0.0263	0.0263		0.0263	0.0263		415.5375	415.5375	7.9600e-003	7.6200e-003	418.0663
Manufacturing	1.43692	0.0155	0.1409	0.1183	8.5000e-004		0.0107	0.0107		0.0107	0.0107		169.0492	169.0492	3.2400e-003	3.1000e-003	170.0780
Medical Office Building	8.7226	0.0941	0.8552	0.7183	5.1300e-003		0.0650	0.0650		0.0650	0.0650		1,026.1886	1,026.1886	0.0197	0.0188	1,032.4338
Apartments Low Rise	92.6836	0.9995	8.5414	3.6347	0.0545		0.6906	0.6906		0.6906	0.6906		10,903.9487	10,903.9487	0.2090	0.1999	10,970.3083
Bank (with Drive-Through)	0.875836	9.4500e-003	0.0859	0.0721	5.2000e-004		6.5300e-003	6.5300e-003		6.5300e-003	6.5300e-003		103.0395	103.0395	1.9700e-003	1.8900e-003	103.6666
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	0.196048	2.1100e-003	0.0192	0.0162	1.2000e-004		1.4600e-003	1.4600e-003		1.4600e-003	1.4600e-003		23.0645	23.0645	4.4000e-004	4.2000e-004	23.2048
Refrigerated Warehouse-No Rail	1.79147	0.0193	0.1756	0.1475	1.0500e-003		0.0134	0.0134		0.0134	0.0134		210.7615	210.7615	4.0400e-003	3.8600e-003	212.0441
Regional Shopping Center	8.74467	0.0943	0.8573	0.7202	5.1400e-003		0.0652	0.0652		0.0652	0.0652		1,028.7849	1,028.7849	0.0197	0.0189	1,035.0460
Research & Development	14.7797	0.1594	1.4490	1.2172	8.6900e-003		0.1101	0.1101		0.1101	0.1101		1,738.7913	1,738.7913	0.0333	0.0319	1,749.3733
Single Family Housing	352.406	3.8005	32.4767	13.8199	0.2073		2.6258	2.6258		2.6258	2.6258		41,459.5472	41,459.5472	0.7946	0.7601	41,711.8631
Supermarket	2.5663	0.0277	0.2516	0.2113	1.5100e-003		0.0191	0.0191		0.0191	0.0191		301.9178	301.9178	5.7900e-003	5.5400e-003	303.7552
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**6.5494**	**56.9215**	**30.8134**	**0.3572**		**4.5250**	**4.5250**		**4.5250**	**4.5250**		**71,447.6123**	**71,447.6123**	**1.3694**	**1.3099**	**71,882.4306**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1,040.2991	9.4090	817.0298	0.0433		11.8433	11.8433		11.7663	11.7663	0.0000	116,838.6249	116,838.6249	3.6210	2.1150	117,570.3190
Unmitigated	1,040.2991	9.4090	817.0298	0.0433		11.8433	11.8433		11.7663	11.7663	0.0000	116,838.6249	116,838.6249	3.6210	2.1150	117,570.3190

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	101.2374					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	903.9774					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	10.5750	4.8000e-004	0.5768	0.0000		7.3064	7.3064		7.2295	7.2295	0.0000	115,364.1177	115,364.1177	2.2112	2.1150	116,066.2044
Landscaping	24.5093	9.4086	816.4530	0.0433		4.5369	4.5369		4.5369	4.5369		1,474.5073	1,474.5073	1.4099		1,504.1145
Total	**1,040.2991**	**9.4090**	**817.0298**	**0.0433**		**11.8433**	**11.8433**		**11.7663**	**11.7663**	**0.0000**	**116,838.6249**	**116,838.6249**	**3.6210**	**2.1150**	**117,570.3190**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	101.2374					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	903.9774					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	10.5750	4.8000e-004	0.5768	0.0000		7.3064	7.3064		7.2295	7.2295	0.0000	115,364.1177	115,364.1177	2.2112	2.1150	116,066.2044
Landscaping	24.5093	9.4086	816.4530	0.0433		4.5369	4.5369		4.5369	4.5369		1,474.5073	1,474.5073	1.4099		1,504.1145
Total	**1,040.2991**	**9.4090**	**817.0298**	**0.0433**		**11.8433**	**11.8433**		**11.7663**	**11.7663**	**0.0000**	**116,838.6249**	**116,838.6249**	**3.6210**	**2.1150**	**117,570.3190**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Vegetation

CalEEMod Version: CalEEMod.2013.2.2

Date: 10/23/2015 12:40 PM

Grapevine Operational Year 2034 - Planning Areas 6A, 2, 1, 3, 4, 6C Buildout

Kern-San Joaquin County, Mitigation Report

Operational Percent Reduction Summary

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.70	3.70	3.70	3.71	3.70
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	3.02	4.57	3.03	5.32	5.30	5.30	0.00	5.32	5.32	5.10	0.00	5.32
Natural Gas	19.93	19.97	20.52	19.93	19.93	19.93	0.00	19.93	19.93	19.92	19.93	19.93
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting: Suburban Center

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value 3
No	Land Use	Increase Density	0.00	0.00	0.00	
No	Land Use	Increase Diversity	0.30	0.69		

No	Land Use	Improve Walkability Design	0.00	0.00		
No	Land Use	Improve Destination Accessibility	0.00	0.00		
No	Land Use	Increase Transit Accessibility	0.25	0.00		
No	Land Use	Integrate Below Market Rate Housing	0.00	0.00		
	Land Use	Land Use SubTotal	0.00			
Yes	Neighborhood Enhancements	Improve Pedestrian Network	2.00	Project Site and Connecting Off-Site		
Yes	Neighborhood Enhancements	Provide Traffic Calming Measures	1.00	100.00	100.00	
No	Neighborhood Enhancements	Implement NEV Network	0.01			
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.05			
No	Parking Policy Pricing	Limit Parking Supply	0.00	0.00		
No	Parking Policy Pricing	Unbundle Parking Costs	0.00	0.00		
No	Parking Policy Pricing	On-street Market Pricing	0.00	0.00		
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00			
No	Transit Improvements	Provide BRT System	0.00	0.00		
Yes	Transit Improvements	Expand Transit Network	0.00	50.00		
No	Transit Improvements	Increase Transit Frequency	0.00		0.00	
	Transit Improvements	Transit Improvements Subtotal	0.00			
		Land Use and Site Enhancement Subtotal	0.05			
Yes	Commute	Implement Trip Reduction Program		50.00	Voluntary	
No	Commute	Transit Subsidy	0.00	0.00		
No	Commute	Implement Employee Parking "Cash Out"	0.00	0.00		
No	Commute	Workplace Parking Charge	0.00	0.00		
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00	0.00	0.00	0.00
No	Commute	Market Commute Trip Reduction Option	0.00	0.00		

No	Commute	Employee Vanpool/Shuttle	0.00	0.00	2.00	
No	Commute	Provide Ride Sharing Program	0.00	0.00		
	Commute	Commute Subtotal	0.00			
No	School Trip	Implement School Bus Program	0.00	0.00		
		Total VMT Reduction	0.05			

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	150.00
No	Use Low VOC Paint (Residential Exterior)	150.00
No	Use Low VOC Paint (Non-residential Interior)	150.00
No	Use Low VOC Paint (Non-residential Exterior)	150.00
No	% Electric Lawnmower	
No	% Electric Leafblower	
No	% Electric Chainsaw	

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
Yes	Exceed Title 24	25.00	
No	Install High Efficiency Lighting		
No	On-site Renewable		

Appliance Type	Land Use Subtype	% Improvement

ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy	0.00	0.00
No	Use Reclaimed Water	0.00	0.00
No	Use Grey Water	0.00	
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction	0.00	
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape	0.00	0.00

Solid Waste Mitigation

Mitigation Measures	Input Value
Institute Recycling and Composting Services	75.00
Percent Reduction in Waste Disposed	

Grapevine Operational Year 2034 - Planning Areas 6A, 2, 1, 3, 4, 6C, 6B Buildout

Kern-San Joaquin County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Bank (with Drive-Through)	32.00	1000sqft	2.95	32,000.00	0
General Office Building	1,535.40	1000sqft	134.37	1,535,400.00	0
Government Office Building	6.00	1000sqft	0.51	6,000.00	0
Medical Office Building	300.00	1000sqft	22.69	300,000.00	0
Pharmacy/Drugstore w/o Drive Thru	21.00	1000sqft	1.85	21,000.00	0
Research & Development	540.00	1000sqft	41.19	540,000.00	0
Elementary School	3,976.00	Student	20.00	332,407.00	0
High School	3,000.00	Student	10.00	397,982.93	0
Junior College (2yr)	350.00	1000sqft	27.25	350,000.00	0
Junior High School	1,680.00	Student	40.00	197,503.63	0
General Heavy Industry	55.00	1000sqft	39.19	55,000.00	0
General Light Industry	110.00	1000sqft	59.38	110,000.00	0
Industrial Park	550.00	1000sqft	211.38	550,000.00	0
Manufacturing	55.00	1000sqft	115.19	55,000.00	0
Refrigerated Warehouse-No Rail	110.00	1000sqft	78.38	110,000.00	0
Unrefrigerated Warehouse-No Rail	220.00	1000sqft	270.75	220,000.00	0
Other Asphalt Surfaces	376.00	Acre	376.00	16,378,560.00	0
City Park	126.00	Acre	126.00	5,488,560.00	0
Fast Food Restaurant with Drive Thru	24.40	1000sqft	3.16	24,400.00	0
High Turnover (Sit Down Restaurant)	24.00	1000sqft	3.11	24,000.00	0
Apartments Low Rise	3,260.00	Dwelling Unit	326.00	3,260,000.00	10432
Single Family Housing	6,645.00	Dwelling Unit	1,700.00	11,961,000.00	21264
Convenience Market with Gas Pumps	20.50	1000sqft	2.67	20,500.00	0
Regional Shopping Center	936.70	1000sqft	119.61	936,700.00	0
Supermarket	170.00	1000sqft	21.89	170,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	7			**Operational Year**	2035
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	372.88	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Planning Areas 6A, 2, 1, 3, 4, 6C, 6B. Kern County, San Joaquin Valley Air Basin. CO2 Intensity adjusted based on PG&E 50% Renewables by 2030.

Land Use - See 1.1 Land Usage. Population based on 3.2 persons per dwelling unit.

Construction Phase - Construction emissions calculated separately.

Vehicle Trips - Modified trip rates to match Trip Generation and VMT factors provided by Fehr & Peers.

Vehicle Emission Factors - Default CalEEMod values.

Woodstoves - No woodstoves and only gas fireplaces assumed

Area Coating - Default CalEEMod VOC content. Modified non-residential interior and exterior area to be coated based on CalEEMod architectural coating surface area equations and adjusted for parking/asphalt surface and park land uses.

Energy Use - Updated Title 24 electricity and natural gas energy intensity to match 2013 Title 24 standards (25% reduction versus 2008 standards).

Water And Wastewater - Water and wastewater consumption and associated emissions calculated separately.

Construction Off-road Equipment Mitigation - Construction emissions calculated separately.

Mobile Land Use Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Project Setting: Suburban Center. Improve Pedestrian Network: Project Site and Connecting Off-Site. Provide Traffic Calming Measures: 100% Streets with Improvement, 100% Intersections with Improvement. Expand Transit Network: 50%.

Mobile Commute Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Voluntary Commute Trip Reduction Program: 50%.

Energy Mitigation - Exceed 2013 Title 24, % Improvement: 25%.

Water Mitigation - Water reductions calculated separately.

Waste Mitigation - Percent Reduction in Waste Disposed: 75%. Waste diversion consistent with Assembly Bill 341 (not mitigation).

Note Regarding Emissions Presented in the Air Quality & Greenhouse Gas Technical Report: Project-generated unmitigated and mitigated emissions in the Technical Report reflect the unmitigated mobile source emissions reported in 2.0 Emissions Summary. No area source mitigation assumed. Unmitigated and mitigated energy source and solid waste emissions reported in the Technical Report as presented in 2.0 Emissions Summary. Water/wastewater and stationary source emissions calculated separately.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	13927527	4027977
tblAreaCoating	Area_Nonresidential_Interior	41782581	8171840
tblConstructionPhase	NumDays	155,000.00	5.00
tblEnergyUse	T24E	352.42	264.31
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	4.43	3.32
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.70	0.53
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	763.80	572.85
tblEnergyUse	T24E	4.88	3.66
tblEnergyUse	T24NG	14,007.38	10,505.53
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	10.78	8.09

tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	54.53	40.90
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	5.56	4.17
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	23,622.31	17,716.73
tblEnergyUse	T24NG	8.10	6.08
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblLandUse	LotAcreage	0.73	2.95
tblLandUse	LotAcreage	35.25	134.37
tblLandUse	LotAcreage	0.14	0.51
tblLandUse	LotAcreage	6.89	22.69
tblLandUse	LotAcreage	0.48	1.85
tblLandUse	LotAcreage	12.40	41.19
tblLandUse	LotAcreage	7.63	20.00
tblLandUse	LotAcreage	9.14	10.00
tblLandUse	LotAcreage	8.03	27.25
tblLandUse	LotAcreage	4.53	40.00

tblLandUse	LotAcreage	1.26	39.19
tblLandUse	LotAcreage	2.53	59.38
tblLandUse	LotAcreage	12.63	211.38
tblLandUse	LotAcreage	1.26	115.19
tblLandUse	LotAcreage	2.53	78.38
tblLandUse	LotAcreage	5.05	270.75
tblLandUse	LotAcreage	0.56	3.16
tblLandUse	LotAcreage	0.55	3.11
tblLandUse	LotAcreage	203.75	326.00
tblLandUse	LotAcreage	2,157.47	1,700.00
tblLandUse	LotAcreage	0.47	2.67
tblLandUse	LotAcreage	21.50	119.61
tblLandUse	LotAcreage	3.90	21.89
tblLandUse	Population	9,324.00	10,432.00
tblLandUse	Population	19,005.00	21,264.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	372.88
tblProjectCharacteristics	OperationalYear	2014	2035
tblTripsAndVMT	VendorTripNumber	5,624.00	0.00
tblTripsAndVMT	WorkerTripNumber	16,082.00	0.00
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62

tblVehicleTrips	CC_TL	7.30	15.62
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tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
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tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
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tblVehicleTrips	CNW_TL	7.30	15.62
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tblVehicleTrips	CNW_TL	7.30	15.62
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tblVehicleTrips	CW_TL	9.50	15.62
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tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62

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tblVehicleTrips	HO_TL	7.50	15.62
tblVehicleTrips	HS_TL	7.30	15.62

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tblVehicleTrips	HW_TL	10.80	15.62
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tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	36.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
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tblVehicleTrips	PR_TP	66.00	100.00

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tblVehicleTrips	PR_TP	29.00	100.00
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tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	PR_TP	50.00	100.00
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tblVehicleTrips	PR_TP	37.00	100.00
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tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	63.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
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tblVehicleTrips	PR_TP	54.00	100.00
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tblVehicleTrips	ST_TR	1.59	1.54
tblVehicleTrips	ST_TR	1,448.33	59.54
tblVehicleTrips	ST_TR	722.03	50.58
tblVehicleTrips	ST_TR	1.50	0.55
tblVehicleTrips	ST_TR	1.32	0.55
tblVehicleTrips	ST_TR	2.37	1.93

tblVehicleTrips	ST_TR	0.61	0.50
tblVehicleTrips	ST_TR	158.37	43.29
tblVehicleTrips	ST_TR	2.49	1.99
tblVehicleTrips	ST_TR	11.23	1.73
tblVehicleTrips	ST_TR	1.49	1.13
tblVehicleTrips	ST_TR	8.96	2.23
tblVehicleTrips	ST_TR	90.06	8.98
tblVehicleTrips	ST_TR	2.59	2.90
tblVehicleTrips	ST_TR	49.97	40.45
tblVehicleTrips	ST_TR	1.90	2.10
tblVehicleTrips	ST_TR	10.08	8.16
tblVehicleTrips	ST_TR	177.59	60.37
tblVehicleTrips	ST_TR	2.59	2.90
tblVehicleTrips	SU_TR	6.07	4.99
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tblVehicleTrips	SU_TR	1,182.08	48.59
tblVehicleTrips	SU_TR	542.72	38.02
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tblVehicleTrips	SU_TR	0.68	0.28
tblVehicleTrips	SU_TR	0.98	0.80
tblVehicleTrips	SU_TR	0.25	0.20
tblVehicleTrips	SU_TR	131.84	36.04
tblVehicleTrips	SU_TR	0.73	0.59
tblVehicleTrips	SU_TR	1.21	0.19
tblVehicleTrips	SU_TR	0.62	0.47
tblVehicleTrips	SU_TR	1.55	0.38
tblVehicleTrips	SU_TR	90.06	8.98
tblVehicleTrips	SU_TR	2.59	2.90
tblVehicleTrips	SU_TR	25.24	20.43

tblVehicleTrips	SU_TR	1.11	1.23
tblVehicleTrips	SU_TR	8.77	7.10
tblVehicleTrips	SU_TR	166.44	56.58
tblVehicleTrips	SU_TR	2.59	2.90
tblVehicleTrips	WD_TR	6.59	5.41
tblVehicleTrips	WD_TR	148.15	8.98
tblVehicleTrips	WD_TR	1.59	1.54
tblVehicleTrips	WD_TR	845.60	34.76
tblVehicleTrips	WD_TR	1.29	1.05
tblVehicleTrips	WD_TR	496.12	34.76
tblVehicleTrips	WD_TR	1.50	2.90
tblVehicleTrips	WD_TR	6.97	2.90
tblVehicleTrips	WD_TR	11.01	8.98
tblVehicleTrips	WD_TR	68.93	8.98
tblVehicleTrips	WD_TR	1.71	1.39
tblVehicleTrips	WD_TR	127.15	34.76
tblVehicleTrips	WD_TR	6.96	5.56
tblVehicleTrips	WD_TR	27.49	4.23
tblVehicleTrips	WD_TR	1.62	1.32
tblVehicleTrips	WD_TR	3.82	2.90
tblVehicleTrips	WD_TR	36.13	8.98
tblVehicleTrips	WD_TR	90.06	8.98
tblVehicleTrips	WD_TR	2.59	2.90
tblVehicleTrips	WD_TR	42.94	34.76
tblVehicleTrips	WD_TR	8.11	8.98
tblVehicleTrips	WD_TR	9.57	7.75
tblVehicleTrips	WD_TR	102.24	34.76

tblVehicleTrips	WD_TR	2.59	2.90
tblWater	IndoorWaterUseRate	212,402,123.53	0.00
tblWater	IndoorWaterUseRate	1,267,933.40	0.00
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tblWater	IndoorWaterUseRate	9,638,778.24	0.00
tblWater	IndoorWaterUseRate	7,406,222.58	0.00
tblWater	IndoorWaterUseRate	12,718,750.00	0.00
tblWater	IndoorWaterUseRate	25,437,500.00	0.00
tblWater	IndoorWaterUseRate	272,892,396.67	0.00
tblWater	IndoorWaterUseRate	1,191,958.12	0.00
tblWater	IndoorWaterUseRate	13,214,880.00	0.00
tblWater	IndoorWaterUseRate	7,284,809.10	0.00
tblWater	IndoorWaterUseRate	127,187,500.00	0.00
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tblWater	IndoorWaterUseRate	4,072,723.20	0.00
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tblWater	IndoorWaterUseRate	37,644,161.27	0.00
tblWater	IndoorWaterUseRate	1,479,397.99	0.00
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tblWater	IndoorWaterUseRate	69,383,730.87	0.00
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tblWater	IndoorWaterUseRate	20,955,596.53	0.00
tblWater	IndoorWaterUseRate	50,875,000.00	0.00
tblWater	OutdoorWaterUseRate	133,905,686.57	0.00
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tblWater	OutdoorWaterUseRate	150,126,650.06	0.00
tblWater	OutdoorWaterUseRate	930,685.39	0.00
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tblWater	OutdoorWaterUseRate	472,737.61	0.00

tblWater	OutdoorWaterUseRate	167,256,630.22	0.00
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tblWater	OutdoorWaterUseRate	26,851,201.13	0.00
tblWater	OutdoorWaterUseRate	10,472,716.80	0.00
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tblWater	OutdoorWaterUseRate	272,945,793.64	0.00
tblWater	OutdoorWaterUseRate	648,111.23	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	189.3973	0.8467	73.4408	3.8900e-003		0.7079	0.7079		0.7047	0.7047	0.0000	4,411.3090	4,411.3090	0.1973	0.0787	4,439.8382
Energy	1.4955	13.0059	7.0967	0.0816		1.0333	1.0333		1.0333	1.0333	0.0000	35,330.4871	35,330.4871	1.8804	0.6017	35,556.4986
Mobile	108.4694	482.1921	1,423.0710	6.2607	308.0844	13.7657	321.8501	82.9946	12.6771	95.6717	0.0000	451,863.5397	451,863.5397	7.7749	0.0000	452,026.8118
Waste						0.0000	0.0000		0.0000	0.0000	4,055.8345	0.0000	4,055.8345	239.6930	0.0000	9,089.3866
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**299.3622**	**496.0446**	**1,503.6084**	**6.3462**	**308.0844**	**15.5068**	**323.5912**	**82.9946**	**14.4151**	**97.4096**	**4,055.8345**	**491,605.3358**	**495,661.1703**	**249.5454**	**0.6804**	**501,112.5351**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	189.3973	0.8467	73.4408	3.8900e-003		0.7079	0.7079		0.7047	0.7047	0.0000	4,411.3090	4,411.3090	0.1973	0.0787	4,439.8382
Energy	1.1974	10.4076	5.6398	0.0653		0.8273	0.8273		0.8273	0.8273	0.0000	31,620.2530	31,620.2530	1.7647	0.5354	31,823.2775
Mobile	105.1516	460.3057	1,381.0338	5.9279	291.3928	13.0369	304.4297	78.4980	12.0061	90.5041	0.0000	427,826.3660	427,826.3660	7.3775	0.0000	427,981.2943
Waste						0.0000	0.0000		0.0000	0.0000	1,013.9586	0.0000	1,013.9586	59.9232	0.0000	2,272.3467
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**295.7463**	**471.5600**	**1,460.1143**	**5.9971**	**291.3928**	**14.5721**	**305.9649**	**78.4980**	**13.5381**	**92.0361**	**1,013.9586**	**463,857.9280**	**464,871.8866**	**69.2628**	**0.6140**	**466,516.7566**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.21**	**4.94**	**2.89**	**5.50**	**5.42**	**6.03**	**5.45**	**5.42**	**6.08**	**5.52**	**75.00**	**5.64**	**6.21**	**72.24**	**9.75**	**6.90**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

Provide Traffic Calming Measures

Expand Transit Network

Implement Trip Reduction Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	105.1516	460.3057	1,381.0338	5.9279	291.3928	13.0369	304.4297	78.4980	12.0061	90.5041	0.0000	427,826.3660	427,826.3660	7.3775	0.0000	427,981.2943
Unmitigated	108.4694	482.1921	1,423.0710	6.2607	308.0844	13.7657	321.8501	82.9946	12.6771	95.6717	0.0000	451,863.5397	451,863.5397	7.7749	0.0000	452,026.8118

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	17,636.60	19,201.40	16267.40	100,434,938	94,993,511
Bank (with Drive-Through)	287.36	167.36	62.08	1,353,387	1,280,062
City Park	194.04	194.04	194.04	1,103,249	1,043,477
Convenience Market with Gas Pumps	712.58	1,220.57	996.10	4,694,394	4,440,058
Elementary School	4,174.80	0.00	0.00	16,954,698	16,036,116
Fast Food Restaurant with Drive Thru	848.14	1,234.15	927.69	5,200,415	4,918,664
General Heavy Industry	159.50	30.25	11.00	681,266	644,356
General Light Industry	319.00	60.50	30.80	1,369,680	1,295,473
General Office Building	13,787.89	2,963.32	1228.32	59,400,006	56,181,796
Government Office Building	53.88	0.00	0.00	218,817	206,962
High School	4,170.00	1,500.00	600.00	18,640,908	17,630,969
High Turnover (Sit Down Restaurant)	834.24	1,038.96	864.96	4,934,455	4,667,113
Industrial Park	3,058.00	1,094.50	324.50	13,571,718	12,836,421
Junior College (2yr)	1,480.50	605.50	66.50	6,558,432	6,203,105
Junior High School	2,217.60	0.00	0.00	9,006,117	8,518,178
Manufacturing	159.50	62.15	25.85	719,239	680,271
Medical Office Building	2,694.00	669.00	114.00	11,576,857	10,949,639
Other Asphalt Surfaces	0.00	0.00	0.00		

Pharmacy/Drugstore w/o Drive Thru	188.58	188.58	188.58	1,072,206	1,014,115
Refrigerated Warehouse-No Rail	319.00	319.00	319.00	1,813,732	1,715,466
Regional Shopping Center	32,559.69	37,889.52	19136.78	178,550,460	168,876,842
Research & Development	4,849.20	1,134.00	664.20	21,154,141	20,008,039
Single Family Housing	51,498.75	54,223.20	47179.50	291,510,053	275,716,439
Supermarket	5,909.20	10,262.90	9618.60	40,146,993	37,971,884
Unrefrigerated Warehouse-No Rail	638.00	638.00	638.00	3,627,464	3,430,933
Total	148,750.06	134,696.90	99,457.89	794,293,625	751,259,890

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Bank (with Drive-Through)	15.62	15.62	15.62	6.60	74.40	19.00	100	0	0
City Park	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Convenience Market with Gas	15.62	15.62	15.62	0.80	80.20	19.00	100	0	0
Elementary School	15.62	15.62	15.62	65.00	30.00	5.00	100	0	0
Fast Food Restaurant with Drive	15.62	15.62	15.62	2.20	78.80	19.00	100	0	0
General Heavy Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Light Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Office Building	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Government Office Building	15.62	15.62	15.62	33.00	62.00	5.00	100	0	0
High School	15.62	15.62	15.62	77.80	17.20	5.00	100	0	0
High Turnover (Sit Down	15.62	15.62	15.62	8.50	72.50	19.00	100	0	0
Industrial Park	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Junior College (2yr)	15.62	15.62	15.62	6.40	88.60	5.00	100	0	0
Junior High School	15.62	15.62	15.62	72.80	22.20	5.00	100	0	0
Manufacturing	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Medical Office Building	15.62	15.62	15.62	29.60	51.40	19.00	100	0	0
Other Asphalt Surfaces	15.62	15.62	15.62	0.00	0.00	0.00	100	0	0
Pharmacy/Drugstore w/o Drive	15.62	15.62	15.62	7.40	73.60	19.00	100	0	0
Refrigerated Warehouse-No Rail	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0
Regional Shopping Center	15.62	15.62	15.62	16.30	64.70	19.00	100	0	0
Research & Development	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Single Family Housing	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Supermarket	15.62	15.62	15.62	6.50	74.50	19.00	100	0	0
Unrefrigerated Warehouse-No	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.355759	0.055439	0.135927	0.179388	0.056975	0.010375	0.023432	0.169902	0.001468	0.001841	0.006095	0.000886	0.002512

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	19,770.1487	19,770.1487	1.5376	0.3181	19,901.0554
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	20,530.2218	20,530.2218	1.5967	0.3304	20,666.1612
NaturalGas Mitigated	1.1974	10.4076	5.6398	0.0653		0.8273	0.8273		0.8273	0.8273	0.0000	11,850.1043	11,850.1043	0.2271	0.2173	11,922.2220
NaturalGas Unmitigated	1.4955	13.0059	7.0967	0.0816		1.0333	1.0333		1.0333	1.0333	0.0000	14,800.2654	14,800.2654	0.2837	0.2713	14,890.3373

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					

Bank (with Drive-Through)	424960	2.2900e-003	0.0208	0.0175	1.2000e-004		1.5800e-003	1.5800e-003		1.5800e-003	1.5800e-003	0.0000	22.6775	22.6775	4.3000e-004	4.2000e-004	22.8155
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	92660	5.0000e-004	4.5400e-003	3.8200e-003	3.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	4.9447	4.9447	9.0000e-005	9.0000e-005	4.9748
Elementary School	2.84208e+006	0.0153	0.1393	0.1170	8.4000e-004		0.0106	0.0106		0.0106	0.0106	0.0000	151.6642	151.6642	2.9100e-003	2.7800e-003	152.5872
Fast Food Restaurant with Drive Thru	2.32703e+006	0.0126	0.1141	0.0958	6.8000e-004		8.6700e-003	8.6700e-003		8.6700e-003	8.6700e-003	0.0000	124.1791	124.1791	2.3800e-003	2.2800e-003	124.9348
General Heavy Industry	730400	3.9400e-003	0.0358	0.0301	2.1000e-004		2.7200e-003	2.7200e-003		2.7200e-003	2.7200e-003	0.0000	38.9769	38.9769	7.5000e-004	7.1000e-004	39.2141
General Light Industry	1.4608e+006	7.8800e-003	0.0716	0.0602	4.3000e-004		5.4400e-003	5.4400e-003		5.4400e-003	5.4400e-003	0.0000	77.9539	77.9539	1.4900e-003	1.4300e-003	78.4283
General Office Building	2.11732e+007	0.1142	1.0379	0.8718	6.2300e-003		0.0789	0.0789		0.0789	0.0789	0.0000	1,129.8808	1,129.8808	0.0217	0.0207	1,136.7570
Government Office Building	82740	4.5000e-004	4.0600e-003	3.4100e-003	2.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	4.4153	4.4153	8.0000e-005	8.0000e-005	4.4422
High School	3.40275e+006	0.0184	0.1668	0.1401	1.0000e-003		0.0127	0.0127		0.0127	0.0127	0.0000	181.5839	181.5839	3.4800e-003	3.3300e-003	182.6890
High Turnover (Sit Down Restaurant)	2.28888e+006	0.0123	0.1122	0.0943	6.7000e-004		8.5300e-003	8.5300e-003		8.5300e-003	8.5300e-003	0.0000	122.1434	122.1434	2.3400e-003	2.2400e-003	122.8867
Industrial Park	7.5845e+006	0.0409	0.3718	0.3123	2.2300e-003		0.0283	0.0283		0.0283	0.0283	0.0000	404.7378	404.7378	7.7600e-003	7.4200e-003	407.2010
Junior College (2yr)	1.4434e+007	0.0778	0.7076	0.5943	4.2500e-003		0.0538	0.0538		0.0538	0.0538	0.0000	770.2532	770.2532	0.0148	0.0141	774.9408
Junior High School	1.68866e+006	9.1100e-003	0.0828	0.0695	5.0000e-004		6.2900e-003	6.2900e-003		6.2900e-003	6.2900e-003	0.0000	90.1131	90.1131	1.7300e-003	1.6500e-003	90.6615
Manufacturing	730400	3.9400e-003	0.0358	0.0301	2.1000e-004		2.7200e-003	2.7200e-003		2.7200e-003	2.7200e-003	0.0000	38.9769	38.9769	7.5000e-004	7.1000e-004	39.2141
Apartments Low Rise	4.23915e+007	0.2286	1.9533	0.8312	0.0125		0.1579	0.1579		0.1579	0.1579	0.0000	2,262.1723	2,262.1723	0.0434	0.0415	2,275.9395
Medical Office Building	4.137e+006	0.0223	0.2028	0.1704	1.2200e-003		0.0154	0.0154		0.0154	0.0154	0.0000	220.7661	220.7661	4.2300e-003	4.0500e-003	222.1096
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	94920	5.1000e-004	4.6500e-003	3.9100e-003	3.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	5.0653	5.0653	1.0000e-004	9.0000e-005	5.0961
Refrigerated Warehouse-No Rail	799700	4.3100e-003	0.0392	0.0329	2.4000e-004		2.9800e-003	2.9800e-003		2.9800e-003	2.9800e-003	0.0000	42.6750	42.6750	8.2000e-004	7.8000e-004	42.9348
Regional Shopping Center	4.23388e+006	0.0228	0.2075	0.1743	1.2500e-003		0.0158	0.0158		0.0158	0.0158	0.0000	225.9362	225.9362	4.3300e-003	4.1400e-003	227.3112
Research & Development	7.1712e+006	0.0387	0.3515	0.2953	2.1100e-003		0.0267	0.0267		0.0267	0.0267	0.0000	382.6825	382.6825	7.3300e-003	7.0200e-003	385.0115
Single Family Housing	1.5806e+008	0.8523	7.2832	3.0992	0.0465		0.5889	0.5889		0.5889	0.5889	0.0000	8,434.6922	8,434.6922	0.1617	0.1546	8,486.0244

Supermarket	1.1951e+006	6.4400e-003	0.0586	0.0492	3.5000e-004		4.4500e-003	4.4500e-003		4.4500e-003	4.4500e-003	0.0000	63.7751	63.7751	1.2200e-003	1.1700e-003	64.1632
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.4955**	**13.0058**	**7.0967**	**0.0816**		**1.0333**	**1.0333**		**1.0333**	**1.0333**	**0.0000**	**14,800.2654**	**14,800.2654**	**0.2837**	**0.2713**	**14,890.3373**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas [illegible]	69853.8	3.8000e-004	3.4200e-003	2.8800e-003	2.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004	0.0000	3.7277	3.7277	7.0000e-005	7.0000e-005	3.7504
Elementary School	2.16979e+006	0.0117	0.1064	0.0893	6.4000e-004		8.0800e-003	8.0800e-003		8.0800e-003	8.0800e-003	0.0000	115.7881	115.7881	2.2200e-003	2.1200e-003	116.4928
Fast Food Restaurant with [illegible]	2.24187e+006	0.0121	0.1099	0.0923	6.6000e-004		8.3500e-003	8.3500e-003		8.3500e-003	8.3500e-003	0.0000	119.6348	119.6348	2.2900e-003	2.1900e-003	120.3629
General Heavy Industry	549450	2.9600e-003	0.0269	0.0226	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	29.3207	29.3207	5.6000e-004	5.4000e-004	29.4992
General Light Industry	1.0989e+006	5.9300e-003	0.0539	0.0453	3.2000e-004		4.0900e-003	4.0900e-003		4.0900e-003	4.0900e-003	0.0000	58.6415	58.6415	1.1200e-003	1.0800e-003	58.9984
General Office Building	1.62944e+007	0.0879	0.7988	0.6710	4.7900e-003		0.0607	0.0607		0.0607	0.0607	0.0000	869.5330	869.5330	0.0167	0.0159	874.8248
Government Office Building	63675	3.4000e-004	3.1200e-003	2.6200e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	3.3979	3.3979	7.0000e-005	6.0000e-005	3.4186
High School	2.59783e+006	0.0140	0.1273	0.1070	7.6000e-004		9.6800e-003	9.6800e-003		9.6800e-003	9.6800e-003	0.0000	138.6303	138.6303	2.6600e-003	2.5400e-003	139.4740
High Turnover (Sit Down Restaurant)	2.20512e+006	0.0119	0.1081	0.0908	6.5000e-004		8.2200e-003	8.2200e-003		8.2200e-003	8.2200e-003	0.0000	117.6736	117.6736	2.2600e-003	2.1600e-003	118.3897
Industrial Park	5.83688e+006	0.0315	0.2861	0.2403	1.7200e-003		0.0218	0.0218		0.0218	0.0218	0.0000	311.4779	311.4779	5.9700e-003	5.7100e-003	313.3735
Junior College (2yr)	1.08552e+007	0.0585	0.5321	0.4470	3.1900e-003		0.0404	0.0404		0.0404	0.0404	0.0000	579.2775	579.2775	0.0111	0.0106	582.8029
Junior High School	1.2892e+006	6.9500e-003	0.0632	0.0531	3.8000e-004		4.8000e-003	4.8000e-003		4.8000e-003	4.8000e-003	0.0000	68.7969	68.7969	1.3200e-003	1.2600e-003	69.2156
Manufacturing	549450	2.9600e-003	0.0269	0.0226	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	29.3207	29.3207	5.6000e-004	5.4000e-004	29.4992

Medical Office Building	3.18375e+006	0.0172	0.1561	0.1311	9.4000e-004		0.0119	0.0119		0.0119	0.0119	0.0000	169.8970	169.8970	3.2600e-003	3.1100e-003	170.9310
Apartments Low Rise	3.38295e+007	0.1824	1.5588	0.6633	9.9500e-003		0.1260	0.1260		0.1260	0.1260	0.0000	1,805.2710	1,805.2710	0.0346	0.0331	1,816.2576
Bank (with Drive-Through)	319680	1.7200e-003	0.0157	0.0132	9.0000e-005		1.1900e-003	1.1900e-003		1.1900e-003	1.1900e-003	0.0000	17.0593	17.0593	3.3000e-004	3.1000e-004	17.1632
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	71557.5	3.9000e-004	3.5100e-003	2.9500e-003	2.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004	0.0000	3.8186	3.8186	7.0000e-005	7.0000e-005	3.8418
Refrigerated Warehouse-No Rail	685025	3.6900e-003	0.0336	0.0282	2.0000e-004		2.5500e-003	2.5500e-003		2.5500e-003	2.5500e-003	0.0000	36.5555	36.5555	7.0000e-004	6.7000e-004	36.7780
Regional Shopping Center	3.19181e+006	0.0172	0.1565	0.1314	9.4000e-004		0.0119	0.0119		0.0119	0.0119	0.0000	170.3269	170.3269	3.2600e-003	3.1200e-003	171.3635
Research & Development	5.3946e+006	0.0291	0.2644	0.2221	1.5900e-003		0.0201	0.0201		0.0201	0.0201	0.0000	287.8764	287.8764	5.5200e-003	5.2800e-003	289.6284
Single Family Housing	1.28628e+008	0.6936	5.9270	2.5221	0.0378		0.4792	0.4792		0.4792	0.4792	0.0000	6,864.0930	6,864.0930	0.1316	0.1258	6,905.8667
Supermarket	936700	5.0500e-003	0.0459	0.0386	2.8000e-004		3.4900e-003	3.4900e-003		3.4900e-003	3.4900e-003	0.0000	49.9859	49.9859	9.6000e-004	9.2000e-004	50.2901
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.1974**	**10.4076**	**5.6398**	**0.0653**		**0.8273**	**0.8273**		**0.8273**	**0.8273**	**0.0000**	**11,850.1042**	**11,850.1042**	**0.2271**	**0.2173**	**11,922.2220**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	1.20801e+007	2,043.1729	0.1589	0.0329	2,056.7016
Bank (with Drive-Through)	80640	13.6391	1.0600e-003	2.2000e-004	13.7294
City Park	0	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	215455	36.4411	2.8300e-003	5.9000e-004	36.6824
Elementary School	2.54291e+006	430.0970	0.0335	6.9200e-003	432.9449

Fast Food Restaurant with Drive Thru	817156	138.2101	0.0108	2.2200e-003	139.1253
General Heavy Industry	138600	23.4422	1.8200e-003	3.8000e-004	23.5974
General Light Industry	277200	46.8844	3.6500e-003	7.5000e-004	47.1948
General Office Building	1.57225e+007	2,659.2326	0.2068	0.0428	2,676.8405
Government Office Building	61440	10.3917	8.1000e-004	1.7000e-004	10.4605
High School	3.04457e+006	514.9448	0.0401	8.2900e-003	518.3545
High Turnover (Sit Down Restaurant)	803760	135.9444	0.0106	2.1900e-003	136.8445
Industrial Park	5.632e+006	952.5713	0.0741	0.0153	958.8787
Junior College (2yr)	5.7155e+006	966.6941	0.0752	0.0156	973.0950
Junior High School	1.5109e+006	255.5473	0.0199	4.1100e-003	257.2394
Manufacturing	138600	23.4422	1.8200e-003	3.8000e-004	23.5974
Medical Office Building	3.072e+006	519.5843	0.0404	8.3600e-003	523.0247
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	220710	37.3299	2.9000e-003	6.0000e-004	37.5771
Refrigerated Warehouse-No Rail	3.2153e+006	543.8215	0.0423	8.7500e-003	547.4223
Regional Shopping Center	9.84472e+006	1,665.0914	0.1295	0.0268	1,676.1167
Research & Development	1.3608e+006	230.1596	0.0179	3.7000e-003	231.6836
Single Family Housing	4.83825e+007	8,183.2013	0.6364	0.1317	8,237.3858
Supermarket	6.5059e+006	1,100.3788	0.0856	0.0177	1,107.6649
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**20,530.2218**	**1.5967**	**0.3304**	**20,666.1612**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	1.18647e+007	2,006.7389	0.1561	0.0323	2,020.0264
Bank (with Drive-Through)	77680	13.1385	1.0200e-003	2.1000e-004	13.2254
City Park	0	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	200593	33.9273	2.6400e-003	5.5000e-004	34.1520
Elementary School	2.39499e+006	405.0783	0.0315	6.5200e-003	407.7605
Fast Food Restaurant with Drive Thru	773541	130.8333	0.0102	2.1100e-003	131.6996
General Heavy Industry	133513	22.5817	1.7600e-003	3.6000e-004	22.7312
General Light Industry	267025	45.1634	3.5100e-003	7.3000e-004	45.4625
General Office Building	1.47053e+007	2,487.1875	0.1934	0.0400	2,503.6563
Government Office Building	57465	9.7194	7.6000e-004	1.6000e-004	9.7837
High School	2.86747e+006	484.9905	0.0377	7.8000e-003	488.2019
High Turnover (Sit Down Restaurant)	760860	128.6885	0.0100	2.0700e-003	129.5406
Industrial Park	5.26763e+006	890.9425	0.0693	0.0143	896.8418
Junior College (2yr)	5.425e+006	917.5602	0.0714	0.0148	923.6358
Junior High School	1.42301e+006	240.6822	0.0187	3.8700e-003	242.2758
Manufacturing	133513	22.5817	1.7600e-003	3.6000e-004	22.7312
Medical Office Building	2.87325e+006	485.9686	0.0378	7.8200e-003	489.1865
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	205485	34.7548	2.7000e-003	5.6000e-004	34.9849

Refrigerated Warehouse-No Rail	3.20073e+006	541.3563	0.0421	8.7100e-003	544.9409
Regional Shopping Center	9.16561e+006	1,550.2302	0.1206	0.0249	1,560.4949
Research & Development	1.31085e+006	221.7113	0.0172	3.5700e-003	223.1794
Single Family Housing	4.74309e+007	8,022.2439	0.6239	0.1291	8,075.3627
Supermarket	6.35035e+006	1,074.0698	0.0835	0.0173	1,081.1817
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**19,770.1487**	**1.5376**	**0.3181**	**19,901.0555**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	189.3973	0.8467	73.4408	3.8900e-003		0.7079	0.7079		0.7047	0.7047	0.0000	4,411.3090	4,411.3090	0.1973	0.0787	4,439.8382
Unmitigated	189.3973	0.8467	73.4408	3.8900e-003		0.7079	0.7079		0.7047	0.7047	0.0000	4,411.3090	4,411.3090	0.1973	0.0787	4,439.8382

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					

Architectural Coating	18.5272					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	168.2334					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.4336	2.0000e-005	0.0237	0.0000		0.2996	0.2996		0.2964	0.2964	0.0000	4,290.9193	4,290.9193	0.0822	0.0787	4,317.0331
Landscaping	2.2031	0.8467	73.4172	3.8900e-003		0.4083	0.4083		0.4083	0.4083	0.0000	120.3898	120.3898	0.1150	0.0000	122.8051
Total	**189.3973**	**0.8467**	**73.4408**	**3.8900e-003**		**0.7079**	**0.7079**		**0.7047**	**0.7047**	**0.0000**	**4,411.3090**	**4,411.3090**	**0.1973**	**0.0787**	**4,439.8382**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	18.5272					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	168.2334					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.4336	2.0000e-005	0.0237	0.0000		0.2996	0.2996		0.2964	0.2964	0.0000	4,290.9193	4,290.9193	0.0822	0.0787	4,317.0331
Landscaping	2.2031	0.8467	73.4172	3.8900e-003		0.4083	0.4083		0.4083	0.4083	0.0000	120.3898	120.3898	0.1150	0.0000	122.8051
Total	**189.3973**	**0.8467**	**73.4408**	**3.8900e-003**		**0.7079**	**0.7079**		**0.7047**	**0.7047**	**0.0000**	**4,411.3090**	**4,411.3090**	**0.1973**	**0.0787**	**4,439.8382**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			

Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	0 / 0	0.0000	0.0000	0.0000	0.0000
Bank (with Drive-Through)	0 / 0	0.0000	0.0000	0.0000	0.0000
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	0 / 0	0.0000	0.0000	0.0000	0.0000
Elementary School	0 / 0	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant with Drive-Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
General Heavy Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Government Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
High School	0 / 0	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	0 / 0	0.0000	0.0000	0.0000	0.0000
Industrial Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Junior College (2yr)	0 / 0	0.0000	0.0000	0.0000	0.0000

Junior High School	0 / 0	0.0000	0.0000	0.0000	0.0000
Manufacturing	0 / 0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0 / 0	0.0000	0.0000	0.0000	0.0000
Research & Development	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Supermarket	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	0 / 0	0.0000	0.0000	0.0000	0.0000
Bank (with Drive-Through)	0 / 0	0.0000	0.0000	0.0000	0.0000
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	0 / 0	0.0000	0.0000	0.0000	0.0000
Elementary School	0 / 0	0.0000	0.0000	0.0000	0.0000

Fast Food Restaurant with Drive Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
General Heavy Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Government Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
High School	0 / 0	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	0 / 0	0.0000	0.0000	0.0000	0.0000
Industrial Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Junior College (2yr)	0 / 0	0.0000	0.0000	0.0000	0.0000
Junior High School	0 / 0	0.0000	0.0000	0.0000	0.0000
Manufacturing	0 / 0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0 / 0	0.0000	0.0000	0.0000	0.0000
Research & Development	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Supermarket	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Unmitigated	4,055.8345	239.6930	0.0000	9,089.3866
Mitigated	1,013.9586	59.9232	0.0000	2,272.3467

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	1499.6	304.4053	17.9898	0.0000	682.1918
Bank (with Drive-Through)	29.86	6.0613	0.3582	0.0000	13.5838
City Park	10.84	2.2004	0.1300	0.0000	4.9313
Convenience Market with Gas Pumps	61.61	12.5063	0.7391	0.0000	28.0274
Elementary School	725.62	147.2943	8.7048	0.0000	330.0960
Fast Food Restaurant with Drive-Thru	281.06	57.0526	3.3717	0.0000	127.8586
General Heavy Industry	68.2	13.8440	0.8182	0.0000	31.0253

General Light Industry	136.4	27.6880	1.6363	0.0000	62.0505
General Office Building	1427.92	289.8549	17.1299	0.0000	649.5834
Government Office Building	5.58	1.1327	0.0669	0.0000	2.5384
High School	547.5	111.1376	6.5680	0.0000	249.0664
High Turnover (Sit Down Restaurant)	285.6	57.9742	3.4262	0.0000	129.9240
Industrial Park	682	138.4398	8.1816	0.0000	310.2526
Junior College (2yr)	455	92.3609	5.4584	0.0000	206.9867
Junior High School	306.6	62.2370	3.6781	0.0000	139.4772
Manufacturing	68.2	13.8440	0.8182	0.0000	31.0253
Medical Office Building	3240	657.6907	38.8684	0.0000	1,473.9273
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	63.15	12.8189	0.7576	0.0000	28.7279
Refrigerated Warehouse-No Rail	103.4	20.9893	1.2404	0.0000	47.0383
Regional Shopping Center	983.54	199.6497	11.7990	0.0000	447.4279
Research & Development	41.04	8.3308	0.4923	0.0000	18.6698
Single Family Housing	7792.05	1,581.7157	93.4767	0.0000	3,544.7269
Supermarket	958.8	194.6277	11.5022	0.0000	436.1733
Unrefrigerated Warehouse-No Rail	206.8	41.9785	2.4809	0.0000	94.0766
Total		**4,055.8346**	**239.6929**	**0.0000**	**9,089.3866**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	374.9	76.1013	4.4975	0.0000	170.5479
Bank (with Drive-Through)	7.465	1.5153	0.0896	0.0000	3.3960
City Park	2.71	0.5501	0.0325	0.0000	1.2328
Convenience Market with Gas Pumps	15.4025	3.1266	0.1848	0.0000	7.0068
Elementary School	181.405	36.8236	2.1762	0.0000	82.5240
Fast Food Restaurant with Drive-Thru	70.265	14.2632	0.8429	0.0000	31.9647
General Heavy Industry	17.05	3.4610	0.2045	0.0000	7.7563
General Light Industry	34.1	6.9220	0.4091	0.0000	15.5126
General Office Building	356.98	72.4637	4.2825	0.0000	162.3959
Government Office Building	1.395	0.2832	0.0167	0.0000	0.6346
High School	136.875	27.7844	1.6420	0.0000	62.2666
High Turnover (Sit Down Restaurant)	71.4	14.4936	0.8565	0.0000	32.4810
Industrial Park	170.5	34.6100	2.0454	0.0000	77.5632
Junior College (2yr)	113.75	23.0902	1.3646	0.0000	51.7467
Junior High School	76.65	15.5593	0.9195	0.0000	34.8693
Manufacturing	17.05	3.4610	0.2045	0.0000	7.7563
Medical Office Building	810	164.4227	9.7171	0.0000	368.4818
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	15.7875	3.2047	0.1894	0.0000	7.1820
Refrigerated Warehouse-No Rail	25.85	5.2473	0.3101	0.0000	11.7596

Regional Shopping Center	245.885	49.9124	2.9497	0.0000	111.8570
Research & Development	10.26	2.0827	0.1231	0.0000	4.6674
Single Family Housing	1948.01	395.4289	23.3692	0.0000	886.1817
Supermarket	239.7	48.6569	2.8755	0.0000	109.0433
Unrefrigerated Warehouse-No Rail	51.7	10.4946	0.6202	0.0000	23.5192
Total		**1,013.9586**	**59.9232**	**0.0000**	**2,272.3466**

9.0 Operational Offroad

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

10.0 Vegetation

Grapevine Operational Year 2034 - Planning Areas 6A, 2, 1, 3, 4, 6C, 6B Buildout

Kern-San Joaquin County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Bank (with Drive-Through)	32.00	1000sqft	2.95	32,000.00	0
General Office Building	1,535.40	1000sqft	134.37	1,535,400.00	0
Government Office Building	6.00	1000sqft	0.51	6,000.00	0
Medical Office Building	300.00	1000sqft	22.69	300,000.00	0
Pharmacy/Drugstore w/o Drive Thru	21.00	1000sqft	1.85	21,000.00	0
Research & Development	540.00	1000sqft	41.19	540,000.00	0
Elementary School	3,976.00	Student	20.00	332,407.00	0
High School	3,000.00	Student	10.00	397,982.93	0
Junior College (2yr)	350.00	1000sqft	27.25	350,000.00	0
Junior High School	1,680.00	Student	40.00	197,503.63	0
General Heavy Industry	55.00	1000sqft	39.19	55,000.00	0
General Light Industry	110.00	1000sqft	59.38	110,000.00	0
Industrial Park	550.00	1000sqft	211.38	550,000.00	0
Manufacturing	55.00	1000sqft	115.19	55,000.00	0
Refrigerated Warehouse-No Rail	110.00	1000sqft	78.38	110,000.00	0
Unrefrigerated Warehouse-No Rail	220.00	1000sqft	270.75	220,000.00	0
Other Asphalt Surfaces	376.00	Acre	376.00	16,378,560.00	0
City Park	126.00	Acre	126.00	5,488,560.00	0
Fast Food Restaurant with Drive Thru	24.40	1000sqft	3.16	24,400.00	0
High Turnover (Sit Down Restaurant)	24.00	1000sqft	3.11	24,000.00	0
Apartments Low Rise	3,260.00	Dwelling Unit	326.00	3,260,000.00	10432
Single Family Housing	6,645.00	Dwelling Unit	1,700.00	11,961,000.00	21264

Convenience Market with Gas Pumps	20.50	1000sqft	2.67	20,500.00	0
Regional Shopping Center	936.70	1000sqft	119.61	936,700.00	0
Supermarket	170.00	1000sqft	21.89	170,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	7			**Operational Year**	2035
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	372.88	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Planning Areas 6A, 2, 1, 3, 4, 6C, 6B. Kern County, San Joaquin Valley Air Basin. CO2 Intensity adjusted based on PG&E 50% Renewables by 2030.

Land Use - See 1.1 Land Usage. Population based on 3.2 persons per dwelling unit.

Construction Phase - Construction emissions calculated separately.

Vehicle Trips - Modified trip rates to match Trip Generation and VMT factors provided by Fehr & Peers.

Vehicle Emission Factors - Default CalEEMod values.

Woodstoves - No woodstoves and only gas fireplaces assumed

Area Coating - Default CalEEMod VOC content. Modified non-residential interior and exterior area to be coated based on CalEEMod architectural coating surface area equations and adjusted for parking/asphalt surface and park land uses.

Energy Use - Updated Title 24 electricity and natural gas energy intensity to match 2013 Title 24 standards (25% reduction versus 2008 standards).

Water And Wastewater - Water and wastewater consumption and associated emissions calculated separately.

Construction Off-road Equipment Mitigation - Construction emissions calculated separately.

Mobile Land Use Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Project Setting: Suburban Center. Improve Pedestrian Network: Project Site and Connecting Off-Site. Provide Traffic Calming Measures: 100% Streets with Improvement, 100% Intersections with Improvement. Expand Transit Network: 50%.

Mobile Commute Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Voluntary Commute Trip Reduction Program: 50%.

Energy Mitigation - Exceed 2013 Title 24, % Improvement: 25%.

Water Mitigation - Water reductions calculated separately.

Waste Mitigation - Percent Reduction in Waste Disposed: 75%. Waste diversion consistent with Assembly Bill 341 (not mitigation).

Note Regarding Emissions Presented in the Air Quality & Greenhouse Gas Technical Report: Project-generated unmitigated and mitigated emissions in the Technical Report reflect the unmitigated mobile source emissions reported in 2.0 Emissions Summary. No area source mitigation assumed. Unmitigated and mitigated energy source and solid waste emissions reported in the Technical Report as presented in 2.0 Emissions Summary. Water/wastewater and stationary source emissions calculated separately.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	13927527	4027977
tblAreaCoating	Area_Nonresidential_Interior	41782581	8171840
tblConstructionPhase	NumDays	155,000.00	5.00
tblEnergyUse	T24E	352.42	264.31
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	4.43	3.32
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.70	0.53
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	763.80	572.85
tblEnergyUse	T24E	4.88	3.66
tblEnergyUse	T24NG	14,007.38	10,505.53

tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	54.53	40.90
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	5.56	4.17
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	23,622.31	17,716.73
tblEnergyUse	T24NG	8.10	6.08
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblLandUse	LotAcreage	0.73	2.95
tblLandUse	LotAcreage	35.25	134.37
tblLandUse	LotAcreage	0.14	0.51
tblLandUse	LotAcreage	6.89	22.69
tblLandUse	LotAcreage	0.48	1.85
tblLandUse	LotAcreage	12.40	41.19
tblLandUse	LotAcreage	7.63	20.00

tblLandUse	LotAcreage	9.14	10.00
tblLandUse	LotAcreage	8.03	27.25
tblLandUse	LotAcreage	4.53	40.00
tblLandUse	LotAcreage	1.26	39.19
tblLandUse	LotAcreage	2.53	59.38
tblLandUse	LotAcreage	12.63	211.38
tblLandUse	LotAcreage	1.26	115.19
tblLandUse	LotAcreage	2.53	78.38
tblLandUse	LotAcreage	5.05	270.75
tblLandUse	LotAcreage	0.56	3.16
tblLandUse	LotAcreage	0.55	3.11
tblLandUse	LotAcreage	203.75	326.00
tblLandUse	LotAcreage	2,157.47	1,700.00
tblLandUse	LotAcreage	0.47	2.67
tblLandUse	LotAcreage	21.50	119.61
tblLandUse	LotAcreage	3.90	21.89
tblLandUse	Population	9,324.00	10,432.00
tblLandUse	Population	19,005.00	21,264.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	372.88
tblProjectCharacteristics	OperationalYear	2014	2035
tblTripsAndVMT	VendorTripNumber	5,624.00	0.00
tblTripsAndVMT	WorkerTripNumber	16,082.00	0.00
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62

tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
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tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
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tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
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tblVehicleTrips	CNW_TL	7.30	15.62
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tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
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tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62

tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	DV_TP	11.00	0.00
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tblVehicleTrips	DV_TP	19.00	0.00
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tblVehicleTrips	DV_TP	19.00	0.00
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tblVehicleTrips	DV_TP	15.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	30.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00

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tblVehicleTrips	HO_TL	7.50	15.62
tblVehicleTrips	HS_TL	7.30	15.62
tblVehicleTrips	HS_TL	7.30	15.62
tblVehicleTrips	HW_TL	10.80	15.62
tblVehicleTrips	HW_TL	10.80	15.62
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tblVehicleTrips	PB_TP	47.00	0.00
tblVehicleTrips	PB_TP	6.00	0.00
tblVehicleTrips	PB_TP	65.00	0.00
tblVehicleTrips	PB_TP	12.00	0.00
tblVehicleTrips	PB_TP	50.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
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tblVehicleTrips	PB_TP	12.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
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tblVehicleTrips	PB_TP	3.00	0.00
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tblVehicleTrips	PB_TP	3.00	0.00

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tblVehicleTrips	PR_TP	92.00	100.00
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tblVehicleTrips	PR_TP	50.00	100.00
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tblVehicleTrips	PR_TP	37.00	100.00
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tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	63.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	60.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	PR_TP	41.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	54.00	100.00
tblVehicleTrips	PR_TP	82.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	34.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	7.16	5.89
tblVehicleTrips	ST_TR	86.32	5.23
tblVehicleTrips	ST_TR	1.59	1.54
tblVehicleTrips	ST_TR	1,448.33	59.54
tblVehicleTrips	ST_TR	722.03	50.58

tblVehicleTrips	ST_TR	1.50	0.55
tblVehicleTrips	ST_TR	1.32	0.55
tblVehicleTrips	ST_TR	2.37	1.93
tblVehicleTrips	ST_TR	0.61	0.50
tblVehicleTrips	ST_TR	158.37	43.29
tblVehicleTrips	ST_TR	2.49	1.99
tblVehicleTrips	ST_TR	11.23	1.73
tblVehicleTrips	ST_TR	1.49	1.13
tblVehicleTrips	ST_TR	8.96	2.23
tblVehicleTrips	ST_TR	90.06	8.98
tblVehicleTrips	ST_TR	2.59	2.90
tblVehicleTrips	ST_TR	49.97	40.45
tblVehicleTrips	ST_TR	1.90	2.10
tblVehicleTrips	ST_TR	10.08	8.16
tblVehicleTrips	ST_TR	177.59	60.37
tblVehicleTrips	ST_TR	2.59	2.90
tblVehicleTrips	SU_TR	6.07	4.99
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tblVehicleTrips	SU_TR	0.98	0.80
tblVehicleTrips	SU_TR	0.25	0.20
tblVehicleTrips	SU_TR	131.84	36.04
tblVehicleTrips	SU_TR	0.73	0.59
tblVehicleTrips	SU_TR	1.21	0.19
tblVehicleTrips	SU_TR	0.62	0.47
tblVehicleTrips	SU_TR	1.55	0.38

tblVehicleTrips	SU_TR	90.06	8.98
tblVehicleTrips	SU_TR	2.59	2.90
tblVehicleTrips	SU_TR	25.24	20.43
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tblVehicleTrips	WD_TR	845.60	34.76
tblVehicleTrips	WD_TR	1.29	1.05
tblVehicleTrips	WD_TR	496.12	34.76
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tblVehicleTrips	WD_TR	6.97	2.90
tblVehicleTrips	WD_TR	11.01	8.98
tblVehicleTrips	WD_TR	68.93	8.98
tblVehicleTrips	WD_TR	1.71	1.39
tblVehicleTrips	WD_TR	127.15	34.76
tblVehicleTrips	WD_TR	6.96	5.56
tblVehicleTrips	WD_TR	27.49	4.23
tblVehicleTrips	WD_TR	1.62	1.32
tblVehicleTrips	WD_TR	3.82	2.90
tblVehicleTrips	WD_TR	36.13	8.98
tblVehicleTrips	WD_TR	90.06	8.98
tblVehicleTrips	WD_TR	2.59	2.90
tblVehicleTrips	WD_TR	42.94	34.76
tblVehicleTrips	WD_TR	8.11	8.98
tblVehicleTrips	WD_TR	9.57	7.75
tblVehicleTrips	WD_TR	102.24	34.76

tblVehicleTrips	WD_TR	2.59	2.90
tblWater	IndoorWaterUseRate	212,402,123.53	0.00
tblWater	IndoorWaterUseRate	1,267,933.40	0.00
tblWater	IndoorWaterUseRate	1,518,486.69	0.00
tblWater	IndoorWaterUseRate	9,638,778.24	0.00
tblWater	IndoorWaterUseRate	7,406,222.58	0.00
tblWater	IndoorWaterUseRate	12,718,750.00	0.00
tblWater	IndoorWaterUseRate	25,437,500.00	0.00
tblWater	IndoorWaterUseRate	272,892,396.67	0.00
tblWater	IndoorWaterUseRate	1,191,958.12	0.00
tblWater	IndoorWaterUseRate	13,214,880.00	0.00
tblWater	IndoorWaterUseRate	7,284,809.10	0.00
tblWater	IndoorWaterUseRate	127,187,500.00	0.00
tblWater	IndoorWaterUseRate	17,167,161.38	0.00
tblWater	IndoorWaterUseRate	4,072,723.20	0.00
tblWater	IndoorWaterUseRate	12,718,750.00	0.00
tblWater	IndoorWaterUseRate	37,644,161.27	0.00
tblWater	IndoorWaterUseRate	1,479,397.99	0.00
tblWater	IndoorWaterUseRate	25,437,500.00	0.00
tblWater	IndoorWaterUseRate	69,383,730.87	0.00
tblWater	IndoorWaterUseRate	265,514,731.49	0.00
tblWater	IndoorWaterUseRate	432,948,500.25	0.00
tblWater	IndoorWaterUseRate	20,955,596.53	0.00
tblWater	IndoorWaterUseRate	50,875,000.00	0.00
tblWater	OutdoorWaterUseRate	133,905,686.57	0.00
tblWater	OutdoorWaterUseRate	777,120.47	0.00
tblWater	OutdoorWaterUseRate	150,126,650.06	0.00
tblWater	OutdoorWaterUseRate	930,685.39	0.00
tblWater	OutdoorWaterUseRate	24,785,429.76	0.00
tblWater	OutdoorWaterUseRate	472,737.61	0.00

tblWater	OutdoorWaterUseRate	167,256,630.22	0.00
tblWater	OutdoorWaterUseRate	730,554.97	0.00
tblWater	OutdoorWaterUseRate	33,981,120.00	0.00
tblWater	OutdoorWaterUseRate	464,987.81	0.00
tblWater	OutdoorWaterUseRate	26,851,201.13	0.00
tblWater	OutdoorWaterUseRate	10,472,716.80	0.00
tblWater	OutdoorWaterUseRate	7,170,316.43	0.00
tblWater	OutdoorWaterUseRate	906,727.80	0.00
tblWater	OutdoorWaterUseRate	42,525,512.47	0.00
tblWater	OutdoorWaterUseRate	272,945,793.64	0.00
tblWater	OutdoorWaterUseRate	648,111.23	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1,058.4000	9.4082	816.3229	0.0433		11.8432	11.8432		11.7663	11.7663	0.0000	116,838.6398	116,838.6398	3.6199	2.1150	117,570.3096
Energy	8.1945	71.2650	38.8859	0.4470		5.6617	5.6617		5.6617	5.6617		89,394.5201	89,394.5201	1.7134	1.6389	89,938.5602
Mobile	718.5175	3,194.5528	10,349.7452	39.5674	2,022.1220	88.9354	2,111.0574	543.8502	81.9024	625.7526		3,157,926.1668	3,157,926.1668	55.4325		3,159,090.2493
Total	**1,785.1120**	**3,275.2259**	**11,204.9541**	**40.0576**	**2,022.1220**	**106.4403**	**2,128.5622**	**543.8502**	**99.3303**	**643.1805**	**0.0000**	**3,364,159.3267**	**3,364,159.3267**	**60.7658**	**3.7539**	**3,366,599.1192**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1,058.4000	9.4082	816.3229	0.0433		11.8432	11.8432		11.7663	11.7663	0.0000	116,838.6398	116,838.6398	3.6199	2.1150	117,570.3096
Energy	6.5611	57.0280	30.9028	0.3579		4.5331	4.5331		4.5331	4.5331		71,575.3641	71,575.3641	1.3719	1.3122	72,010.9599
Mobile	697.1360	3,049.2554	10,087.0249	37.4642	1,912.5662	84.2345	1,996.8007	514.3851	77.5738	591.9589		2,989,824.9699	2,989,824.9699	52.6072		2,990,929.7208
Total	**1,762.0971**	**3,115.6916**	**10,934.2506**	**37.8654**	**1,912.5662**	**100.6108**	**2,013.1770**	**514.3851**	**93.8731**	**608.2582**	**0.0000**	**3,178,238.9739**	**3,178,238.9739**	**57.5989**	**3.4272**	**3,180,510.9903**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.29**	**4.87**	**2.42**	**5.47**	**5.42**	**5.48**	**5.42**	**5.42**	**5.49**	**5.43**	**0.00**	**5.53**	**5.53**	**5.21**	**8.70**	**5.53**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

Provide Traffic Calming Measures

Expand Transit Network

Implement Trip Reduction Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	697.1360	3,049.2554	10,087.0249	37.4642	1,912.5662	84.2345	1,996.8007	514.3851	77.5738	591.9589		2,989,824.9699	2,989,824.9699	52.6072		2,990,929.7208
Unmitigated	718.5175	3,194.5528	10,349.7452	39.5674	2,022.1220	88.9354	2,111.0574	543.8502	81.9024	625.7526		3,157,926.1668	3,157,926.1668	55.4325		3,159,090.2493

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	17,636.60	19,201.40	16267.40	100,434,938	94,993,511
Bank (with Drive-Through)	287.36	167.36	62.08	1,353,387	1,280,062
City Park	194.04	194.04	194.04	1,103,249	1,043,477
Convenience Market with Gas Pumps	712.58	1,220.57	996.10	4,694,394	4,440,058
Elementary School	4,174.80	0.00	0.00	16,954,698	16,036,116
Fast Food Restaurant with Drive Thru	848.14	1,234.15	927.69	5,200,415	4,918,664
General Heavy Industry	159.50	30.25	11.00	681,266	644,356
General Light Industry	319.00	60.50	30.80	1,369,680	1,295,473
General Office Building	13,787.89	2,963.32	1228.32	59,400,006	56,181,796
Government Office Building	53.88	0.00	0.00	218,817	206,962
High School	4,170.00	1,500.00	600.00	18,640,908	17,630,969
High Turnover (Sit Down Restaurant)	834.24	1,038.96	864.96	4,934,455	4,667,113

Industrial Park	3,058.00	1,094.50	324.50	13,571,718	12,836,421
Junior College (2yr)	1,480.50	605.50	66.50	6,558,432	6,203,105
Junior High School	2,217.60	0.00	0.00	9,006,117	8,518,178
Manufacturing	159.50	62.15	25.85	719,239	680,271
Medical Office Building	2,694.00	669.00	114.00	11,576,857	10,949,639
Other Asphalt Surfaces	0.00	0.00	0.00		
Pharmacy/Drugstore w/o Drive Thru	188.58	188.58	188.58	1,072,206	1,014,115
Refrigerated Warehouse-No Rail	319.00	319.00	319.00	1,813,732	1,715,466
Regional Shopping Center	32,559.69	37,889.52	19136.78	178,550,460	168,876,842
Research & Development	4,849.20	1,134.00	664.20	21,154,141	20,008,039
Single Family Housing	51,498.75	54,223.20	47179.50	291,510,053	275,716,439
Supermarket	5,909.20	10,262.90	9618.60	40,146,993	37,971,884
Unrefrigerated Warehouse-No Rail	638.00	638.00	638.00	3,627,464	3,430,933
Total	148,750.06	134,696.90	99,457.89	794,293,625	751,259,890

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Bank (with Drive-Through)	15.62	15.62	15.62	6.60	74.40	19.00	100	0	0
City Park	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Convenience Market with Gas	15.62	15.62	15.62	0.80	80.20	19.00	100	0	0
Elementary School	15.62	15.62	15.62	65.00	30.00	5.00	100	0	0
Fast Food Restaurant with Drive Th	15.62	15.62	15.62	2.20	78.80	19.00	100	0	0
General Heavy Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Light Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Office Building	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Government Office Building	15.62	15.62	15.62	33.00	62.00	5.00	100	0	0
High School	15.62	15.62	15.62	77.80	17.20	5.00	100	0	0
High Turnover (Sit Down Rest	15.62	15.62	15.62	8.50	72.50	19.00	100	0	0
Industrial Park	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Junior College (2yr)	15.62	15.62	15.62	6.40	88.60	5.00	100	0	0
Junior High School	15.62	15.62	15.62	72.80	22.20	5.00	100	0	0
Manufacturing	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Medical Office Building	15.62	15.62	15.62	29.60	51.40	19.00	100	0	0
Other Asphalt Surfaces	15.62	15.62	15.62	0.00	0.00	0.00	100	0	0
Pharmacy/Drugstore w/o Drive Th	15.62	15.62	15.62	7.40	73.60	19.00	100	0	0
Refrigerated Warehouse-No Rail	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0
Regional Shopping Center	15.62	15.62	15.62	16.30	64.70	19.00	100	0	0

Research & Development	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Single Family Housing	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Supermarket	15.62	15.62	15.62	6.50	74.50	19.00	100	0	0
Unrefrigerated Warehouse-No	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.355759	0.055439	0.135927	0.179388	0.056975	0.010375	0.023432	0.169902	0.001468	0.001841	0.006095	0.000886	0.002512

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	6.5611	57.0280	30.9028	0.3579		4.5331	4.5331		4.5331	4.5331		71,575.3641	71,575.3641	1.3719	1.3122	72,010.9599
NaturalGas Unmitigated	8.1945	71.2650	38.8859	0.4470		5.6617	5.6617		5.6617	5.6617		89,394.5201	89,394.5201	1.7134	1.6389	89,938.5602

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Land Use	kBTU/yr	lb/day										lb/day				
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	253.863	2.7400e-003	0.0249	0.0209	1.5000e-004		1.8900e-003	1.8900e-003		1.8900e-003	1.8900e-003		29.8662	29.8662	5.7000e-004	5.5000e-004	30.0480
Elementary School	7786.52	0.0840	0.7634	0.6412	4.5800e-003		0.0580	0.0580		0.0580	0.0580		916.0612	916.0612	0.0176	0.0168	921.6362
Fast Food Restaurant with Drive Thru	6375.42	0.0688	0.6250	0.5250	3.7500e-003		0.0475	0.0475		0.0475	0.0475		750.0493	750.0493	0.0144	0.0138	754.6140
General Heavy Industry	2001.1	0.0216	0.1962	0.1648	1.1800e-003		0.0149	0.0149		0.0149	0.0149		235.4231	235.4231	4.5100e-003	4.3200e-003	236.8558
General Light Industry	4002.19	0.0432	0.3924	0.3296	2.3500e-003		0.0298	0.0298		0.0298	0.0298		470.8461	470.8461	9.0200e-003	8.6300e-003	473.7116
General Office Building	58008.7	0.6256	5.6871	4.7772	0.0341		0.4322	0.4322		0.4322	0.4322		6,824.5499	6,824.5499	0.1308	0.1251	6,866.0830
Government Office Building	226.685	2.4400e-003	0.0222	0.0187	1.3000e-004		1.6900e-003	1.6900e-003		1.6900e-003	1.6900e-003		26.6688	26.6688	5.1000e-004	4.9000e-004	26.8311
High School	9322.61	0.1005	0.9140	0.7677	5.4800e-003		0.0695	0.0695		0.0695	0.0695		1,096.7781	1,096.7781	0.0210	0.0201	1,103.4529
High Turnover (Sit Down Restaurant)	6270.9	0.0676	0.6148	0.5164	3.6900e-003		0.0467	0.0467		0.0467	0.0467		737.7534	737.7534	0.0141	0.0135	742.2433
Industrial Park	20779.5	0.2241	2.0372	1.7113	0.0122		0.1548	0.1548		0.1548	0.1548		2,444.6414	2,444.6414	0.0469	0.0448	2,459.5191
Junior College (2yr)	39545.2	0.4265	3.8770	3.2567	0.0233		0.2947	0.2947		0.2947	0.2947		4,652.3771	4,652.3771	0.0892	0.0853	4,680.6907
Junior High School	4626.45	0.0499	0.4536	0.3810	2.7200e-003		0.0345	0.0345		0.0345	0.0345		544.2888	544.2888	0.0104	9.9800e-003	547.6013
Manufacturing	2001.1	0.0216	0.1962	0.1648	1.1800e-003		0.0149	0.0149		0.0149	0.0149		235.4231	235.4231	4.5100e-003	4.3200e-003	236.8558
Apartments Low Rise	116141	1.2525	10.7032	4.5546	0.0683		0.8654	0.8654		0.8654	0.8654		13,663.6609	13,663.6609	0.2619	0.2505	13,746.8156
Bank (with Drive-Through)	1164.27	0.0126	0.1141	0.0959	6.8000e-004		8.6700e-003	8.6700e-003		8.6700e-003	8.6700e-003		136.9734	136.9734	2.6300e-003	2.5100e-003	137.8070
Medical Office Building	11334.2	0.1222	1.1112	0.9334	6.6700e-003		0.0845	0.0845		0.0845	0.0845		1,333.4408	1,333.4408	0.0256	0.0245	1,341.5559
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	260.055	2.8000e-003	0.0255	0.0214	1.5000e-004		1.9400e-003	1.9400e-003		1.9400e-003	1.9400e-003		30.5947	30.5947	5.9000e-004	5.6000e-004	30.7809
Refrigerated Warehouse-No Rail	2190.96	0.0236	0.2148	0.1804	1.2900e-003		0.0163	0.0163		0.0163	0.0163		257.7599	257.7599	4.9400e-003	4.7300e-003	259.3286
Regional Shopping Center	11599.7	0.1251	1.1372	0.9553	6.8200e-003		0.0864	0.0864		0.0864	0.0864		1,364.6685	1,364.6685	0.0262	0.0250	1,372.9736

Research & Development	19647.1	0.2119	1.9262	1.6180	0.0116		0.1464	0.1464		0.1464	0.1464		2,311.4263	2,311.4263	0.0443	0.0424	2,325.4932
Single Family Housing	433042	4.6701	39.9078	16.9820	0.2547		3.2266	3.2266		3.2266	3.2266		50,946.0638	50,946.0638	0.9765	0.9340	51,256.1130
Supermarket	3274.25	0.0353	0.3210	0.2696	1.9300e-003		0.0244	0.0244		0.0244	0.0244		385.2055	385.2055	7.3800e-003	7.0600e-003	387.5498
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**8.1945**	**71.2649**	**38.8859**	**0.4470**		**5.6616**	**5.6616**		**5.6616**	**5.6616**		**89,394.5201**	**89,394.5201**	**1.7134**	**1.6389**	**89,938.5603**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	0.19138	2.0600e-003	0.0188	0.0158	1.1000e-004		1.4300e-003	1.4300e-003		1.4300e-003	1.4300e-003		22.5153	22.5153	4.3000e-004	4.1000e-004	22.6523
Elementary School	5.94462	0.0641	0.5828	0.4896	3.5000e-003		0.0443	0.0443		0.0443	0.0443		699.3672	699.3672	0.0134	0.0128	703.6234
Fast Food Restaurant with Drive Thru	6.14212	0.0662	0.6022	0.5058	3.6100e-003		0.0458	0.0458		0.0458	0.0458		722.6018	722.6018	0.0139	0.0133	726.9994
General Heavy Industry	1.50534	0.0162	0.1476	0.1240	8.9000e-004		0.0112	0.0112		0.0112	0.0112		177.0991	177.0991	3.3900e-003	3.2500e-003	178.1769
General Light Industry	3.01068	0.0325	0.2952	0.2479	1.7700e-003		0.0224	0.0224		0.0224	0.0224		354.1982	354.1982	6.7900e-003	6.4900e-003	356.3538
General Office Building	44.6423	0.4814	4.3767	3.6764	0.0263		0.3326	0.3326		0.3326	0.3326		5,252.0330	5,252.0330	0.1007	0.0963	5,283.9960
Government Office Building	0.174452	1.8800e-003	0.0171	0.0144	1.0000e-004		1.3000e-003	1.3000e-003		1.3000e-003	1.3000e-003		20.5238	20.5238	3.9000e-004	3.8000e-004	20.6487
High School	7.11735	0.0768	0.6978	0.5861	4.1900e-003		0.0530	0.0530		0.0530	0.0530		837.3356	837.3356	0.0161	0.0154	842.4314
High Turnover (Sit Down Restaurant)	6.04142	0.0652	0.5923	0.4975	3.5500e-003		0.0450	0.0450		0.0450	0.0450		710.7558	710.7558	0.0136	0.0130	715.0814
Industrial Park	15.9914	0.1725	1.5678	1.3169	9.4100e-003		0.1192	0.1192		0.1192	0.1192		1,881.3457	1,881.3457	0.0361	0.0345	1,892.7953
Junior College (2yr)	29.7404	0.3207	2.9157	2.4492	0.0175		0.2216	0.2216		0.2216	0.2216		3,498.8719	3,498.8719	0.0671	0.0642	3,520.1654

Junior High School	3.53207	0.0381	0.3463	0.2909	2.0800e-003		0.0263	0.0263		0.0263	0.0263		415.5375	415.5375	7.9600e-003	7.6200e-003	418.0663
Manufacturing	1.50534	0.0162	0.1476	0.1240	8.9000e-004		0.0112	0.0112		0.0112	0.0112		177.0991	177.0991	3.3900e-003	3.2500e-003	178.1769
Medical Office Building	8.7226	0.0941	0.8552	0.7183	5.1300e-003		0.0650	0.0650		0.0650	0.0650		1,026.1886	1,026.1886	0.0197	0.0188	1,032.4338
Apartments Low Rise	92.6836	0.9995	8.5414	3.6347	0.0545		0.6906	0.6906		0.6906	0.6906		10,903.9487	10,903.9487	0.2090	0.1999	10,970.3083
Bank (with Drive-Through)	0.875836	9.4500e-003	0.0859	0.0721	5.2000e-004		6.5300e-003	6.5300e-003		6.5300e-003	6.5300e-003		103.0395	103.0395	1.9700e-003	1.8900e-003	103.6666
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	0.196048	2.1100e-003	0.0192	0.0162	1.2000e-004		1.4600e-003	1.4600e-003		1.4600e-003	1.4600e-003		23.0645	23.0645	4.4000e-004	4.2000e-004	23.2048
Refrigerated Warehouse-No Rail	1.87678	0.0202	0.1840	0.1546	1.1000e-003		0.0140	0.0140		0.0140	0.0140		220.7977	220.7977	4.2300e-003	4.0500e-003	222.1415
Regional Shopping Center	8.74467	0.0943	0.8573	0.7202	5.1400e-003		0.0652	0.0652		0.0652	0.0652		1,028.7849	1,028.7849	0.0197	0.0189	1,035.0460
Research & Development	14.7797	0.1594	1.4490	1.2172	8.6900e-003		0.1101	0.1101		0.1101	0.1101		1,738.7913	1,738.7913	0.0333	0.0319	1,749.3733
Single Family Housing	352.406	3.8005	32.4767	13.8199	0.2073		2.6258	2.6258		2.6258	2.6258		41,459.5472	41,459.5472	0.7946	0.7601	41,711.8631
Supermarket	2.5663	0.0277	0.2516	0.2113	1.5100e-003		0.0191	0.0191		0.0191	0.0191		301.9178	301.9178	5.7900e-003	5.5400e-003	303.7552
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**6.5611**	**57.0280**	**30.9028**	**0.3579**		**4.5331**	**4.5331**		**4.5331**	**4.5331**		**71,575.3641**	**71,575.3641**	**1.3718**	**1.3122**	**72,010.9599**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1,058.4000	9.4082	816.3229	0.0433		11.8432	11.8432		11.7663	11.7663	0.0000	116,838.6398	116,838.6398	3.6199	2.1150	117,570.3096
Unmitigated	1,058.4000	9.4082	816.3229	0.0433		11.8432	11.8432		11.7663	11.7663	0.0000	116,838.6398	116,838.6398	3.6199	2.1150	117,570.3096

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	101.5189					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	921.8267					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	10.5750	4.8000e-004	0.5768	0.0000		7.3064	7.3064		7.2295	7.2295	0.0000	115,364.1177	115,364.1177	2.2112	2.1150	116,066.2044
Landscaping	24.4794	9.4077	815.7461	0.0433		4.5368	4.5368		4.5368	4.5368		1,474.5222	1,474.5222	1.4087		1,504.1052
Total	**1,058.4000**	**9.4082**	**816.3229**	**0.0433**		**11.8432**	**11.8432**		**11.7663**	**11.7663**	**0.0000**	**116,838.6398**	**116,838.6398**	**3.6199**	**2.1150**	**117,570.3096**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	101.5189					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	921.8267					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	10.5750	4.8000e-004	0.5768	0.0000		7.3064	7.3064		7.2295	7.2295	0.0000	115,364.1177	115,364.1177	2.2112	2.1150	116,066.2044
Landscaping	24.4794	9.4077	815.7461	0.0433		4.5368	4.5368		4.5368	4.5368		1,474.5222	1,474.5222	1.4087		1,504.1052
Total	**1,058.4000**	**9.4082**	**816.3229**	**0.0433**		**11.8432**	**11.8432**		**11.7663**	**11.7663**	**0.0000**	**116,838.6398**	**116,838.6398**	**3.6199**	**2.1150**	**117,570.3096**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Vegetation

Grapevine Operational Year 2034 - Planning Areas 6A, 2, 1, 3, 4, 6C, 6B Buildout

Kern-San Joaquin County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Bank (with Drive-Through)	32.00	1000sqft	2.95	32,000.00	0
General Office Building	1,535.40	1000sqft	134.37	1,535,400.00	0
Government Office Building	6.00	1000sqft	0.51	6,000.00	0
Medical Office Building	300.00	1000sqft	22.69	300,000.00	0
Pharmacy/Drugstore w/o Drive Thru	21.00	1000sqft	1.85	21,000.00	0
Research & Development	540.00	1000sqft	41.19	540,000.00	0
Elementary School	3,976.00	Student	20.00	332,407.00	0
High School	3,000.00	Student	10.00	397,982.93	0
Junior College (2yr)	350.00	1000sqft	27.25	350,000.00	0
Junior High School	1,680.00	Student	40.00	197,503.63	0
General Heavy Industry	55.00	1000sqft	39.19	55,000.00	0
General Light Industry	110.00	1000sqft	59.38	110,000.00	0
Industrial Park	550.00	1000sqft	211.38	550,000.00	0
Manufacturing	55.00	1000sqft	115.19	55,000.00	0
Refrigerated Warehouse-No Rail	110.00	1000sqft	78.38	110,000.00	0
Unrefrigerated Warehouse-No Rail	220.00	1000sqft	270.75	220,000.00	0
Other Asphalt Surfaces	376.00	Acre	376.00	16,378,560.00	0
City Park	126.00	Acre	126.00	5,488,560.00	0
Fast Food Restaurant with Drive Thru	24.40	1000sqft	3.16	24,400.00	0
High Turnover (Sit Down Restaurant)	24.00	1000sqft	3.11	24,000.00	0
Apartments Low Rise	3,260.00	Dwelling Unit	326.00	3,260,000.00	10432
Single Family Housing	6,645.00	Dwelling Unit	1,700.00	11,961,000.00	21264

Convenience Market with Gas Pumps	20.50	1000sqft	2.67	20,500.00	0
Regional Shopping Center	936.70	1000sqft	119.61	936,700.00	0
Supermarket	170.00	1000sqft	21.89	170,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	7			**Operational Year**	2035
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	372.88	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Planning Areas 6A, 2, 1, 3, 4, 6C, 6B. Kern County, San Joaquin Valley Air Basin. CO2 Intensity adjusted based on PG&E 50% Renewables by 2030.

Land Use - See 1.1 Land Usage. Population based on 3.2 persons per dwelling unit.

Construction Phase - Construction emissions calculated separately.

Vehicle Trips - Modified trip rates to match Trip Generation and VMT factors provided by Fehr & Peers.

Vehicle Emission Factors - Default CalEEMod values.

Woodstoves - No woodstoves and only gas fireplaces assumed

Area Coating - Default CalEEMod VOC content. Modified non-residential interior and exterior area to be coated based on CalEEMod architectural coating surface area equations and adjusted for parking/asphalt surface and park land uses.

Energy Use - Updated Title 24 electricity and natural gas energy intensity to match 2013 Title 24 standards (25% reduction versus 2008 standards).

Water And Wastewater - Water and wastewater consumption and associated emissions calculated separately.

Construction Off-road Equipment Mitigation - Construction emissions calculated separately.

Mobile Land Use Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Project Setting: Suburban Center. Improve Pedestrian Network: Project Site and Connecting Off-Site. Provide Traffic Calming Measures: 100% Streets with Improvement, 100% Intersections with Improvement. Expand Transit Network: 50%.

Mobile Commute Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Voluntary Commute Trip Reduction Program: 50%.

Energy Mitigation - Exceed 2013 Title 24, % Improvement: 25%.

Water Mitigation - Water reductions calculated separately.

Waste Mitigation - Percent Reduction in Waste Disposed: 75%. Waste diversion consistent with Assembly Bill 341 (not mitigation).

Note Regarding Emissions Presented in the Air Quality & Greenhouse Gas Technical Report: Project-generated unmitigated and mitigated emissions in the Technical Report reflect the unmitigated mobile source emissions reported in 2.0 Emissions Summary. No area source mitigation assumed. Unmitigated and mitigated energy source and solid waste emissions reported in the Technical Report as presented in 2.0 Emissions Summary. Water/wastewater and stationary source emissions calculated separately.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	13927527	4027977
tblAreaCoating	Area_Nonresidential_Interior	41782581	8171840
tblConstructionPhase	NumDays	155,000.00	5.00
tblEnergyUse	T24E	352.42	264.31
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	4.43	3.32
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.70	0.53
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	763.80	572.85
tblEnergyUse	T24E	4.88	3.66
tblEnergyUse	T24NG	14,007.38	10,505.53

tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	54.53	40.90
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	5.56	4.17
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	23,622.31	17,716.73
tblEnergyUse	T24NG	8.10	6.08
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblLandUse	LotAcreage	0.73	2.95
tblLandUse	LotAcreage	35.25	134.37
tblLandUse	LotAcreage	0.14	0.51
tblLandUse	LotAcreage	6.89	22.69
tblLandUse	LotAcreage	0.48	1.85
tblLandUse	LotAcreage	12.40	41.19
tblLandUse	LotAcreage	7.63	20.00

tblLandUse	LotAcreage	9.14	10.00
tblLandUse	LotAcreage	8.03	27.25
tblLandUse	LotAcreage	4.53	40.00
tblLandUse	LotAcreage	1.26	39.19
tblLandUse	LotAcreage	2.53	59.38
tblLandUse	LotAcreage	12.63	211.38
tblLandUse	LotAcreage	1.26	115.19
tblLandUse	LotAcreage	2.53	78.38
tblLandUse	LotAcreage	5.05	270.75
tblLandUse	LotAcreage	0.56	3.16
tblLandUse	LotAcreage	0.55	3.11
tblLandUse	LotAcreage	203.75	326.00
tblLandUse	LotAcreage	2,157.47	1,700.00
tblLandUse	LotAcreage	0.47	2.67
tblLandUse	LotAcreage	21.50	119.61
tblLandUse	LotAcreage	3.90	21.89
tblLandUse	Population	9,324.00	10,432.00
tblLandUse	Population	19,005.00	21,264.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	372.88
tblProjectCharacteristics	OperationalYear	2014	2035
tblTripsAndVMT	VendorTripNumber	5,624.00	0.00
tblTripsAndVMT	WorkerTripNumber	16,082.00	0.00
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62

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tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
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tblVehicleTrips	CC_TL	7.30	15.62
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tblVehicleTrips	CC_TL	7.30	15.62
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tblVehicleTrips	CC_TL	7.30	15.62
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tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
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tblVehicleTrips	CNW_TL	7.30	15.62
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tblVehicleTrips	CW_TL	9.50	15.62
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tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62
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tblVehicleTrips	DV_TP	30.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00

tblVehicleTrips	HO_TL	7.50	15.62
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tblVehicleTrips	HS_TL	7.30	15.62
tblVehicleTrips	HS_TL	7.30	15.62
tblVehicleTrips	HW_TL	10.80	15.62
tblVehicleTrips	HW_TL	10.80	15.62
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	47.00	0.00
tblVehicleTrips	PB_TP	6.00	0.00
tblVehicleTrips	PB_TP	65.00	0.00
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tblVehicleTrips	PB_TP	1.00	0.00
tblVehicleTrips	PB_TP	12.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
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tblVehicleTrips	PB_TP	3.00	0.00
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tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	36.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00

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tblVehicleTrips	PR_TP	92.00	100.00
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tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	60.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	PR_TP	41.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	54.00	100.00
tblVehicleTrips	PR_TP	82.00	100.00
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tblVehicleTrips	ST_TR	7.16	5.89
tblVehicleTrips	ST_TR	86.32	5.23
tblVehicleTrips	ST_TR	1.59	1.54
tblVehicleTrips	ST_TR	1,448.33	59.54
tblVehicleTrips	ST_TR	722.03	50.58

tblVehicleTrips	ST_TR	1.50	0.55
tblVehicleTrips	ST_TR	1.32	0.55
tblVehicleTrips	ST_TR	2.37	1.93
tblVehicleTrips	ST_TR	0.61	0.50
tblVehicleTrips	ST_TR	158.37	43.29
tblVehicleTrips	ST_TR	2.49	1.99
tblVehicleTrips	ST_TR	11.23	1.73
tblVehicleTrips	ST_TR	1.49	1.13
tblVehicleTrips	ST_TR	8.96	2.23
tblVehicleTrips	ST_TR	90.06	8.98
tblVehicleTrips	ST_TR	2.59	2.90
tblVehicleTrips	ST_TR	49.97	40.45
tblVehicleTrips	ST_TR	1.90	2.10
tblVehicleTrips	ST_TR	10.08	8.16
tblVehicleTrips	ST_TR	177.59	60.37
tblVehicleTrips	ST_TR	2.59	2.90
tblVehicleTrips	SU_TR	6.07	4.99
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tblVehicleTrips	SU_TR	1,182.08	48.59
tblVehicleTrips	SU_TR	542.72	38.02
tblVehicleTrips	SU_TR	1.50	0.20
tblVehicleTrips	SU_TR	0.68	0.28
tblVehicleTrips	SU_TR	0.98	0.80
tblVehicleTrips	SU_TR	0.25	0.20
tblVehicleTrips	SU_TR	131.84	36.04
tblVehicleTrips	SU_TR	0.73	0.59
tblVehicleTrips	SU_TR	1.21	0.19
tblVehicleTrips	SU_TR	0.62	0.47
tblVehicleTrips	SU_TR	1.55	0.38

tblVehicleTrips	SU_TR	90.06	8.98
tblVehicleTrips	SU_TR	2.59	2.90
tblVehicleTrips	SU_TR	25.24	20.43
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tblVehicleTrips	SU_TR	8.77	7.10
tblVehicleTrips	SU_TR	166.44	56.58
tblVehicleTrips	SU_TR	2.59	2.90
tblVehicleTrips	WD_TR	6.59	5.41
tblVehicleTrips	WD_TR	148.15	8.98
tblVehicleTrips	WD_TR	1.59	1.54
tblVehicleTrips	WD_TR	845.60	34.76
tblVehicleTrips	WD_TR	1.29	1.05
tblVehicleTrips	WD_TR	496.12	34.76
tblVehicleTrips	WD_TR	1.50	2.90
tblVehicleTrips	WD_TR	6.97	2.90
tblVehicleTrips	WD_TR	11.01	8.98
tblVehicleTrips	WD_TR	68.93	8.98
tblVehicleTrips	WD_TR	1.71	1.39
tblVehicleTrips	WD_TR	127.15	34.76
tblVehicleTrips	WD_TR	6.96	5.56
tblVehicleTrips	WD_TR	27.49	4.23
tblVehicleTrips	WD_TR	1.62	1.32
tblVehicleTrips	WD_TR	3.82	2.90
tblVehicleTrips	WD_TR	36.13	8.98
tblVehicleTrips	WD_TR	90.06	8.98
tblVehicleTrips	WD_TR	2.59	2.90
tblVehicleTrips	WD_TR	42.94	34.76
tblVehicleTrips	WD_TR	8.11	8.98
tblVehicleTrips	WD_TR	9.57	7.75
tblVehicleTrips	WD_TR	102.24	34.76

tblVehicleTrips	WD_TR	2.59	2.90
tblWater	IndoorWaterUseRate	212,402,123.53	0.00
tblWater	IndoorWaterUseRate	1,267,933.40	0.00
tblWater	IndoorWaterUseRate	1,518,486.69	0.00
tblWater	IndoorWaterUseRate	9,638,778.24	0.00
tblWater	IndoorWaterUseRate	7,406,222.58	0.00
tblWater	IndoorWaterUseRate	12,718,750.00	0.00
tblWater	IndoorWaterUseRate	25,437,500.00	0.00
tblWater	IndoorWaterUseRate	272,892,396.67	0.00
tblWater	IndoorWaterUseRate	1,191,958.12	0.00
tblWater	IndoorWaterUseRate	13,214,880.00	0.00
tblWater	IndoorWaterUseRate	7,284,809.10	0.00
tblWater	IndoorWaterUseRate	127,187,500.00	0.00
tblWater	IndoorWaterUseRate	17,167,161.38	0.00
tblWater	IndoorWaterUseRate	4,072,723.20	0.00
tblWater	IndoorWaterUseRate	12,718,750.00	0.00
tblWater	IndoorWaterUseRate	37,644,161.27	0.00
tblWater	IndoorWaterUseRate	1,479,397.99	0.00
tblWater	IndoorWaterUseRate	25,437,500.00	0.00
tblWater	IndoorWaterUseRate	69,383,730.87	0.00
tblWater	IndoorWaterUseRate	265,514,731.49	0.00
tblWater	IndoorWaterUseRate	432,948,500.25	0.00
tblWater	IndoorWaterUseRate	20,955,596.53	0.00
tblWater	IndoorWaterUseRate	50,875,000.00	0.00
tblWater	OutdoorWaterUseRate	133,905,686.57	0.00
tblWater	OutdoorWaterUseRate	777,120.47	0.00
tblWater	OutdoorWaterUseRate	150,126,650.06	0.00
tblWater	OutdoorWaterUseRate	930,685.39	0.00
tblWater	OutdoorWaterUseRate	24,785,429.76	0.00
tblWater	OutdoorWaterUseRate	472,737.61	0.00

tblWater	OutdoorWaterUseRate	167,256,630.22	0.00
tblWater	OutdoorWaterUseRate	730,554.97	0.00
tblWater	OutdoorWaterUseRate	33,981,120.00	0.00
tblWater	OutdoorWaterUseRate	464,987.81	0.00
tblWater	OutdoorWaterUseRate	26,851,201.13	0.00
tblWater	OutdoorWaterUseRate	10,472,716.80	0.00
tblWater	OutdoorWaterUseRate	7,170,316.43	0.00
tblWater	OutdoorWaterUseRate	906,727.80	0.00
tblWater	OutdoorWaterUseRate	42,525,512.47	0.00
tblWater	OutdoorWaterUseRate	272,945,793.64	0.00
tblWater	OutdoorWaterUseRate	648,111.23	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1,058.4000	9.4082	816.3229	0.0433		11.8432	11.8432		11.7663	11.7663	0.0000	116,838.6398	116,838.6398	3.6199	2.1150	117,570.3096
Energy	8.1945	71.2650	38.8859	0.4470		5.6617	5.6617		5.6617	5.6617		89,394.5201	89,394.5201	1.7134	1.6389	89,938.5602
Mobile	730.9391	2,964.2505	8,932.2831	42.4854	2,022.1220	88.7027	2,110.8247	543.8502	81.6883	625.5385		3,349,709.1381	3,349,709.1381	55.1799		3,350,867.9162
Total	**1,797.5336**	**3,044.9236**	**9,787.4920**	**42.9756**	**2,022.1220**	**106.2075**	**2,128.3295**	**543.8502**	**99.1163**	**642.9664**	**0.0000**	**3,555,942.2980**	**3,555,942.2980**	**60.5132**	**3.7539**	**3,558,376.7861**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1,058.4000	9.4082	816.3229	0.0433		11.8432	11.8432		11.7663	11.7663	0.0000	116,838.6398	116,838.6398	3.6199	2.1150	117,570.3096
Energy	6.5611	57.0280	30.9028	0.3579		4.5331	4.5331		4.5331	4.5331		71,575.3641	71,575.3641	1.3719	1.3122	72,010.9599
Mobile	709.1900	2,830.6007	8,619.3830	40.2253	1,912.5662	84.0018	1,996.5680	514.3851	77.3597	591.7448		3,171,506.2686	3,171,506.2686	52.3546		3,172,605.7151
Total	**1,774.1511**	**2,897.0368**	**9,466.6088**	**40.6264**	**1,912.5662**	**100.3781**	**2,012.9443**	**514.3851**	**93.6590**	**608.0441**	**0.0000**	**3,359,920.2726**	**3,359,920.2726**	**57.3463**	**3.4272**	**3,362,186.9846**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.30**	**4.86**	**3.28**	**5.47**	**5.42**	**5.49**	**5.42**	**5.42**	**5.51**	**5.43**	**0.00**	**5.51**	**5.51**	**5.23**	**8.70**	**5.51**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

Provide Traffic Calming Measures

Expand Transit Network

Implement Trip Reduction Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	709.1900	2,830.6007	8,619.3830	40.2253	1,912.5662	84.0018	1,996.5680	514.3851	77.3597	591.7448		3,171,506.2686	3,171,506.2686	52.3546		3,172,605.7151
Unmitigated	730.9391	2,964.2505	8,932.2831	42.4854	2,022.1220	88.7027	2,110.8247	543.8502	81.6883	625.5385		3,349,709.1381	3,349,709.1381	55.1799		3,350,867.9162

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	17,636.60	19,201.40	16267.40	100,434,938	94,993,511
Bank (with Drive-Through)	287.36	167.36	62.08	1,353,387	1,280,062
City Park	194.04	194.04	194.04	1,103,249	1,043,477
Convenience Market with Gas Pumps	712.58	1,220.57	996.10	4,694,394	4,440,058
Elementary School	4,174.80	0.00	0.00	16,954,698	16,036,116
Fast Food Restaurant with Drive Thru	848.14	1,234.15	927.69	5,200,415	4,918,664
General Heavy Industry	159.50	30.25	11.00	681,266	644,356
General Light Industry	319.00	60.50	30.80	1,369,680	1,295,473
General Office Building	13,787.89	2,963.32	1228.32	59,400,006	56,181,796
Government Office Building	53.88	0.00	0.00	218,817	206,962
High School	4,170.00	1,500.00	600.00	18,640,908	17,630,969
High Turnover (Sit Down Restaurant)	834.24	1,038.96	864.96	4,934,455	4,667,113

Industrial Park	3,058.00	1,094.50	324.50	13,571,718	12,836,421
Junior College (2yr)	1,480.50	605.50	66.50	6,558,432	6,203,105
Junior High School	2,217.60	0.00	0.00	9,006,117	8,518,178
Manufacturing	159.50	62.15	25.85	719,239	680,271
Medical Office Building	2,694.00	669.00	114.00	11,576,857	10,949,639
Other Asphalt Surfaces	0.00	0.00	0.00		
Pharmacy/Drugstore w/o Drive Thru	188.58	188.58	188.58	1,072,206	1,014,115
Refrigerated Warehouse-No Rail	319.00	319.00	319.00	1,813,732	1,715,466
Regional Shopping Center	32,559.69	37,889.52	19136.78	178,550,460	168,876,842
Research & Development	4,849.20	1,134.00	664.20	21,154,141	20,008,039
Single Family Housing	51,498.75	54,223.20	47179.50	291,510,053	275,716,439
Supermarket	5,909.20	10,262.90	9618.60	40,146,993	37,971,884
Unrefrigerated Warehouse-No Rail	638.00	638.00	638.00	3,627,464	3,430,933
Total	148,750.06	134,696.90	99,457.89	794,293,625	751,259,890

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Bank (with Drive-Through)	15.62	15.62	15.62	6.60	74.40	19.00	100	0	0
City Park	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Convenience Market with Gas	15.62	15.62	15.62	0.80	80.20	19.00	100	0	0
Elementary School	15.62	15.62	15.62	65.00	30.00	5.00	100	0	0
Fast Food Restaurant with Drive Th	15.62	15.62	15.62	2.20	78.80	19.00	100	0	0
General Heavy Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Light Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Office Building	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Government Office Building	15.62	15.62	15.62	33.00	62.00	5.00	100	0	0
High School	15.62	15.62	15.62	77.80	17.20	5.00	100	0	0
High Turnover (Sit Down Rest	15.62	15.62	15.62	8.50	72.50	19.00	100	0	0
Industrial Park	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Junior College (2yr)	15.62	15.62	15.62	6.40	88.60	5.00	100	0	0
Junior High School	15.62	15.62	15.62	72.80	22.20	5.00	100	0	0
Manufacturing	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Medical Office Building	15.62	15.62	15.62	29.60	51.40	19.00	100	0	0
Other Asphalt Surfaces	15.62	15.62	15.62	0.00	0.00	0.00	100	0	0
Pharmacy/Drugstore w/o Drive Th	15.62	15.62	15.62	7.40	73.60	19.00	100	0	0
Refrigerated Warehouse-No Rail	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0
Regional Shopping Center	15.62	15.62	15.62	16.30	64.70	19.00	100	0	0

Research & Development	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Single Family Housing	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Supermarket	15.62	15.62	15.62	6.50	74.50	19.00	100	0	0
Unrefrigerated Warehouse-No	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.355759	0.055439	0.135927	0.179388	0.056975	0.010375	0.023432	0.169902	0.001468	0.001841	0.006095	0.000886	0.002512

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	6.5611	57.0280	30.9028	0.3579		4.5331	4.5331		4.5331	4.5331		71,575.3641	71,575.3641	1.3719	1.3122	72,010.9599
NaturalGas Unmitigated	8.1945	71.2650	38.8859	0.4470		5.6617	5.6617		5.6617	5.6617		89,394.5201	89,394.5201	1.7134	1.6389	89,938.5602

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Land Use	kBTU/yr	lb/day										lb/day				
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	253.863	2.7400e-003	0.0249	0.0209	1.5000e-004		1.8900e-003	1.8900e-003		1.8900e-003	1.8900e-003		29.8662	29.8662	5.7000e-004	5.5000e-004	30.0480
Elementary School	7786.52	0.0840	0.7634	0.6412	4.5800e-003		0.0580	0.0580		0.0580	0.0580		916.0612	916.0612	0.0176	0.0168	921.6362
Fast Food Restaurant with Drive Thru	6375.42	0.0688	0.6250	0.5250	3.7500e-003		0.0475	0.0475		0.0475	0.0475		750.0493	750.0493	0.0144	0.0138	754.6140
General Heavy Industry	2001.1	0.0216	0.1962	0.1648	1.1800e-003		0.0149	0.0149		0.0149	0.0149		235.4231	235.4231	4.5100e-003	4.3200e-003	236.8558
General Light Industry	4002.19	0.0432	0.3924	0.3296	2.3500e-003		0.0298	0.0298		0.0298	0.0298		470.8461	470.8461	9.0200e-003	8.6300e-003	473.7116
General Office Building	58008.7	0.6256	5.6871	4.7772	0.0341		0.4322	0.4322		0.4322	0.4322		6,824.5499	6,824.5499	0.1308	0.1251	6,866.0830
Government Office Building	226.685	2.4400e-003	0.0222	0.0187	1.3000e-004		1.6900e-003	1.6900e-003		1.6900e-003	1.6900e-003		26.6688	26.6688	5.1000e-004	4.9000e-004	26.8311
High School	9322.61	0.1005	0.9140	0.7677	5.4800e-003		0.0695	0.0695		0.0695	0.0695		1,096.7781	1,096.7781	0.0210	0.0201	1,103.4529
High Turnover (Sit Down Restaurant)	6270.9	0.0676	0.6148	0.5164	3.6900e-003		0.0467	0.0467		0.0467	0.0467		737.7534	737.7534	0.0141	0.0135	742.2433
Industrial Park	20779.5	0.2241	2.0372	1.7113	0.0122		0.1548	0.1548		0.1548	0.1548		2,444.6414	2,444.6414	0.0469	0.0448	2,459.5191
Junior College (2yr)	39545.2	0.4265	3.8770	3.2567	0.0233		0.2947	0.2947		0.2947	0.2947		4,652.3771	4,652.3771	0.0892	0.0853	4,680.6907
Junior High School	4626.45	0.0499	0.4536	0.3810	2.7200e-003		0.0345	0.0345		0.0345	0.0345		544.2888	544.2888	0.0104	9.9800e-003	547.6013
Manufacturing	2001.1	0.0216	0.1962	0.1648	1.1800e-003		0.0149	0.0149		0.0149	0.0149		235.4231	235.4231	4.5100e-003	4.3200e-003	236.8558
Medical Office Building	11334.2	0.1222	1.1112	0.9334	6.6700e-003		0.0845	0.0845		0.0845	0.0845		1,333.4408	1,333.4408	0.0256	0.0245	1,341.5559
Apartments Low Rise	116141	1.2525	10.7032	4.5546	0.0683		0.8654	0.8654		0.8654	0.8654		13,663.6609	13,663.6609	0.2619	0.2505	13,746.8156
Bank (with Drive-Through)	1164.27	0.0126	0.1141	0.0959	6.8000e-004		8.6700e-003	8.6700e-003		8.6700e-003	8.6700e-003		136.9734	136.9734	2.6300e-003	2.5100e-003	137.8070
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	260.055	2.8000e-003	0.0255	0.0214	1.5000e-004		1.9400e-003	1.9400e-003		1.9400e-003	1.9400e-003		30.5947	30.5947	5.9000e-004	5.6000e-004	30.7809
Refrigerated Warehouse-No Rail	2190.96	0.0236	0.2148	0.1804	1.2900e-003		0.0163	0.0163		0.0163	0.0163		257.7599	257.7599	4.9400e-003	4.7300e-003	259.3286
Regional Shopping Center	11599.7	0.1251	1.1372	0.9553	6.8200e-003		0.0864	0.0864		0.0864	0.0864		1,364.6685	1,364.6685	0.0262	0.0250	1,372.9736

Research & Development	19647.1	0.2119	1.9262	1.6180	0.0116		0.1464	0.1464		0.1464	0.1464		2,311.4263	2,311.4263	0.0443	0.0424	2,325.4932
Single Family Housing	433042	4.6701	39.9078	16.9820	0.2547		3.2266	3.2266		3.2266	3.2266		50,946.0638	50,946.0638	0.9765	0.9340	51,256.1130
Supermarket	3274.25	0.0353	0.3210	0.2696	1.9300e-003		0.0244	0.0244		0.0244	0.0244		385.2055	385.2055	7.3800e-003	7.0600e-003	387.5498
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**8.1945**	**71.2649**	**38.8859**	**0.4470**		**5.6616**	**5.6616**		**5.6616**	**5.6616**		**89,394.5201**	**89,394.5201**	**1.7134**	**1.6389**	**89,938.5603**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	0.19138	2.0600e-003	0.0188	0.0158	1.1000e-004		1.4300e-003	1.4300e-003		1.4300e-003	1.4300e-003		22.5153	22.5153	4.3000e-004	4.1000e-004	22.6523
Elementary School	5.94462	0.0641	0.5828	0.4896	3.5000e-003		0.0443	0.0443		0.0443	0.0443		699.3672	699.3672	0.0134	0.0128	703.6234
Fast Food Restaurant with Drive Thru	6.14212	0.0662	0.6022	0.5058	3.6100e-003		0.0458	0.0458		0.0458	0.0458		722.6018	722.6018	0.0139	0.0133	726.9994
General Heavy Industry	1.50534	0.0162	0.1476	0.1240	8.9000e-004		0.0112	0.0112		0.0112	0.0112		177.0991	177.0991	3.3900e-003	3.2500e-003	178.1769
General Light Industry	3.01068	0.0325	0.2952	0.2479	1.7700e-003		0.0224	0.0224		0.0224	0.0224		354.1982	354.1982	6.7900e-003	6.4900e-003	356.3538
General Office Building	44.6423	0.4814	4.3767	3.6764	0.0263		0.3326	0.3326		0.3326	0.3326		5,252.0330	5,252.0330	0.1007	0.0963	5,283.9960
Government Office Building	0.174452	1.8800e-003	0.0171	0.0144	1.0000e-004		1.3000e-003	1.3000e-003		1.3000e-003	1.3000e-003		20.5238	20.5238	3.9000e-004	3.8000e-004	20.6487
High School	7.11735	0.0768	0.6978	0.5861	4.1900e-003		0.0530	0.0530		0.0530	0.0530		837.3356	837.3356	0.0161	0.0154	842.4314
High Turnover (Sit Down Restaurant)	6.04142	0.0652	0.5923	0.4975	3.5500e-003		0.0450	0.0450		0.0450	0.0450		710.7558	710.7558	0.0136	0.0130	715.0814
Industrial Park	15.9914	0.1725	1.5678	1.3169	9.4100e-003		0.1192	0.1192		0.1192	0.1192		1,881.3457	1,881.3457	0.0361	0.0345	1,892.7953
Junior College (2yr)	29.7404	0.3207	2.9157	2.4492	0.0175		0.2216	0.2216		0.2216	0.2216		3,498.8719	3,498.8719	0.0671	0.0642	3,520.1654

Junior High School	3.53207	0.0381	0.3463	0.2909	2.0800e-003		0.0263	0.0263		0.0263	0.0263		415.5375	415.5375	7.9600e-003	7.6200e-003	418.0663
Manufacturing	1.50534	0.0162	0.1476	0.1240	8.9000e-004		0.0112	0.0112		0.0112	0.0112		177.0991	177.0991	3.3900e-003	3.2500e-003	178.1769
Medical Office Building	8.7226	0.0941	0.8552	0.7183	5.1300e-003		0.0650	0.0650		0.0650	0.0650		1,026.1886	1,026.1886	0.0197	0.0188	1,032.4338
Apartments Low Rise	92.6836	0.9995	8.5414	3.6347	0.0545		0.6906	0.6906		0.6906	0.6906		10,903.9487	10,903.9487	0.2090	0.1999	10,970.3083
Bank (with Drive-Through)	0.875836	9.4500e-003	0.0859	0.0721	5.2000e-004		6.5300e-003	6.5300e-003		6.5300e-003	6.5300e-003		103.0395	103.0395	1.9700e-003	1.8900e-003	103.6666
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	0.196048	2.1100e-003	0.0192	0.0162	1.2000e-004		1.4600e-003	1.4600e-003		1.4600e-003	1.4600e-003		23.0645	23.0645	4.4000e-004	4.2000e-004	23.2048
Refrigerated Warehouse-No Rail	1.87678	0.0202	0.1840	0.1546	1.1000e-003		0.0140	0.0140		0.0140	0.0140		220.7977	220.7977	4.2300e-003	4.0500e-003	222.1415
Regional Shopping Center	8.74467	0.0943	0.8573	0.7202	5.1400e-003		0.0652	0.0652		0.0652	0.0652		1,028.7849	1,028.7849	0.0197	0.0189	1,035.0460
Research & Development	14.7797	0.1594	1.4490	1.2172	8.6900e-003		0.1101	0.1101		0.1101	0.1101		1,738.7913	1,738.7913	0.0333	0.0319	1,749.3733
Single Family Housing	352.406	3.8005	32.4767	13.8199	0.2073		2.6258	2.6258		2.6258	2.6258		41,459.5472	41,459.5472	0.7946	0.7601	41,711.8631
Supermarket	2.5663	0.0277	0.2516	0.2113	1.5100e-003		0.0191	0.0191		0.0191	0.0191		301.9178	301.9178	5.7900e-003	5.5400e-003	303.7552
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**6.5611**	**57.0280**	**30.9028**	**0.3579**		**4.5331**	**4.5331**		**4.5331**	**4.5331**		**71,575.3641**	**71,575.3641**	**1.3718**	**1.3122**	**72,010.9599**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1,058.4000	9.4082	816.3229	0.0433		11.8432	11.8432		11.7663	11.7663	0.0000	116,838.6398	116,838.6398	3.6199	2.1150	117,570.3096
Unmitigated	1,058.4000	9.4082	816.3229	0.0433		11.8432	11.8432		11.7663	11.7663	0.0000	116,838.6398	116,838.6398	3.6199	2.1150	117,570.3096

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	101.5189					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	921.8267					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	10.5750	4.8000e-004	0.5768	0.0000		7.3064	7.3064		7.2295	7.2295	0.0000	115,364.1177	115,364.1177	2.2112	2.1150	116,066.2044
Landscaping	24.4794	9.4077	815.7461	0.0433		4.5368	4.5368		4.5368	4.5368		1,474.5222	1,474.5222	1.4087		1,504.1052
Total	**1,058.4000**	**9.4082**	**816.3229**	**0.0433**		**11.8432**	**11.8432**		**11.7663**	**11.7663**	**0.0000**	**116,838.6398**	**116,838.6398**	**3.6199**	**2.1150**	**117,570.3096**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	101.5189					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	921.8267					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	10.5750	4.8000e-004	0.5768	0.0000		7.3064	7.3064		7.2295	7.2295	0.0000	115,364.1177	115,364.1177	2.2112	2.1150	116,066.2044
Landscaping	24.4794	9.4077	815.7461	0.0433		4.5368	4.5368		4.5368	4.5368		1,474.5222	1,474.5222	1.4087		1,504.1052
Total	**1,058.4000**	**9.4082**	**816.3229**	**0.0433**		**11.8432**	**11.8432**		**11.7663**	**11.7663**	**0.0000**	**116,838.6398**	**116,838.6398**	**3.6199**	**2.1150**	**117,570.3096**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Vegetation

CalEEMod Version: CalEEMod.2013.2.2

Date: 10/23/2015 12:50 PM

Grapevine Operational Year 2034 - Planning Areas 6A, 2, 1, 3, 4, 6C, 6B Buildout

Kern-San Joaquin County, Mitigation Report

Operational Percent Reduction Summary

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.70	3.70	3.70	3.70	3.70
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	3.06	4.54	2.95	5.32	5.29	5.29	0.00	5.32	5.32	5.11	0.00	5.32
Natural Gas	19.93	19.98	20.53	19.95	19.93	19.93	0.00	19.93	19.93	19.93	19.93	19.93
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting: Suburban Center

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value 3
No	Land Use	Increase Density	0.00	0.00	0.00	
No	Land Use	Increase Diversity	0.30	0.68		

No	Land Use	Improve Walkability Design	0.00	0.00		
No	Land Use	Improve Destination Accessibility	0.00	0.00		
No	Land Use	Increase Transit Accessibility	0.25	0.00		
No	Land Use	Integrate Below Market Rate Housing	0.00	0.00		
	Land Use	Land Use SubTotal	0.00			
Yes	Neighborhood Enhancements	Improve Pedestrian Network	2.00	Project Site and Connecting Off-Site		
Yes	Neighborhood Enhancements	Provide Traffic Calming Measures	1.00	100.00	100.00	
No	Neighborhood Enhancements	Implement NEV Network	0.01			
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.05			
No	Parking Policy Pricing	Limit Parking Supply	0.00	0.00		
No	Parking Policy Pricing	Unbundle Parking Costs	0.00	0.00		
No	Parking Policy Pricing	On-street Market Pricing	0.00	0.00		
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00			
No	Transit Improvements	Provide BRT System	0.00	0.00		
Yes	Transit Improvements	Expand Transit Network	0.00	50.00		
No	Transit Improvements	Increase Transit Frequency	0.00		0.00	
	Transit Improvements	Transit Improvements Subtotal	0.00			
		Land Use and Site Enhancement Subtotal	0.05			
Yes	Commute	Implement Trip Reduction Program		50.00	Voluntary	
No	Commute	Transit Subsidy	0.00	0.00		
No	Commute	Implement Employee Parking "Cash Out"	0.00	0.00		
No	Commute	Workplace Parking Charge	0.00	0.00		
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00	0.00	0.00	0.00
No	Commute	Market Commute Trip Reduction Option	0.00	0.00		

No	Commute	Employee Vanpool/Shuttle	0.00	0.00	2.00	
No	Commute	Provide Ride Sharing Program	0.00	0.00		
	Commute	Commute Subtotal	0.00			
No	School Trip	Implement School Bus Program	0.00	0.00		
		Total VMT Reduction	0.05			

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	150.00
No	Use Low VOC Paint (Residential Exterior)	150.00
No	Use Low VOC Paint (Non-residential Interior)	150.00
No	Use Low VOC Paint (Non-residential Exterior)	150.00
No	% Electric Lawnmower	
No	% Electric Leafblower	
No	% Electric Chainsaw	

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
Yes	Exceed Title 24	25.00	
No	Install High Efficiency Lighting		
No	On-site Renewable		

Appliance Type	Land Use Subtype	% Improvement

ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy	0.00	0.00
No	Use Reclaimed Water	0.00	0.00
No	Use Grey Water	0.00	
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction	0.00	
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape	0.00	0.00

Solid Waste Mitigation

Mitigation Measures	Input Value
Institute Recycling and Composting Services	75.00
Percent Reduction in Waste Disposed	

Grapevine Operational Year 2036 - Full Buildout

Kern-San Joaquin County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Bank (with Drive-Through)	32.00	1000sqft	2.95	32,000.00	0
General Office Building	1,553.00	1000sqft	136.57	1,553,000.00	0
Government Office Building	6.00	1000sqft	0.51	6,000.00	0
Medical Office Building	300.00	1000sqft	22.69	300,000.00	0
Pharmacy/Drugstore w/o Drive Thru	21.00	1000sqft	1.85	21,000.00	0
Research & Development	540.00	1000sqft	41.19	540,000.00	0
Elementary School	4,970.00	Student	25.00	415,508.75	0
High School	3,000.00	Student	10.00	397,982.93	0
Junior College (2yr)	350.00	1000sqft	27.25	350,000.00	0
Junior High School	1,680.00	Student	40.00	197,503.63	0
General Heavy Industry	55.00	1000sqft	73.59	55,000.00	0
General Light Industry	110.00	1000sqft	93.78	110,000.00	0
Industrial Park	550.00	1000sqft	228.57	550,000.00	0
Manufacturing	55.00	1000sqft	287.19	55,000.00	0
Refrigerated Warehouse-No Rail	110.00	1000sqft	147.18	110,000.00	0
Unrefrigerated Warehouse-No Rail	220.00	1000sqft	614.75	220,000.00	0
Other Asphalt Surfaces	460.00	Acre	460.00	20,037,600.00	0
City Park	131.00	Acre	131.00	5,706,360.00	0
Fast Food Restaurant with Drive Thru	26.60	1000sqft	3.44	26,600.00	0
High Turnover (Sit Down Restaurant)	24.00	1000sqft	3.11	24,000.00	0
Apartments Low Rise	3,590.00	Dwelling Unit	359.00	3,590,000.00	11488
Single Family Housing	8,410.00	Dwelling Unit	2,235.00	15,138,000.00	26912
Convenience Market with Gas Pumps	23.00	1000sqft	2.98	23,000.00	0
Regional Shopping Center	944.40	1000sqft	120.57	944,400.00	0
Supermarket	180.00	1000sqft	23.14	180,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	7			**Operational Year**	2035
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	372.88	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Full Buildout. Kern County, San Joaquin Valley Air Basin. Operational Year 2035 was conservatively used for anticipated Operational Year 2036 since CalEEMod does not include years beyond 2035. CO2 Intensity adjusted based on PG&E 50% Renewables by 2030.

Land Use - See 1.1 Land Usage. Population based on 3.2 persons per dwelling unit.

Construction Phase - Construction emissions calculated separately.

Vehicle Trips - Modified trip rates to match Trip Generation and VMT factors provided by Fehr & Peers.

Vehicle Emission Factors - Default CalEEMod values.

Woodstoves - No woodstoves and only gas fireplaces assumed.

Area Coating - Default CalEEMod VOC content. Modified non-residential interior and exterior area to be coated based on CalEEMod architectural coating surface area equations and adjusted for parking/asphalt surface and park land uses.

Energy Use - Updated Title 24 electricity and natural gas energy intensity to match 2013 Title 24 standards (25% reduction versus 2008 standards).

Water And Wastewater - Water and wastewater consumption and associated emissions calculated separately.

Construction Off-road Equipment Mitigation - Construction emissions calculated separately.

Mobile Land Use Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Project Setting: Suburban Center. Improve Pedestrian Network: Project Site and Connecting Off-Site. Provide Traffic Calming Measures: 100% Streets with Improvement, 100% Intersections with Improvement. Expand Transit Network: 50%.

Mobile Commute Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Voluntary Commute Trip Reduction Program: 50%.

Energy Mitigation - Exceed 2013 Title 24, % Improvement: 25%.

Water Mitigation - Water reductions calculated separately.

Waste Mitigation - Percent Reduction in Waste Disposed: 75%. Waste diversion consistent with Assembly Bill 341 (not mitigation).

Note Regarding Emissions Presented in the Air Quality & Greenhouse Gas Technical Report: Project-generated unmitigated and mitigated emissions in the Technical Report reflect the unmitigated mobile source emissions reported in 2.0 Emissions Summary. No area source mitigation assumed. Unmitigated and mitigated energy source and solid waste emissions reported in the Technical Report as presented in 2.0 Emissions Summary. Water/wastewater and stationary source emissions calculated separately.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	15927478	4317381
tblAreaCoating	Area_Nonresidential_Interior	47782434	8356493
tblConstructionPhase	NumDays	155,000.00	1.00
tblEnergyUse	T24E	352.42	264.31
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	0.49	0.37
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tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
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tblEnergyUse	T24E	4.43	3.32
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.70	0.53
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	763.80	572.85
tblEnergyUse	T24E	4.88	3.66
tblEnergyUse	T24NG	14,007.38	10,505.53
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	10.78	8.09

tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71
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tblEnergyUse	T24NG	10.78	8.09
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tblEnergyUse	T24NG	16.95	12.71
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tblEnergyUse	T24NG	5.93	4.45
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tblEnergyUse	T24NG	23,622.31	17,716.73
tblEnergyUse	T24NG	8.10	6.08
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblLandUse	LotAcreage	0.73	2.95
tblLandUse	LotAcreage	35.65	136.57
tblLandUse	LotAcreage	0.14	0.51
tblLandUse	LotAcreage	6.89	22.69
tblLandUse	LotAcreage	0.48	1.85
tblLandUse	LotAcreage	12.40	41.19
tblLandUse	LotAcreage	9.54	25.00
tblLandUse	LotAcreage	9.14	10.00
tblLandUse	LotAcreage	8.03	27.25
tblLandUse	LotAcreage	4.53	40.00

tblLandUse	LotAcreage	1.26	73.59
tblLandUse	LotAcreage	2.53	93.78
tblLandUse	LotAcreage	12.63	228.57
tblLandUse	LotAcreage	1.26	287.19
tblLandUse	LotAcreage	2.53	147.18
tblLandUse	LotAcreage	5.05	614.75
tblLandUse	LotAcreage	0.61	3.44
tblLandUse	LotAcreage	0.55	3.11
tblLandUse	LotAcreage	224.38	359.00
tblLandUse	LotAcreage	2,730.52	2,235.00
tblLandUse	LotAcreage	0.53	2.98
tblLandUse	LotAcreage	21.68	120.57
tblLandUse	LotAcreage	4.13	23.14
tblLandUse	Population	10,267.00	11,488.00
tblLandUse	Population	24,053.00	26,912.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	372.88
tblProjectCharacteristics	OperationalYear	2014	2035
tblTripsAndVMT	VendorTripNumber	6,504.00	0.00
tblTripsAndVMT	WorkerTripNumber	18,632.00	0.00
tblVehicleTrips	CC_TL	7.30	15.62
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tblVehicleTrips	SU_TR	8.77	7.10
tblVehicleTrips	SU_TR	166.44	56.58
tblVehicleTrips	SU_TR	2.59	2.90
tblVehicleTrips	WD_TR	6.59	5.41
tblVehicleTrips	WD_TR	148.15	8.98
tblVehicleTrips	WD_TR	1.59	1.54
tblVehicleTrips	WD_TR	845.60	34.76
tblVehicleTrips	WD_TR	1.29	1.05
tblVehicleTrips	WD_TR	496.12	34.76
tblVehicleTrips	WD_TR	1.50	2.90
tblVehicleTrips	WD_TR	6.97	2.90
tblVehicleTrips	WD_TR	11.01	8.98
tblVehicleTrips	WD_TR	68.93	8.98
tblVehicleTrips	WD_TR	1.71	1.39
tblVehicleTrips	WD_TR	127.15	34.76
tblVehicleTrips	WD_TR	6.96	5.56
tblVehicleTrips	WD_TR	27.49	4.23
tblVehicleTrips	WD_TR	1.62	1.32
tblVehicleTrips	WD_TR	3.82	2.90
tblVehicleTrips	WD_TR	36.13	8.98
tblVehicleTrips	WD_TR	90.06	8.98
tblVehicleTrips	WD_TR	2.59	2.90
tblVehicleTrips	WD_TR	42.94	34.76
tblVehicleTrips	WD_TR	8.11	8.98
tblVehicleTrips	WD_TR	9.57	7.75
tblVehicleTrips	WD_TR	102.24	34.76

tblVehicleTrips	WD_TR	2.59	2.90
tblWater	IndoorWaterUseRate	233,902,951.98	0.00
tblWater	IndoorWaterUseRate	1,267,933.40	0.00
tblWater	IndoorWaterUseRate	1,703,667.99	0.00
tblWater	IndoorWaterUseRate	12,048,472.80	0.00
tblWater	IndoorWaterUseRate	8,073,996.75	0.00
tblWater	IndoorWaterUseRate	12,718,750.00	0.00
tblWater	IndoorWaterUseRate	25,437,500.00	0.00
tblWater	IndoorWaterUseRate	276,020,510.63	0.00
tblWater	IndoorWaterUseRate	1,191,958.12	0.00
tblWater	IndoorWaterUseRate	13,214,880.00	0.00
tblWater	IndoorWaterUseRate	7,284,809.10	0.00
tblWater	IndoorWaterUseRate	127,187,500.00	0.00
tblWater	IndoorWaterUseRate	17,167,161.38	0.00
tblWater	IndoorWaterUseRate	4,072,723.20	0.00
tblWater	IndoorWaterUseRate	12,718,750.00	0.00
tblWater	IndoorWaterUseRate	37,644,161.27	0.00
tblWater	IndoorWaterUseRate	1,479,397.99	0.00
tblWater	IndoorWaterUseRate	25,437,500.00	0.00
tblWater	IndoorWaterUseRate	69,954,089.29	0.00
tblWater	IndoorWaterUseRate	265,514,731.49	0.00
tblWater	IndoorWaterUseRate	547,945,355.48	0.00
tblWater	IndoorWaterUseRate	22,188,278.68	0.00
tblWater	IndoorWaterUseRate	50,875,000.00	0.00
tblWater	OutdoorWaterUseRate	147,460,556.68	0.00
tblWater	OutdoorWaterUseRate	777,120.47	0.00
tblWater	OutdoorWaterUseRate	156,084,056.81	0.00
tblWater	OutdoorWaterUseRate	1,044,183.61	0.00
tblWater	OutdoorWaterUseRate	30,981,787.20	0.00
tblWater	OutdoorWaterUseRate	515,361.49	0.00

tblWater	OutdoorWaterUseRate	169,173,861.36	0.00
tblWater	OutdoorWaterUseRate	730,554.97	0.00
tblWater	OutdoorWaterUseRate	33,981,120.00	0.00
tblWater	OutdoorWaterUseRate	464,987.81	0.00
tblWater	OutdoorWaterUseRate	26,851,201.13	0.00
tblWater	OutdoorWaterUseRate	10,472,716.80	0.00
tblWater	OutdoorWaterUseRate	7,170,316.43	0.00
tblWater	OutdoorWaterUseRate	906,727.80	0.00
tblWater	OutdoorWaterUseRate	42,875,086.98	0.00
tblWater	OutdoorWaterUseRate	345,443,811.06	0.00
tblWater	OutdoorWaterUseRate	686,235.42	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	222.7282	1.0256	88.9570	4.7200e-003		0.8575	0.8575		0.8537	0.8537	0.0000	5,344.3084	5,344.3084	0.2389	0.0953	5,378.8699
Energy	1.7519	15.2008	8.0567	0.0956		1.2104	1.2104		1.2104	1.2104	0.0000	40,481.8407	40,481.8407	2.1323	0.6903	40,740.6023
Mobile	121.7745	541.3387	1,597.6278	7.0287	345.8747	15.4542	361.3289	93.1749	14.2321	107.4070	0.0000	507,290.0648	507,290.0648	8.7285	0.0000	507,473.3642
Waste						0.0000	0.0000		0.0000	0.0000	4,566.7648	0.0000	4,566.7648	269.8881	0.0000	10,234.4143
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**346.2546**	**557.5652**	**1,694.6415**	**7.1290**	**345.8747**	**17.5221**	**363.3968**	**93.1749**	**16.2962**	**109.4711**	**4,566.7648**	**553,116.2138**	**557,682.9787**	**280.9878**	**0.7856**	**563,827.2507**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	222.7282	1.0256	88.9570	4.7200e-003		0.8575	0.8575		0.8537	0.8537	0.0000	5,344.3084	5,344.3084	0.2389	0.0953	5,378.8699
Energy	1.4056	12.1897	6.4189	0.0767		0.9711	0.9711		0.9711	0.9711	0.0000	36,236.2733	36,236.2733	2.0030	0.6143	36,468.7589
Mobile	118.0497	516.7677	1,550.4343	6.6550	327.1357	14.6361	341.7717	88.1268	13.4788	101.6055	0.0000	480,304.4412	480,304.4412	8.2825	0.0000	480,478.3733
Waste						0.0000	0.0000		0.0000	0.0000	1,141.6912	0.0000	1,141.6912	67.4720	0.0000	2,558.6036
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**342.1835**	**529.9831**	**1,645.8101**	**6.7364**	**327.1357**	**16.4648**	**343.6004**	**88.1268**	**15.3036**	**103.4304**	**1,141.6912**	**521,885.0229**	**523,026.7141**	**77.9964**	**0.7096**	**524,884.6057**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.18**	**4.95**	**2.88**	**5.51**	**5.42**	**6.03**	**5.45**	**5.42**	**6.09**	**5.52**	**75.00**	**5.65**	**6.21**	**72.24**	**9.67**	**6.91**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

Provide Traffic Calming Measures

Expand Transit Network

Implement Trip Reduction Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	118.0497	516.7677	1,550.4343	6.6550	327.1357	14.6361	341.7717	88.1268	13.4788	101.6055	0.0000	480,304.4412	480,304.4412	8.2825	0.0000	480,478.3733
Unmitigated	121.7745	541.3387	1,597.6278	7.0287	345.8747	15.4542	361.3289	93.1749	14.2321	107.4070	0.0000	507,290.0648	507,290.0648	8.7285	0.0000	507,473.3642

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	19,421.90	21,145.10	17914.10	110,601,665	104,609,419
Bank (with Drive-Through)	287.36	167.36	62.08	1,353,387	1,280,062
City Park	201.74	201.74	201.74	1,147,029	1,084,885
Convenience Market with Gas Pumps	799.48	1,369.42	1117.57	5,266,881	4,981,529
Elementary School	5,218.50	0.00	0.00	21,193,372	20,045,144
Fast Food Restaurant with Drive Thru	924.62	1,345.43	1011.33	5,669,305	5,362,150
General Heavy Industry	159.50	30.25	11.00	681,266	644,356
General Light Industry	319.00	60.50	30.80	1,369,680	1,295,473
General Office Building	13,945.94	2,997.29	1242.40	60,080,897	56,825,797
Government Office Building	53.88	0.00	0.00	218,817	206,962
High School	4,170.00	1,500.00	600.00	18,640,908	17,630,969
High Turnover (Sit Down Restaurant)	834.24	1,038.96	864.96	4,934,455	4,667,113
Industrial Park	3,058.00	1,094.50	324.50	13,571,718	12,836,421
Junior College (2yr)	1,480.50	605.50	66.50	6,558,432	6,203,105
Junior High School	2,217.60	0.00	0.00	9,006,117	8,518,178
Manufacturing	159.50	62.15	25.85	719,239	680,271
Medical Office Building	2,694.00	669.00	114.00	11,576,857	10,949,639
Other Asphalt Surfaces	0.00	0.00	0.00		

Pharmacy/Drugstore w/o Drive Thru	188.58	188.58	188.58	1,072,206	1,014,115
Refrigerated Warehouse-No Rail	319.00	319.00	319.00	1,813,732	1,715,466
Regional Shopping Center	32,827.34	38,200.98	19294.09	180,018,207	170,265,068
Research & Development	4,849.20	1,134.00	664.20	21,154,141	20,008,039
Single Family Housing	65,177.50	68,625.60	59711.00	368,938,983	348,950,377
Supermarket	6,256.80	10,866.60	10184.40	42,508,580	40,205,524
Unrefrigerated Warehouse-No Rail	638.00	638.00	638.00	3,627,464	3,430,933
Total	166,202.18	152,259.96	114,586.10	891,723,339	843,410,997

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Bank (with Drive-Through)	15.62	15.62	15.62	6.60	74.40	19.00	100	0	0
City Park	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Convenience Market with Gas	15.62	15.62	15.62	0.80	80.20	19.00	100	0	0
Elementary School	15.62	15.62	15.62	65.00	30.00	5.00	100	0	0
Fast Food Restaurant with Drive	15.62	15.62	15.62	2.20	78.80	19.00	100	0	0
General Heavy Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Light Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Office Building	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Government Office Building	15.62	15.62	15.62	33.00	62.00	5.00	100	0	0
High School	15.62	15.62	15.62	77.80	17.20	5.00	100	0	0
High Turnover (Sit Down	15.62	15.62	15.62	8.50	72.50	19.00	100	0	0
Industrial Park	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Junior College (2yr)	15.62	15.62	15.62	6.40	88.60	5.00	100	0	0
Junior High School	15.62	15.62	15.62	72.80	22.20	5.00	100	0	0
Manufacturing	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Medical Office Building	15.62	15.62	15.62	29.60	51.40	19.00	100	0	0
Other Asphalt Surfaces	15.62	15.62	15.62	0.00	0.00	0.00	100	0	0
Pharmacy/Drugstore w/o Drive	15.62	15.62	15.62	7.40	73.60	19.00	100	0	0
Refrigerated Warehouse-No Rail	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0
Regional Shopping Center	15.62	15.62	15.62	16.30	64.70	19.00	100	0	0
Research & Development	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Single Family Housing	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Supermarket	15.62	15.62	15.62	6.50	74.50	19.00	100	0	0
Unrefrigerated Warehouse-No	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.355759	0.055439	0.135927	0.179388	0.056975	0.010375	0.023432	0.169902	0.001468	0.001841	0.006095	0.000886	0.002512

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	22,325.7368	22,325.7368	1.7363	0.3592	22,473.5651
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	23,143.9406	23,143.9406	1.8000	0.3724	23,297.1866
NaturalGas Mitigated	1.4056	12.1897	6.4189	0.0767		0.9711	0.9711		0.9711	0.9711	0.0000	13,910.5366	13,910.5366	0.2666	0.2550	13,995.1938
NaturalGas Unmitigated	1.7519	15.2008	8.0567	0.0956		1.2104	1.2104		1.2104	1.2104	0.0000	17,337.9001	17,337.9001	0.3323	0.3179	17,443.4157

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					

Bank (with Drive-Through)	424960	2.2900e-003	0.0208	0.0175	1.2000e-004		1.5800e-003	1.5800e-003		1.5800e-003	1.5800e-003	0.0000	22.6775	22.6775	4.3000e-004	4.2000e-004	22.8155
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	103960	5.6000e-004	5.1000e-003	4.2800e-003	3.0000e-005		3.9000e-004	3.9000e-004		3.9000e-004	3.9000e-004	0.0000	5.5477	5.5477	1.1000e-004	1.0000e-004	5.5815
Elementary School	3.5526e+006	0.0192	0.1742	0.1463	1.0400e-003		0.0132	0.0132		0.0132	0.0132	0.0000	189.5803	189.5803	3.6300e-003	3.4800e-003	190.7340
Fast Food Restaurant with Drive Thru	2.53684e+006	0.0137	0.1244	0.1045	7.5000e-004		9.4500e-003	9.4500e-003		9.4500e-003	9.4500e-003	0.0000	135.3756	135.3756	2.5900e-003	2.4800e-003	136.1994
General Heavy Industry	730400	3.9400e-003	0.0358	0.0301	2.1000e-004		2.7200e-003	2.7200e-003		2.7200e-003	2.7200e-003	0.0000	38.9769	38.9769	7.5000e-004	7.1000e-004	39.2141
General Light Industry	1.4608e+006	7.8800e-003	0.0716	0.0602	4.3000e-004		5.4400e-003	5.4400e-003		5.4400e-003	5.4400e-003	0.0000	77.9539	77.9539	1.4900e-003	1.4300e-003	78.4283
General Office Building	2.14159e+007	0.1155	1.0498	0.8818	6.3000e-003		0.0798	0.0798		0.0798	0.0798	0.0000	1,142.8324	1,142.8324	0.0219	0.0210	1,149.7875
Government Office Building	82740	4.5000e-004	4.0600e-003	3.4100e-003	2.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	4.4153	4.4153	8.0000e-005	8.0000e-005	4.4422
High School	3.40275e+006	0.0184	0.1668	0.1401	1.0000e-003		0.0127	0.0127		0.0127	0.0127	0.0000	181.5839	181.5839	3.4800e-003	3.3300e-003	182.6890
High Turnover (Sit Down Restaurant)	2.28888e+006	0.0123	0.1122	0.0943	6.7000e-004		8.5300e-003	8.5300e-003		8.5300e-003	8.5300e-003	0.0000	122.1434	122.1434	2.3400e-003	2.2400e-003	122.8867
Industrial Park	7.5845e+006	0.0409	0.3718	0.3123	2.2300e-003		0.0283	0.0283		0.0283	0.0283	0.0000	404.7378	404.7378	7.7600e-003	7.4200e-003	407.2010
Junior College (2yr)	1.4434e+007	0.0778	0.7076	0.5943	4.2500e-003		0.0538	0.0538		0.0538	0.0538	0.0000	770.2532	770.2532	0.0148	0.0141	774.9408
Junior High School	1.68866e+006	9.1100e-003	0.0828	0.0695	5.0000e-004		6.2900e-003	6.2900e-003		6.2900e-003	6.2900e-003	0.0000	90.1131	90.1131	1.7300e-003	1.6500e-003	90.6615
Manufacturing	730400	3.9400e-003	0.0358	0.0301	2.1000e-004		2.7200e-003	2.7200e-003		2.7200e-003	2.7200e-003	0.0000	38.9769	38.9769	7.5000e-004	7.1000e-004	39.2141
Apartments Low Rise	4.66827e+007	0.2517	2.1511	0.9154	0.0137		0.1739	0.1739		0.1739	0.1739	0.0000	2,491.1652	2,491.1652	0.0478	0.0457	2,506.3260
Medical Office Building	4.137e+006	0.0223	0.2028	0.1704	1.2200e-003		0.0154	0.0154		0.0154	0.0154	0.0000	220.7661	220.7661	4.2300e-003	4.0500e-003	222.1096
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	94920	5.1000e-004	4.6500e-003	3.9100e-003	3.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	5.0653	5.0653	1.0000e-004	9.0000e-005	5.0961
Refrigerated Warehouse-No Rail	799700	4.3100e-003	0.0392	0.0329	2.4000e-004		2.9800e-003	2.9800e-003		2.9800e-003	2.9800e-003	0.0000	42.6750	42.6750	8.2000e-004	7.8000e-004	42.9348
Regional Shopping Center	4.26869e+006	0.0230	0.2093	0.1758	1.2600e-003		0.0159	0.0159		0.0159	0.0159	0.0000	227.7935	227.7935	4.3700e-003	4.1800e-003	229.1798
Research & Development	7.1712e+006	0.0387	0.3515	0.2953	2.1100e-003		0.0267	0.0267		0.0267	0.0267	0.0000	382.6825	382.6825	7.3300e-003	7.0200e-003	385.0115
Single Family Housing	2.00043e+008	1.0787	9.2177	3.9224	0.0588		0.7453	0.7453		0.7453	0.7453	0.0000	10,675.0582	10,675.0582	0.2046	0.1957	10,740.0248

Supermarket	1.2654e+006	6.8200e-003	0.0620	0.0521	3.7000e-004		4.7100e-003	4.7100e-003		4.7100e-003	4.7100e-003	0.0000	67.5266	67.5266	1.2900e-003	1.2400e-003	67.9375
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.7519**	**15.2008**	**8.0567**	**0.0956**		**1.2104**	**1.2104**		**1.2104**	**1.2104**	**0.0000**	**17,337.9001**	**17,337.9001**	**0.3323**	**0.3179**	**17,443.4157**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	78372.5	4.2000e-004	3.8400e-003	3.2300e-003	2.0000e-005		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004	0.0000	4.1823	4.1823	8.0000e-005	8.0000e-005	4.2077
Elementary School	2.71223e+006	0.0146	0.1330	0.1117	8.0000e-004		0.0101	0.0101		0.0101	0.0101	0.0000	144.7351	144.7351	2.7700e-003	2.6500e-003	145.6159
Fast Food Restaurant with Drive Thru	2.44401e+006	0.0132	0.1198	0.1006	7.2000e-004		9.1100e-003	9.1100e-003		9.1100e-003	9.1100e-003	0.0000	130.4216	130.4216	2.5000e-003	2.3900e-003	131.2153
General Heavy Industry	549450	2.9600e-003	0.0269	0.0226	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	29.3207	29.3207	5.6000e-004	5.4000e-004	29.4992
General Light Industry	1.0989e+006	5.9300e-003	0.0539	0.0453	3.2000e-004		4.0900e-003	4.0900e-003		4.0900e-003	4.0900e-003	0.0000	58.6415	58.6415	1.1200e-003	1.0800e-003	58.9984
General Office Building	1.64812e+007	0.0889	0.8079	0.6786	4.8500e-003		0.0614	0.0614		0.0614	0.0614	0.0000	879.5003	879.5003	0.0169	0.0161	884.8528
Government Office Building	63675	3.4000e-004	3.1200e-003	2.6200e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	3.3979	3.3979	7.0000e-005	6.0000e-005	3.4186
High School	2.59783e+006	0.0140	0.1273	0.1070	7.6000e-004		9.6800e-003	9.6800e-003		9.6800e-003	9.6800e-003	0.0000	138.6303	138.6303	2.6600e-003	2.5400e-003	139.4740
High Turnover (Sit Down Restaurant)	2.20512e+006	0.0119	0.1081	0.0908	6.5000e-004		8.2200e-003	8.2200e-003		8.2200e-003	8.2200e-003	0.0000	117.6736	117.6736	2.2600e-003	2.1600e-003	118.3897
Industrial Park	5.83688e+006	0.0315	0.2861	0.2403	1.7200e-003		0.0218	0.0218		0.0218	0.0218	0.0000	311.4779	311.4779	5.9700e-003	5.7100e-003	313.3735
Junior College (2yr)	1.08552e+007	0.0585	0.5321	0.4470	3.1900e-003		0.0404	0.0404		0.0404	0.0404	0.0000	579.2775	579.2775	0.0111	0.0106	582.8029
Junior High School	1.2892e+006	6.9500e-003	0.0632	0.0531	3.8000e-004		4.8000e-003	4.8000e-003		4.8000e-003	4.8000e-003	0.0000	68.7969	68.7969	1.3200e-003	1.2600e-003	69.2156
Manufacturing	549450	2.9600e-003	0.0269	0.0226	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	29.3207	29.3207	5.6000e-004	5.4000e-004	29.4992

Medical Office Building	3.18375e+006	0.0172	0.1561	0.1311	9.4000e-004		0.0119	0.0119		0.0119	0.0119	0.0000	169.8970	169.8970	3.2600e-003	3.1100e-003	170.9310
Apartments Low Rise	3.7254e+007	0.2009	1.7166	0.7305	0.0110		0.1388	0.1388		0.1388	0.1388	0.0000	1,988.0132	1,988.0132	0.0381	0.0365	2,000.1119
Bank (with Drive-Through)	319680	1.7200e-003	0.0157	0.0132	9.0000e-005		1.1900e-003	1.1900e-003		1.1900e-003	1.1900e-003	0.0000	17.0593	17.0593	3.3000e-004	3.1000e-004	17.1632
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	71557.5	3.9000e-004	3.5100e-003	2.9500e-003	2.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004	0.0000	3.8186	3.8186	7.0000e-005	7.0000e-005	3.8418
Refrigerated Warehouse-No Rail	685025	3.6900e-003	0.0336	0.0282	2.0000e-004		2.5500e-003	2.5500e-003		2.5500e-003	2.5500e-003	0.0000	36.5555	36.5555	7.0000e-004	6.7000e-004	36.7780
Regional Shopping Center	3.21804e+006	0.0174	0.1578	0.1325	9.5000e-004		0.0120	0.0120		0.0120	0.0120	0.0000	171.7270	171.7270	3.2900e-003	3.1500e-003	172.7721
Research & Development	5.3946e+006	0.0291	0.2644	0.2221	1.5900e-003		0.0201	0.0201		0.0201	0.0201	0.0000	287.8764	287.8764	5.5200e-003	5.2800e-003	289.6284
Single Family Housing	1.62794e+008	0.8778	7.5013	3.1920	0.0479		0.6065	0.6065		0.6065	0.6065	0.0000	8,687.2870	8,687.2870	0.1665	0.1593	8,740.1564
Supermarket	991800	5.3500e-003	0.0486	0.0408	2.9000e-004		3.6900e-003	3.6900e-003		3.6900e-003	3.6900e-003	0.0000	52.9262	52.9262	1.0100e-003	9.7000e-004	53.2483
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.4056**	**12.1897**	**6.4189**	**0.0767**		**0.9712**	**0.9712**		**0.9712**	**0.9712**	**0.0000**	**13,910.5365**	**13,910.5365**	**0.2666**	**0.2550**	**13,995.1938**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	1.33029e+007	2,249.9971	0.1750	0.0362	2,264.8953
Bank (with Drive-Through)	80640	13.6391	1.0600e-003	2.2000e-004	13.7294
City Park	0	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	241730	40.8851	3.1800e-003	6.6000e-004	41.1559
Elementary School	3.17864e+006	537.6213	0.0418	8.6500e-003	541.1811

Fast Food Restaurant with Drive Thru	890834	150.6717	0.0117	2.4200e-003	151.6693
General Heavy Industry	138600	23.4422	1.8200e-003	3.8000e-004	23.5974
General Light Industry	277200	46.8844	3.6500e-003	7.5000e-004	47.1948
General Office Building	1.59027e+007	2,689.7149	0.2092	0.0433	2,707.5246
Government Office Building	61440	10.3917	8.1000e-004	1.7000e-004	10.4605
High School	3.04457e+006	514.9448	0.0401	8.2900e-003	518.3545
High Turnover (Sit Down Restaurant)	803760	135.9444	0.0106	2.1900e-003	136.8445
Industrial Park	5.632e+006	952.5713	0.0741	0.0153	958.8787
Junior College (2yr)	5.7155e+006	966.6941	0.0752	0.0156	973.0950
Junior High School	1.5109e+006	255.5473	0.0199	4.1100e-003	257.2394
Manufacturing	138600	23.4422	1.8200e-003	3.8000e-004	23.5974
Medical Office Building	3.072e+006	519.5843	0.0404	8.3600e-003	523.0247
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	220710	37.3299	2.9000e-003	6.0000e-004	37.5771
Refrigerated Warehouse-No Rail	3.2153e+006	543.8215	0.0423	8.7500e-003	547.4223
Regional Shopping Center	9.92564e+006	1,678.7790	0.1306	0.0270	1,689.8949
Research & Development	1.3608e+006	230.1596	0.0179	3.7000e-003	231.6836
Single Family Housing	6.12335e+007	10,356.7679	0.8055	0.1667	10,425.3445
Supermarket	6.8886e+006	1,165.1070	0.0906	0.0188	1,172.8216
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**23,143.9406**	**1.8000**	**0.3724**	**23,297.1866**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	1.30657e+007	2,209.8751	0.1719	0.0356	2,224.5076
Bank (with Drive-Through)	77680	13.1385	1.0200e-003	2.1000e-004	13.2254
City Park	0	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	225055	38.0648	2.9600e-003	6.1000e-004	38.3168
Elementary School	2.99374e+006	506.3479	0.0394	8.1500e-003	509.7006
Fast Food Restaurant with Drive Thru	843287	142.6297	0.0111	2.3000e-003	143.5741
General Heavy Industry	133513	22.5817	1.7600e-003	3.6000e-004	22.7312
General Light Industry	267025	45.1634	3.5100e-003	7.3000e-004	45.4625
General Office Building	1.48739e+007	2,515.6977	0.1957	0.0405	2,532.3552
Government Office Building	57465	9.7194	7.6000e-004	1.6000e-004	9.7837
High School	2.86747e+006	484.9905	0.0377	7.8000e-003	488.2019
High Turnover (Sit Down Restaurant)	760860	128.6885	0.0100	2.0700e-003	129.5406
Industrial Park	5.26763e+006	890.9425	0.0693	0.0143	896.8418
Junior College (2yr)	5.425e+006	917.5602	0.0714	0.0148	923.6358
Junior High School	1.42301e+006	240.6822	0.0187	3.8700e-003	242.2758
Manufacturing	133513	22.5817	1.7600e-003	3.6000e-004	22.7312
Medical Office Building	2.87325e+006	485.9686	0.0378	7.8200e-003	489.1865
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	205485	34.7548	2.7000e-003	5.6000e-004	34.9849

Refrigerated Warehouse-No Rail	3.20073e+006	541.3563	0.0421	8.7100e-003	544.9409
Regional Shopping Center	9.24095e+006	1,562.9736	0.1216	0.0252	1,573.3227
Research & Development	1.31085e+006	221.7113	0.0172	3.5700e-003	223.1794
Single Family Housing	6.00291e+007	10,153.0582	0.7896	0.1634	10,220.2860
Supermarket	6.7239e+006	1,137.2503	0.0885	0.0183	1,144.7806
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**22,325.7368**	**1.7363**	**0.3592**	**22,473.5652**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	222.7282	1.0256	88.9570	4.7200e-003		0.8575	0.8575		0.8537	0.8537	0.0000	5,344.3084	5,344.3084	0.2389	0.0953	5,378.8699
Unmitigated	222.7282	1.0256	88.9570	4.7200e-003		0.8575	0.8575		0.8537	0.8537	0.0000	5,344.3084	5,344.3084	0.2389	0.0953	5,378.8699

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					

Architectural Coating	21.9836					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	197.5517					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.5253	2.0000e-005	0.0287	0.0000		0.3629	0.3629		0.3591	0.3591	0.0000	5,198.4887	5,198.4887	0.0996	0.0953	5,230.1259
Landscaping	2.6676	1.0256	88.9284	4.7200e-003		0.4946	0.4946		0.4946	0.4946	0.0000	145.8197	145.8197	0.1393	0.0000	148.7441
Total	**222.7282**	**1.0256**	**88.9570**	**4.7200e-003**		**0.8575**	**0.8575**		**0.8537**	**0.8537**	**0.0000**	**5,344.3084**	**5,344.3084**	**0.2389**	**0.0953**	**5,378.8699**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	21.9836					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	197.5517					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.5253	2.0000e-005	0.0287	0.0000		0.3629	0.3629		0.3591	0.3591	0.0000	5,198.4887	5,198.4887	0.0996	0.0953	5,230.1259
Landscaping	2.6676	1.0256	88.9284	4.7200e-003		0.4946	0.4946		0.4946	0.4946	0.0000	145.8197	145.8197	0.1393	0.0000	148.7441
Total	**222.7282**	**1.0256**	**88.9570**	**4.7200e-003**		**0.8575**	**0.8575**		**0.8537**	**0.8537**	**0.0000**	**5,344.3084**	**5,344.3084**	**0.2389**	**0.0953**	**5,378.8699**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			

Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	0 / 0	0.0000	0.0000	0.0000	0.0000
Bank (with Drive-Through)	0 / 0	0.0000	0.0000	0.0000	0.0000
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	0 / 0	0.0000	0.0000	0.0000	0.0000
Elementary School	0 / 0	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant with Drive-Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
General Heavy Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Government Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
High School	0 / 0	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	0 / 0	0.0000	0.0000	0.0000	0.0000
Industrial Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Junior College (2yr)	0 / 0	0.0000	0.0000	0.0000	0.0000

Junior High School	0 / 0	0.0000	0.0000	0.0000	0.0000
Manufacturing	0 / 0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0 / 0	0.0000	0.0000	0.0000	0.0000
Research & Development	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Supermarket	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	0 / 0	0.0000	0.0000	0.0000	0.0000
Bank (with Drive-Through)	0 / 0	0.0000	0.0000	0.0000	0.0000
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	0 / 0	0.0000	0.0000	0.0000	0.0000
Elementary School	0 / 0	0.0000	0.0000	0.0000	0.0000

Fast Food Restaurant with Drive Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
General Heavy Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Government Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
High School	0 / 0	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	0 / 0	0.0000	0.0000	0.0000	0.0000
Industrial Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Junior College (2yr)	0 / 0	0.0000	0.0000	0.0000	0.0000
Junior High School	0 / 0	0.0000	0.0000	0.0000	0.0000
Manufacturing	0 / 0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0 / 0	0.0000	0.0000	0.0000	0.0000
Research & Development	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Supermarket	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1,141.6912	67.4720	0.0000	2,558.6036
Unmitigated	4,566.7648	269.8881	0.0000	10,234.4143

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	1651.4	335.2193	19.8109	0.0000	751.2480
Bank (with Drive-Through)	29.86	6.0613	0.3582	0.0000	13.5838
City Park	11.27	2.2877	0.1352	0.0000	5.1269
Convenience Market with Gas Pumps	69.12	14.0307	0.8292	0.0000	31.4438
Elementary School	907.02	184.1169	10.8810	0.0000	412.6178
Fast Food Restaurant with Drive-Thru	306.4	62.1964	3.6757	0.0000	139.3862
General Heavy Industry	68.2	13.8440	0.8182	0.0000	31.0253

General Light Industry	136.4	27.6880	1.6363	0.0000	62.0505
General Office Building	1444.29	293.1778	17.3263	0.0000	657.0304
Government Office Building	5.58	1.1327	0.0669	0.0000	2.5384
High School	547.5	111.1376	6.5680	0.0000	249.0664
High Turnover (Sit Down Restaurant)	285.6	57.9742	3.4262	0.0000	129.9240
Industrial Park	682	138.4398	8.1816	0.0000	310.2526
Junior College (2yr)	455	92.3609	5.4584	0.0000	206.9867
Junior High School	306.6	62.2370	3.6781	0.0000	139.4772
Manufacturing	68.2	13.8440	0.8182	0.0000	31.0253
Medical Office Building	3240	657.6907	38.8684	0.0000	1,473.9273
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	63.15	12.8189	0.7576	0.0000	28.7279
Refrigerated Warehouse-No Rail	103.4	20.9893	1.2404	0.0000	47.0383
Regional Shopping Center	991.62	201.2899	11.8959	0.0000	451.1036
Research & Development	41.04	8.3308	0.4923	0.0000	18.6698
Single Family Housing	9861.73	2,001.8421	118.3055	0.0000	4,486.2571
Supermarket	1015.2	206.0764	12.1788	0.0000	461.8306
Unrefrigerated Warehouse-No Rail	206.8	41.9785	2.4809	0.0000	94.0766
Total		**4,566.7649**	**269.8881**	**0.0000**	**10,234.4143**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	412.85	83.8048	4.9527	0.0000	187.8120
Bank (with Drive-Through)	7.465	1.5153	0.0896	0.0000	3.3960
City Park	2.8175	0.5719	0.0338	0.0000	1.2817
Convenience Market with Gas Pumps	17.28	3.5077	0.2073	0.0000	7.8610
Elementary School	226.755	46.0292	2.7203	0.0000	103.1544
Fast Food Restaurant with Drive-Thru	76.6	15.5491	0.9189	0.0000	34.8466
General Heavy Industry	17.05	3.4610	0.2045	0.0000	7.7563
General Light Industry	34.1	6.9220	0.4091	0.0000	15.5126
General Office Building	361.072	73.2945	4.3316	0.0000	164.2576
Government Office Building	1.395	0.2832	0.0167	0.0000	0.6346
High School	136.875	27.7844	1.6420	0.0000	62.2666
High Turnover (Sit Down Restaurant)	71.4	14.4936	0.8565	0.0000	32.4810
Industrial Park	170.5	34.6100	2.0454	0.0000	77.5632
Junior College (2yr)	113.75	23.0902	1.3646	0.0000	51.7467
Junior High School	76.65	15.5593	0.9195	0.0000	34.8693
Manufacturing	17.05	3.4610	0.2045	0.0000	7.7563
Medical Office Building	810	164.4227	9.7171	0.0000	368.4818
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	15.7875	3.2047	0.1894	0.0000	7.1820
Refrigerated Warehouse-No Rail	25.85	5.2473	0.3101	0.0000	11.7596

Regional Shopping Center	247.905	50.3225	2.9740	0.0000	112.7759
Research & Development	10.26	2.0827	0.1231	0.0000	4.6674
Single Family Housing	2465.43	500.4605	29.5764	0.0000	1,121.5643
Supermarket	253.8	51.5191	3.0447	0.0000	115.4576
Unrefrigerated Warehouse-No Rail	51.7	10.4946	0.6202	0.0000	23.5192
Total		**1,141.6912**	**67.4720**	**0.0000**	**2,558.6036**

9.0 Operational Offroad

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

10.0 Vegetation

Grapevine Operational Year 2036 - Full Buildout

Kern-San Joaquin County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Bank (with Drive-Through)	32.00	1000sqft	2.95	32,000.00	0
General Office Building	1,553.00	1000sqft	136.57	1,553,000.00	0
Government Office Building	6.00	1000sqft	0.51	6,000.00	0
Medical Office Building	300.00	1000sqft	22.69	300,000.00	0
Pharmacy/Drugstore w/o Drive Thru	21.00	1000sqft	1.85	21,000.00	0
Research & Development	540.00	1000sqft	41.19	540,000.00	0
Elementary School	4,970.00	Student	25.00	415,508.75	0
High School	3,000.00	Student	10.00	397,982.93	0
Junior College (2yr)	350.00	1000sqft	27.25	350,000.00	0
Junior High School	1,680.00	Student	40.00	197,503.63	0
General Heavy Industry	55.00	1000sqft	73.59	55,000.00	0
General Light Industry	110.00	1000sqft	93.78	110,000.00	0
Industrial Park	550.00	1000sqft	228.57	550,000.00	0
Manufacturing	55.00	1000sqft	287.19	55,000.00	0
Refrigerated Warehouse-No Rail	110.00	1000sqft	147.18	110,000.00	0
Unrefrigerated Warehouse-No Rail	220.00	1000sqft	614.75	220,000.00	0
Other Asphalt Surfaces	460.00	Acre	460.00	20,037,600.00	0
City Park	131.00	Acre	131.00	5,706,360.00	0
Fast Food Restaurant with Drive Thru	26.60	1000sqft	3.44	26,600.00	0
High Turnover (Sit Down Restaurant)	24.00	1000sqft	3.11	24,000.00	0
Apartments Low Rise	3,590.00	Dwelling Unit	359.00	3,590,000.00	11488
Single Family Housing	8,410.00	Dwelling Unit	2,235.00	15,138,000.00	26912

Convenience Market with Gas Pumps	23.00	1000sqft	2.98	23,000.00	0
Regional Shopping Center	944.40	1000sqft	120.57	944,400.00	0
Supermarket	180.00	1000sqft	23.14	180,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	7			**Operational Year**	2035
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	372.88	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Full Buildout. Kern County, San Joaquin Valley Air Basin. Operational Year 2035 was conservatively used for anticipated Operational Year 2036 since CalEEMod does not include years beyond 2035. CO2 Intensity adjusted based on PG&E 50% Renewables by 2030.

Land Use - See 1.1 Land Usage. Population based on 3.2 persons per dwelling unit.

Construction Phase - Construction emissions calculated separately.

Vehicle Trips - Modified trip rates to match Trip Generation and VMT factors provided by Fehr & Peers.

Vehicle Emission Factors - Default CalEEMod values.

Woodstoves - No woodstoves and only gas fireplaces assumed.

Area Coating - Default CalEEMod VOC content. Modified non-residential interior and exterior area to be coated based on CalEEMod architectural coating surface area equations and adjusted for parking/asphalt surface and park land uses.

Energy Use - Updated Title 24 electricity and natural gas energy intensity to match 2013 Title 24 standards (25% reduction versus 2008 standards).

Water And Wastewater - Water and wastewater consumption and associated emissions calculated separately.

Construction Off-road Equipment Mitigation - Construction emissions calculated separately.

Mobile Land Use Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Project Setting: Suburban Center. Improve Pedestrian Network: Project Site and Connecting Off-Site. Provide Traffic Calming Measures: 100% Streets with Improvement, 100% Intersections with Improvement. Expand Transit Network: 50%.

Mobile Commute Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Voluntary Commute Trip Reduction Program: 50%.

Energy Mitigation - Exceed 2013 Title 24, % Improvement: 25%.

Water Mitigation - Water reductions calculated separately.

Waste Mitigation - Percent Reduction in Waste Disposed: 75%. Waste diversion consistent with Assembly Bill 341 (not mitigation).

Note Regarding Emissions Presented in the Air Quality & Greenhouse Gas Technical Report: Project-generated unmitigated and mitigated emissions in the Technical Report reflect the unmitigated mobile source emissions reported in 2.0 Emissions Summary. No area source mitigation assumed. Unmitigated and mitigated energy source and solid waste emissions reported in the Technical Report as presented in 2.0 Emissions Summary. Water/wastewater and stationary source emissions calculated separately.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	15927478	4317381
tblAreaCoating	Area_Nonresidential_Interior	47782434	8356493
tblConstructionPhase	NumDays	155,000.00	1.00
tblEnergyUse	T24E	352.42	264.31
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
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tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
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tblEnergyUse	T24E	4.43	3.32
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tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.70	0.53
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tblEnergyUse	T24NG	10.78	8.09
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tblEnergyUse	T24NG	8.10	6.08
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
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tblLandUse	LotAcreage	9.14	10.00
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tblLandUse	LotAcreage	1.26	73.59
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tblLandUse	LotAcreage	4.13	23.14
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tblLandUse	Population	24,053.00	26,912.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	372.88
tblProjectCharacteristics	OperationalYear	2014	2035
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tblVehicleTrips	WD_TR	127.15	34.76
tblVehicleTrips	WD_TR	6.96	5.56
tblVehicleTrips	WD_TR	27.49	4.23
tblVehicleTrips	WD_TR	1.62	1.32
tblVehicleTrips	WD_TR	3.82	2.90
tblVehicleTrips	WD_TR	36.13	8.98
tblVehicleTrips	WD_TR	90.06	8.98
tblVehicleTrips	WD_TR	2.59	2.90
tblVehicleTrips	WD_TR	42.94	34.76
tblVehicleTrips	WD_TR	8.11	8.98
tblVehicleTrips	WD_TR	9.57	7.75
tblVehicleTrips	WD_TR	102.24	34.76

tblVehicleTrips	WD_TR	2.59	2.90
tblWater	IndoorWaterUseRate	233,902,951.98	0.00
tblWater	IndoorWaterUseRate	1,267,933.40	0.00
tblWater	IndoorWaterUseRate	1,703,667.99	0.00
tblWater	IndoorWaterUseRate	12,048,472.80	0.00
tblWater	IndoorWaterUseRate	8,073,996.75	0.00
tblWater	IndoorWaterUseRate	12,718,750.00	0.00
tblWater	IndoorWaterUseRate	25,437,500.00	0.00
tblWater	IndoorWaterUseRate	276,020,510.63	0.00
tblWater	IndoorWaterUseRate	1,191,958.12	0.00
tblWater	IndoorWaterUseRate	13,214,880.00	0.00
tblWater	IndoorWaterUseRate	7,284,809.10	0.00
tblWater	IndoorWaterUseRate	127,187,500.00	0.00
tblWater	IndoorWaterUseRate	17,167,161.38	0.00
tblWater	IndoorWaterUseRate	4,072,723.20	0.00
tblWater	IndoorWaterUseRate	12,718,750.00	0.00
tblWater	IndoorWaterUseRate	37,644,161.27	0.00
tblWater	IndoorWaterUseRate	1,479,397.99	0.00
tblWater	IndoorWaterUseRate	25,437,500.00	0.00
tblWater	IndoorWaterUseRate	69,954,089.29	0.00
tblWater	IndoorWaterUseRate	265,514,731.49	0.00
tblWater	IndoorWaterUseRate	547,945,355.48	0.00
tblWater	IndoorWaterUseRate	22,188,278.68	0.00
tblWater	IndoorWaterUseRate	50,875,000.00	0.00
tblWater	OutdoorWaterUseRate	147,460,556.68	0.00
tblWater	OutdoorWaterUseRate	777,120.47	0.00
tblWater	OutdoorWaterUseRate	156,084,056.81	0.00
tblWater	OutdoorWaterUseRate	1,044,183.61	0.00
tblWater	OutdoorWaterUseRate	30,981,787.20	0.00
tblWater	OutdoorWaterUseRate	515,361.49	0.00

tblWater	OutdoorWaterUseRate	169,173,861.36	0.00
tblWater	OutdoorWaterUseRate	730,554.97	0.00
tblWater	OutdoorWaterUseRate	33,981,120.00	0.00
tblWater	OutdoorWaterUseRate	464,987.81	0.00
tblWater	OutdoorWaterUseRate	26,851,201.13	0.00
tblWater	OutdoorWaterUseRate	10,472,716.80	0.00
tblWater	OutdoorWaterUseRate	7,170,316.43	0.00
tblWater	OutdoorWaterUseRate	906,727.80	0.00
tblWater	OutdoorWaterUseRate	42,875,086.98	0.00
tblWater	OutdoorWaterUseRate	345,443,811.06	0.00
tblWater	OutdoorWaterUseRate	686,235.42	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1,245.3847	11.3964	988.7916	0.0524		14.3474	14.3474		14.2543	14.2543	0.0000	141,550.6909	141,550.6909	4.3844	2.5624	142,437.0934
Energy	9.5995	83.2921	44.1463	0.5236		6.6324	6.6324		6.6324	6.6324		104,721.9913	104,721.9913	2.0072	1.9199	105,359.3119
Mobile	800.6705	3,559.8079	11,533.1024	44.0914	2,253.3250	99.1040	2,352.4290	606.0323	91.2669	697.2992		3,518,993.4804	3,518,993.4804	61.7705		3,520,290.6604
Total	**2,055.6547**	**3,654.4963**	**12,566.0403**	**44.6674**	**2,253.3250**	**120.0838**	**2,373.4089**	**606.0323**	**112.1536**	**718.1858**	**0.0000**	**3,765,266.1626**	**3,765,266.1626**	**68.1621**	**4.4823**	**3,768,087.0657**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1,245.3847	11.3964	988.7916	0.0524		14.3474	14.3474		14.2543	14.2543	0.0000	141,550.6909	141,550.6909	4.3844	2.5624	142,437.0934
Energy	7.7019	66.7931	35.1719	0.4201		5.3213	5.3213		5.3213	5.3213		84,020.5029	84,020.5029	1.6104	1.5404	84,531.8377
Mobile	776.8443	3,397.8977	11,240.3435	41.7478	2,131.2430	93.8656	2,225.1086	573.1983	86.4433	659.6416		3,331,672.1231	3,331,672.1231	58.6221		3,332,903.1877
Total	**2,029.9309**	**3,476.0872**	**12,264.3069**	**42.2203**	**2,131.2430**	**113.5344**	**2,244.7773**	**573.1983**	**106.0189**	**679.2171**	**0.0000**	**3,557,243.3169**	**3,557,243.3169**	**64.6170**	**4.1027**	**3,559,872.1188**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.25**	**4.88**	**2.40**	**5.48**	**5.42**	**5.45**	**5.42**	**5.42**	**5.47**	**5.43**	**0.00**	**5.52**	**5.52**	**5.20**	**8.47**	**5.53**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

Provide Traffic Calming Measures

Expand Transit Network

Implement Trip Reduction Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	776.8443	3,397.8977	11,240.3435	41.7478	2,131.2430	93.8656	2,225.1086	573.1983	86.4433	659.6416		3,331,672.1231	3,331,672.1231	58.6221		3,332,903.1877
Unmitigated	800.6705	3,559.8079	11,533.1024	44.0914	2,253.3250	99.1040	2,352.4290	606.0323	91.2669	697.2992		3,518,993.4804	3,518,993.4804	61.7705		3,520,290.6604

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	19,421.90	21,145.10	17914.10	110,601,665	104,609,419
Bank (with Drive-Through)	287.36	167.36	62.08	1,353,387	1,280,062
City Park	201.74	201.74	201.74	1,147,029	1,084,885
Convenience Market with Gas Pumps	799.48	1,369.42	1117.57	5,266,881	4,981,529
Elementary School	5,218.50	0.00	0.00	21,193,372	20,045,144
Fast Food Restaurant with Drive Thru	924.62	1,345.43	1011.33	5,669,305	5,362,150
General Heavy Industry	159.50	30.25	11.00	681,266	644,356
General Light Industry	319.00	60.50	30.80	1,369,680	1,295,473
General Office Building	13,945.94	2,997.29	1242.40	60,080,897	56,825,797
Government Office Building	53.88	0.00	0.00	218,817	206,962
High School	4,170.00	1,500.00	600.00	18,640,908	17,630,969
High Turnover (Sit Down Restaurant)	834.24	1,038.96	864.96	4,934,455	4,667,113

Industrial Park	3,058.00	1,094.50	324.50	13,571,718	12,836,421
Junior College (2yr)	1,480.50	605.50	66.50	6,558,432	6,203,105
Junior High School	2,217.60	0.00	0.00	9,006,117	8,518,178
Manufacturing	159.50	62.15	25.85	719,239	680,271
Medical Office Building	2,694.00	669.00	114.00	11,576,857	10,949,639
Other Asphalt Surfaces	0.00	0.00	0.00		
Pharmacy/Drugstore w/o Drive Thru	188.58	188.58	188.58	1,072,206	1,014,115
Refrigerated Warehouse-No Rail	319.00	319.00	319.00	1,813,732	1,715,466
Regional Shopping Center	32,827.34	38,200.98	19294.09	180,018,207	170,265,068
Research & Development	4,849.20	1,134.00	664.20	21,154,141	20,008,039
Single Family Housing	65,177.50	68,625.60	59711.00	368,938,983	348,950,377
Supermarket	6,256.80	10,866.60	10184.40	42,508,580	40,205,524
Unrefrigerated Warehouse-No Rail	638.00	638.00	638.00	3,627,464	3,430,933
Total	166,202.18	152,259.96	114,586.10	891,723,339	843,410,997

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Bank (with Drive-Through)	15.62	15.62	15.62	6.60	74.40	19.00	100	0	0
City Park	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Convenience Market with Gas	15.62	15.62	15.62	0.80	80.20	19.00	100	0	0
Elementary School	15.62	15.62	15.62	65.00	30.00	5.00	100	0	0
Fast Food Restaurant with Drive Th	15.62	15.62	15.62	2.20	78.80	19.00	100	0	0
General Heavy Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Light Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Office Building	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Government Office Building	15.62	15.62	15.62	33.00	62.00	5.00	100	0	0
High School	15.62	15.62	15.62	77.80	17.20	5.00	100	0	0
High Turnover (Sit Down Restaura	15.62	15.62	15.62	8.50	72.50	19.00	100	0	0
Industrial Park	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Junior College (2yr)	15.62	15.62	15.62	6.40	88.60	5.00	100	0	0
Junior High School	15.62	15.62	15.62	72.80	22.20	5.00	100	0	0
Manufacturing	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Medical Office Building	15.62	15.62	15.62	29.60	51.40	19.00	100	0	0
Other Asphalt Surfaces	15.62	15.62	15.62	0.00	0.00	0.00	100	0	0
Pharmacy/Drugstore w/o Drive Th	15.62	15.62	15.62	7.40	73.60	19.00	100	0	0
Refrigerated Warehouse-No Rail	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0
Regional Shopping Center	15.62	15.62	15.62	16.30	64.70	19.00	100	0	0

Research & Development	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Single Family Housing	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Supermarket	15.62	15.62	15.62	6.50	74.50	19.00	100	0	0
Unrefrigerated Warehouse-No	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.355759	0.055439	0.135927	0.179388	0.056975	0.010375	0.023432	0.169902	0.001468	0.001841	0.006095	0.000886	0.002512

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	7.7019	66.7931	35.1719	0.4201		5.3213	5.3213		5.3213	5.3213		84,020.5029	84,020.5029	1.6104	1.5404	84,531.8377
NaturalGas Unmitigated	9.5995	83.2921	44.1463	0.5236		6.6324	6.6324		6.6324	6.6324		104,721.9913	104,721.9913	2.0072	1.9199	105,359.3119

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Land Use	kBTU/yr	lb/day										lb/day				
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	284.822	3.0700e-003	0.0279	0.0235	1.7000e-004		2.1200e-003	2.1200e-003		2.1200e-003	2.1200e-003		33.5085	33.5085	6.4000e-004	6.1000e-004	33.7124
Elementary School	9733.15	0.1050	0.9542	0.8016	5.7300e-003		0.0725	0.0725		0.0725	0.0725		1,145.0765	1,145.0765	0.0220	0.0210	1,152.0452
Fast Food Restaurant with Drive Thru	6950.25	0.0750	0.6814	0.5724	4.0900e-003		0.0518	0.0518		0.0518	0.0518		817.6767	817.6767	0.0157	0.0150	822.6530
General Heavy Industry	2001.1	0.0216	0.1962	0.1648	1.1800e-003		0.0149	0.0149		0.0149	0.0149		235.4231	235.4231	4.5100e-003	4.3200e-003	236.8558
General Light Industry	4002.19	0.0432	0.3924	0.3296	2.3500e-003		0.0298	0.0298		0.0298	0.0298		470.8461	470.8461	9.0200e-003	8.6300e-003	473.7116
General Office Building	58673.6	0.6328	5.7523	4.8319	0.0345		0.4372	0.4372		0.4372	0.4372		6,902.7784	6,902.7784	0.1323	0.1266	6,944.7876
Government Office Building	226.685	2.4400e-003	0.0222	0.0187	1.3000e-004		1.6900e-003	1.6900e-003		1.6900e-003	1.6900e-003		26.6688	26.6688	5.1000e-004	4.9000e-004	26.8311
High School	9322.61	0.1005	0.9140	0.7677	5.4800e-003		0.0695	0.0695		0.0695	0.0695		1,096.7781	1,096.7781	0.0210	0.0201	1,103.4529
High Turnover (Sit Down Restaurant)	6270.9	0.0676	0.6148	0.5164	3.6900e-003		0.0467	0.0467		0.0467	0.0467		737.7534	737.7534	0.0141	0.0135	742.2433
Industrial Park	20779.5	0.2241	2.0372	1.7113	0.0122		0.1548	0.1548		0.1548	0.1548		2,444.6414	2,444.6414	0.0469	0.0448	2,459.5191
Junior College (2yr)	39545.2	0.4265	3.8770	3.2567	0.0233		0.2947	0.2947		0.2947	0.2947		4,652.3771	4,652.3771	0.0892	0.0853	4,680.6907
Junior High School	4626.45	0.0499	0.4536	0.3810	2.7200e-003		0.0345	0.0345		0.0345	0.0345		544.2888	544.2888	0.0104	9.9800e-003	547.6013
Manufacturing	2001.1	0.0216	0.1962	0.1648	1.1800e-003		0.0149	0.0149		0.0149	0.0149		235.4231	235.4231	4.5100e-003	4.3200e-003	236.8558
Apartments Low Rise	127898	1.3793	11.7867	5.0156	0.0752		0.9530	0.9530		0.9530	0.9530		15,046.7922	15,046.7922	0.2884	0.2759	15,138.3644
Bank (with Drive-Through)	1164.27	0.0126	0.1141	0.0959	6.8000e-004		8.6700e-003	8.6700e-003		8.6700e-003	8.6700e-003		136.9734	136.9734	2.6300e-003	2.5100e-003	137.8070
Medical Office Building	11334.2	0.1222	1.1112	0.9334	6.6700e-003		0.0845	0.0845		0.0845	0.0845		1,333.4408	1,333.4408	0.0256	0.0245	1,341.5559
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	260.055	2.8000e-003	0.0255	0.0214	1.5000e-004		1.9400e-003	1.9400e-003		1.9400e-003	1.9400e-003		30.5947	30.5947	5.9000e-004	5.6000e-004	30.7809
Refrigerated Warehouse-No Rail	2190.96	0.0236	0.2148	0.1804	1.2900e-003		0.0163	0.0163		0.0163	0.0163		257.7599	257.7599	4.9400e-003	4.7300e-003	259.3286
Regional Shopping Center	11695	0.1261	1.1466	0.9631	6.8800e-003		0.0871	0.0871		0.0871	0.0871		1,375.8865	1,375.8865	0.0264	0.0252	1,384.2600

Research & Development	19647.1	0.2119	1.9262	1.6180	0.0116		0.1464	0.1464		0.1464	0.1464		2,311.4263	2,311.4263	0.0443	0.0424	2,325.4932
Single Family Housing	548063	5.9105	50.5078	21.4927	0.3224		4.0836	4.0836		4.0836	4.0836		64,478.0130	64,478.0130	1.2358	1.1821	64,870.4154
Supermarket	3466.85	0.0374	0.3399	0.2855	2.0400e-003		0.0258	0.0258		0.0258	0.0258		407.8646	407.8646	7.8200e-003	7.4800e-003	410.3468
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**9.5995**	**83.2921**	**44.1463**	**0.5236**		**6.6324**	**6.6324**		**6.6324**	**6.6324**		**104,721.9913**	**104,721.9913**	**2.0072**	**1.9199**	**105,359.3119**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	0.214719	2.3200e-003	0.0211	0.0177	1.3000e-004		1.6000e-003	1.6000e-003		1.6000e-003	1.6000e-003		25.2611	25.2611	4.8000e-004	4.6000e-004	25.4148
Elementary School	7.43078	0.0801	0.7285	0.6120	4.3700e-003		0.0554	0.0554		0.0554	0.0554		874.2090	874.2090	0.0168	0.0160	879.5293
Fast Food Restaurant with Drive Thru	6.69591	0.0722	0.6565	0.5514	3.9400e-003		0.0499	0.0499		0.0499	0.0499		787.7544	787.7544	0.0151	0.0144	792.5485
General Heavy Industry	1.50534	0.0162	0.1476	0.1240	8.9000e-004		0.0112	0.0112		0.0112	0.0112		177.0991	177.0991	3.3900e-003	3.2500e-003	178.1769
General Light Industry	3.01068	0.0325	0.2952	0.2479	1.7700e-003		0.0224	0.0224		0.0224	0.0224		354.1982	354.1982	6.7900e-003	6.4900e-003	356.3538
General Office Building	45.154	0.4870	4.4269	3.7186	0.0266		0.3364	0.3364		0.3364	0.3364		5,312.2361	5,312.2361	0.1018	0.0974	5,344.5655
Government Office Building	0.174452	1.8800e-003	0.0171	0.0144	1.0000e-004		1.3000e-003	1.3000e-003		1.3000e-003	1.3000e-003		20.5238	20.5238	3.9000e-004	3.8000e-004	20.6487
High School	7.11735	0.0768	0.6978	0.5861	4.1900e-003		0.0530	0.0530		0.0530	0.0530		837.3356	837.3356	0.0161	0.0154	842.4314
High Turnover (Sit Down Restaurant)	6.04142	0.0652	0.5923	0.4975	3.5500e-003		0.0450	0.0450		0.0450	0.0450		710.7558	710.7558	0.0136	0.0130	715.0814
Industrial Park	15.9914	0.1725	1.5678	1.3169	9.4100e-003		0.1192	0.1192		0.1192	0.1192		1,881.3457	1,881.3457	0.0361	0.0345	1,892.7953
Junior College (2yr)	29.7404	0.3207	2.9157	2.4492	0.0175		0.2216	0.2216		0.2216	0.2216		3,498.8719	3,498.8719	0.0671	0.0642	3,520.1654

Junior High School	3.53207	0.0381	0.3463	0.2909	2.0800e-003		0.0263	0.0263		0.0263	0.0263		415.5375	415.5375	7.9600e-003	7.6200e-003	418.0663
Manufacturing	1.50534	0.0162	0.1476	0.1240	8.9000e-004		0.0112	0.0112		0.0112	0.0112		177.0991	177.0991	3.3900e-003	3.2500e-003	178.1769
Medical Office Building	8.7226	0.0941	0.8552	0.7183	5.1300e-003		0.0650	0.0650		0.0650	0.0650		1,026.1886	1,026.1886	0.0197	0.0188	1,032.4338
Apartments Low Rise	102.066	1.1007	9.4061	4.0026	0.0600		0.7605	0.7605		0.7605	0.7605		12,007.7227	12,007.7227	0.2302	0.2201	12,080.7997
Bank (with Drive-Through)	0.875836	9.4500e-003	0.0859	0.0721	5.2000e-004		6.5300e-003	6.5300e-003		6.5300e-003	6.5300e-003		103.0395	103.0395	1.9700e-003	1.8900e-003	103.6666
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	0.196048	2.1100e-003	0.0192	0.0162	1.2000e-004		1.4600e-003	1.4600e-003		1.4600e-003	1.4600e-003		23.0645	23.0645	4.4000e-004	4.2000e-004	23.2048
Refrigerated Warehouse-No Rail	1.87678	0.0202	0.1840	0.1546	1.1000e-003		0.0140	0.0140		0.0140	0.0140		220.7977	220.7977	4.2300e-003	4.0500e-003	222.1415
Regional Shopping Center	8.81656	0.0951	0.8644	0.7261	5.1900e-003		0.0657	0.0657		0.0657	0.0657		1,037.2419	1,037.2419	0.0199	0.0190	1,043.5544
Research & Development	14.7797	0.1594	1.4490	1.2172	8.6900e-003		0.1101	0.1101		0.1101	0.1101		1,738.7913	1,738.7913	0.0333	0.0319	1,749.3733
Single Family Housing	446.01	4.8099	41.1029	17.4906	0.2624		3.3232	3.3232		3.3232	3.3232		52,471.7520	52,471.7520	1.0057	0.9620	52,791.0863
Supermarket	2.71726	0.0293	0.2664	0.2238	1.6000e-003		0.0203	0.0203		0.0203	0.0203		319.6777	319.6777	6.1300e-003	5.8600e-003	321.6232
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**7.7019**	**66.7931**	**35.1719**	**0.4201**		**5.3213**	**5.3213**		**5.3213**	**5.3213**		**84,020.5029**	**84,020.5029**	**1.6104**	**1.5404**	**84,531.8377**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1,245.3847	11.3964	988.7916	0.0524		14.3474	14.3474		14.2543	14.2543	0.0000	141,550.6909	141,550.6909	4.3844	2.5624	142,437.0934
Unmitigated	1,245.3847	11.3964	988.7916	0.0524		14.3474	14.3474		14.2543	14.2543	0.0000	141,550.6909	141,550.6909	4.3844	2.5624	142,437.0934

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	120.4582					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1,082.4752					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	12.8118	5.8000e-004	0.6988	0.0000		8.8518	8.8518		8.7586	8.7586	0.0000	139,764.7059	139,764.7059	2.6788	2.5624	140,615.2906
Landscaping	29.6395	11.3958	988.0927	0.0524		5.4957	5.4957		5.4957	5.4957		1,785.9850	1,785.9850	1.7056		1,821.8028
Total	**1,245.3847**	**11.3964**	**988.7916**	**0.0524**		**14.3474**	**14.3474**		**14.2543**	**14.2543**	**0.0000**	**141,550.6909**	**141,550.6909**	**4.3844**	**2.5624**	**142,437.0934**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	120.4582					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1,082.4752					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	12.8118	5.8000e-004	0.6988	0.0000		8.8518	8.8518		8.7586	8.7586	0.0000	139,764.7059	139,764.7059	2.6788	2.5624	140,615.2906
Landscaping	29.6395	11.3958	988.0927	0.0524		5.4957	5.4957		5.4957	5.4957		1,785.9850	1,785.9850	1.7056		1,821.8028
Total	**1,245.3847**	**11.3964**	**988.7916**	**0.0524**		**14.3474**	**14.3474**		**14.2543**	**14.2543**	**0.0000**	**141,550.6909**	**141,550.6909**	**4.3844**	**2.5624**	**142,437.0934**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Vegetation

Grapevine Operational Year 2036 - Full Buildout

Kern-San Joaquin County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Bank (with Drive-Through)	32.00	1000sqft	2.95	32,000.00	0
General Office Building	1,553.00	1000sqft	136.57	1,553,000.00	0
Government Office Building	6.00	1000sqft	0.51	6,000.00	0
Medical Office Building	300.00	1000sqft	22.69	300,000.00	0
Pharmacy/Drugstore w/o Drive Thru	21.00	1000sqft	1.85	21,000.00	0
Research & Development	540.00	1000sqft	41.19	540,000.00	0
Elementary School	4,970.00	Student	25.00	415,508.75	0
High School	3,000.00	Student	10.00	397,982.93	0
Junior College (2yr)	350.00	1000sqft	27.25	350,000.00	0
Junior High School	1,680.00	Student	40.00	197,503.63	0
General Heavy Industry	55.00	1000sqft	73.59	55,000.00	0
General Light Industry	110.00	1000sqft	93.78	110,000.00	0
Industrial Park	550.00	1000sqft	228.57	550,000.00	0
Manufacturing	55.00	1000sqft	287.19	55,000.00	0
Refrigerated Warehouse-No Rail	110.00	1000sqft	147.18	110,000.00	0
Unrefrigerated Warehouse-No Rail	220.00	1000sqft	614.75	220,000.00	0
Other Asphalt Surfaces	460.00	Acre	460.00	20,037,600.00	0
City Park	131.00	Acre	131.00	5,706,360.00	0
Fast Food Restaurant with Drive Thru	26.60	1000sqft	3.44	26,600.00	0
High Turnover (Sit Down Restaurant)	24.00	1000sqft	3.11	24,000.00	0
Apartments Low Rise	3,590.00	Dwelling Unit	359.00	3,590,000.00	11488
Single Family Housing	8,410.00	Dwelling Unit	2,235.00	15,138,000.00	26912

Convenience Market with Gas Pumps	23.00	1000sqft	2.98	23,000.00	0
Regional Shopping Center	944.40	1000sqft	120.57	944,400.00	0
Supermarket	180.00	1000sqft	23.14	180,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	7			**Operational Year**	2035
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	372.88	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Full Buildout. Kern County, San Joaquin Valley Air Basin. Operational Year 2035 was conservatively used for anticipated Operational Year 2036 since CalEEMod does not include years beyond 2035. CO2 Intensity adjusted based on PG&E 50% Renewables by 2030.

Land Use - See 1.1 Land Usage. Population based on 3.2 persons per dwelling unit.

Construction Phase - Construction emissions calculated separately.

Vehicle Trips - Modified trip rates to match Trip Generation and VMT factors provided by Fehr & Peers.

Vehicle Emission Factors - Default CalEEMod values.

Woodstoves - No woodstoves and only gas fireplaces assumed.

Area Coating - Default CalEEMod VOC content. Modified non-residential interior and exterior area to be coated based on CalEEMod architectural coating surface area equations and adjusted for parking/asphalt surface and park land uses.

Energy Use - Updated Title 24 electricity and natural gas energy intensity to match 2013 Title 24 standards (25% reduction versus 2008 standards).

Water And Wastewater - Water and wastewater consumption and associated emissions calculated separately.

Construction Off-road Equipment Mitigation - Construction emissions calculated separately.

Mobile Land Use Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Project Setting: Suburban Center. Improve Pedestrian Network: Project Site and Connecting Off-Site. Provide Traffic Calming Measures: 100% Streets with Improvement, 100% Intersections with Improvement. Expand Transit Network: 50%.

Mobile Commute Mitigation - Mitigation input values determined using CAPCOA Quantifying GHG Mitigation Measures (August 2010). Voluntary Commute Trip Reduction Program: 50%.

Energy Mitigation - Exceed 2013 Title 24, % Improvement: 25%.

Water Mitigation - Water reductions calculated separately.

Waste Mitigation - Percent Reduction in Waste Disposed: 75%. Waste diversion consistent with Assembly Bill 341 (not mitigation).

Note Regarding Emissions Presented in the Air Quality & Greenhouse Gas Technical Report: Project-generated unmitigated and mitigated emissions in the Technical Report reflect the unmitigated mobile source emissions reported in 2.0 Emissions Summary. No area source mitigation assumed. Unmitigated and mitigated energy source and solid waste emissions reported in the Technical Report as presented in 2.0 Emissions Summary. Water/wastewater and stationary source emissions calculated separately.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	15927478	4317381
tblAreaCoating	Area_Nonresidential_Interior	47782434	8356493
tblConstructionPhase	NumDays	155,000.00	1.00
tblEnergyUse	T24E	352.42	264.31
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	9.53	7.15
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	4.43	3.32
tblEnergyUse	T24E	2.38	1.78
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	3.53	2.65
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.70	0.53
tblEnergyUse	T24E	3.86	2.90
tblEnergyUse	T24E	0.49	0.37
tblEnergyUse	T24E	763.80	572.85
tblEnergyUse	T24E	4.88	3.66
tblEnergyUse	T24NG	14,007.38	10,505.53

tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	18.61	13.96
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	54.53	40.90
tblEnergyUse	T24NG	10.78	8.09
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	16.95	12.71
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	5.56	4.17
tblEnergyUse	T24NG	5.93	4.45
tblEnergyUse	T24NG	17.55	13.16
tblEnergyUse	T24NG	23,622.31	17,716.73
tblEnergyUse	T24NG	8.10	6.08
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblLandUse	LotAcreage	0.73	2.95
tblLandUse	LotAcreage	35.65	136.57
tblLandUse	LotAcreage	0.14	0.51
tblLandUse	LotAcreage	6.89	22.69
tblLandUse	LotAcreage	0.48	1.85
tblLandUse	LotAcreage	12.40	41.19
tblLandUse	LotAcreage	9.54	25.00

tblLandUse	LotAcreage	9.14	10.00
tblLandUse	LotAcreage	8.03	27.25
tblLandUse	LotAcreage	4.53	40.00
tblLandUse	LotAcreage	1.26	73.59
tblLandUse	LotAcreage	2.53	93.78
tblLandUse	LotAcreage	12.63	228.57
tblLandUse	LotAcreage	1.26	287.19
tblLandUse	LotAcreage	2.53	147.18
tblLandUse	LotAcreage	5.05	614.75
tblLandUse	LotAcreage	0.61	3.44
tblLandUse	LotAcreage	0.55	3.11
tblLandUse	LotAcreage	224.38	359.00
tblLandUse	LotAcreage	2,730.52	2,235.00
tblLandUse	LotAcreage	0.53	2.98
tblLandUse	LotAcreage	21.68	120.57
tblLandUse	LotAcreage	4.13	23.14
tblLandUse	Population	10,267.00	11,488.00
tblLandUse	Population	24,053.00	26,912.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	372.88
tblProjectCharacteristics	OperationalYear	2014	2035
tblTripsAndVMT	VendorTripNumber	6,504.00	0.00
tblTripsAndVMT	WorkerTripNumber	18,632.00	0.00
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62

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tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
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tblVehicleTrips	DV_TP	5.00	0.00

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tblVehicleTrips	HS_TL	7.30	15.62
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tblVehicleTrips	HW_TL	10.80	15.62
tblVehicleTrips	HW_TL	10.80	15.62
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	47.00	0.00
tblVehicleTrips	PB_TP	6.00	0.00
tblVehicleTrips	PB_TP	65.00	0.00
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tblVehicleTrips	PB_TP	50.00	0.00
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tblVehicleTrips	PB_TP	12.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	10.00	0.00
tblVehicleTrips	PB_TP	53.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	11.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	36.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00

tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	27.00	100.00
tblVehicleTrips	PR_TP	66.00	100.00
tblVehicleTrips	PR_TP	14.00	100.00
tblVehicleTrips	PR_TP	63.00	100.00
tblVehicleTrips	PR_TP	29.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	PR_TP	50.00	100.00
tblVehicleTrips	PR_TP	75.00	100.00
tblVehicleTrips	PR_TP	37.00	100.00
tblVehicleTrips	PR_TP	79.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	63.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	60.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	PR_TP	41.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	54.00	100.00
tblVehicleTrips	PR_TP	82.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	34.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	7.16	5.89
tblVehicleTrips	ST_TR	86.32	5.23
tblVehicleTrips	ST_TR	1.59	1.54
tblVehicleTrips	ST_TR	1,448.33	59.54
tblVehicleTrips	ST_TR	722.03	50.58

tblVehicleTrips	ST_TR	1.50	0.55
tblVehicleTrips	ST_TR	1.32	0.55
tblVehicleTrips	ST_TR	2.37	1.93
tblVehicleTrips	ST_TR	0.61	0.50
tblVehicleTrips	ST_TR	158.37	43.29
tblVehicleTrips	ST_TR	2.49	1.99
tblVehicleTrips	ST_TR	11.23	1.73
tblVehicleTrips	ST_TR	1.49	1.13
tblVehicleTrips	ST_TR	8.96	2.23
tblVehicleTrips	ST_TR	90.06	8.98
tblVehicleTrips	ST_TR	2.59	2.90
tblVehicleTrips	ST_TR	49.97	40.45
tblVehicleTrips	ST_TR	1.90	2.10
tblVehicleTrips	ST_TR	10.08	8.16
tblVehicleTrips	ST_TR	177.59	60.37
tblVehicleTrips	ST_TR	2.59	2.90
tblVehicleTrips	SU_TR	6.07	4.99
tblVehicleTrips	SU_TR	31.90	1.94
tblVehicleTrips	SU_TR	1.59	1.54
tblVehicleTrips	SU_TR	1,182.08	48.59
tblVehicleTrips	SU_TR	542.72	38.02
tblVehicleTrips	SU_TR	1.50	0.20
tblVehicleTrips	SU_TR	0.68	0.28
tblVehicleTrips	SU_TR	0.98	0.80
tblVehicleTrips	SU_TR	0.25	0.20
tblVehicleTrips	SU_TR	131.84	36.04
tblVehicleTrips	SU_TR	0.73	0.59
tblVehicleTrips	SU_TR	1.21	0.19
tblVehicleTrips	SU_TR	0.62	0.47
tblVehicleTrips	SU_TR	1.55	0.38

tblVehicleTrips	SU_TR	90.06	8.98
tblVehicleTrips	SU_TR	2.59	2.90
tblVehicleTrips	SU_TR	25.24	20.43
tblVehicleTrips	SU_TR	1.11	1.23
tblVehicleTrips	SU_TR	8.77	7.10
tblVehicleTrips	SU_TR	166.44	56.58
tblVehicleTrips	SU_TR	2.59	2.90
tblVehicleTrips	WD_TR	6.59	5.41
tblVehicleTrips	WD_TR	148.15	8.98
tblVehicleTrips	WD_TR	1.59	1.54
tblVehicleTrips	WD_TR	845.60	34.76
tblVehicleTrips	WD_TR	1.29	1.05
tblVehicleTrips	WD_TR	496.12	34.76
tblVehicleTrips	WD_TR	1.50	2.90
tblVehicleTrips	WD_TR	6.97	2.90
tblVehicleTrips	WD_TR	11.01	8.98
tblVehicleTrips	WD_TR	68.93	8.98
tblVehicleTrips	WD_TR	1.71	1.39
tblVehicleTrips	WD_TR	127.15	34.76
tblVehicleTrips	WD_TR	6.96	5.56
tblVehicleTrips	WD_TR	27.49	4.23
tblVehicleTrips	WD_TR	1.62	1.32
tblVehicleTrips	WD_TR	3.82	2.90
tblVehicleTrips	WD_TR	36.13	8.98
tblVehicleTrips	WD_TR	90.06	8.98
tblVehicleTrips	WD_TR	2.59	2.90
tblVehicleTrips	WD_TR	42.94	34.76
tblVehicleTrips	WD_TR	8.11	8.98
tblVehicleTrips	WD_TR	9.57	7.75
tblVehicleTrips	WD_TR	102.24	34.76

tblVehicleTrips	WD_TR	2.59	2.90
tblWater	IndoorWaterUseRate	233,902,951.98	0.00
tblWater	IndoorWaterUseRate	1,267,933.40	0.00
tblWater	IndoorWaterUseRate	1,703,667.99	0.00
tblWater	IndoorWaterUseRate	12,048,472.80	0.00
tblWater	IndoorWaterUseRate	8,073,996.75	0.00
tblWater	IndoorWaterUseRate	12,718,750.00	0.00
tblWater	IndoorWaterUseRate	25,437,500.00	0.00
tblWater	IndoorWaterUseRate	276,020,510.63	0.00
tblWater	IndoorWaterUseRate	1,191,958.12	0.00
tblWater	IndoorWaterUseRate	13,214,880.00	0.00
tblWater	IndoorWaterUseRate	7,284,809.10	0.00
tblWater	IndoorWaterUseRate	127,187,500.00	0.00
tblWater	IndoorWaterUseRate	17,167,161.38	0.00
tblWater	IndoorWaterUseRate	4,072,723.20	0.00
tblWater	IndoorWaterUseRate	12,718,750.00	0.00
tblWater	IndoorWaterUseRate	37,644,161.27	0.00
tblWater	IndoorWaterUseRate	1,479,397.99	0.00
tblWater	IndoorWaterUseRate	25,437,500.00	0.00
tblWater	IndoorWaterUseRate	69,954,089.29	0.00
tblWater	IndoorWaterUseRate	265,514,731.49	0.00
tblWater	IndoorWaterUseRate	547,945,355.48	0.00
tblWater	IndoorWaterUseRate	22,188,278.68	0.00
tblWater	IndoorWaterUseRate	50,875,000.00	0.00
tblWater	OutdoorWaterUseRate	147,460,556.68	0.00
tblWater	OutdoorWaterUseRate	777,120.47	0.00
tblWater	OutdoorWaterUseRate	156,084,056.81	0.00
tblWater	OutdoorWaterUseRate	1,044,183.61	0.00
tblWater	OutdoorWaterUseRate	30,981,787.20	0.00
tblWater	OutdoorWaterUseRate	515,361.49	0.00

tblWater	OutdoorWaterUseRate	169,173,861.36	0.00
tblWater	OutdoorWaterUseRate	730,554.97	0.00
tblWater	OutdoorWaterUseRate	33,981,120.00	0.00
tblWater	OutdoorWaterUseRate	464,987.81	0.00
tblWater	OutdoorWaterUseRate	26,851,201.13	0.00
tblWater	OutdoorWaterUseRate	10,472,716.80	0.00
tblWater	OutdoorWaterUseRate	7,170,316.43	0.00
tblWater	OutdoorWaterUseRate	906,727.80	0.00
tblWater	OutdoorWaterUseRate	42,875,086.98	0.00
tblWater	OutdoorWaterUseRate	345,443,811.06	0.00
tblWater	OutdoorWaterUseRate	686,235.42	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1,245.3847	11.3964	988.7916	0.0524		14.3474	14.3474		14.2543	14.2543	0.0000	141,550.6909	141,550.6909	4.3844	2.5624	142,437.0934
Energy	9.5995	83.2921	44.1463	0.5236		6.6324	6.6324		6.6324	6.6324		104,721.9913	104,721.9913	2.0072	1.9199	105,359.3119
Mobile	814.5123	3,303.1735	9,953.5722	47.3430	2,253.3250	98.8447	2,352.1697	606.0323	91.0283	697.0606		3,732,704.3115	3,732,704.3115	61.4890		3,733,995.5806
Total	**2,069.4965**	**3,397.8620**	**10,986.5101**	**47.9190**	**2,253.3250**	**119.8245**	**2,373.1495**	**606.0323**	**111.9150**	**717.9472**	**0.0000**	**3,978,976.9937**	**3,978,976.9937**	**67.8806**	**4.4823**	**3,981,791.9858**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1,245.3847	11.3964	988.7916	0.0524		14.3474	14.3474		14.2543	14.2543	0.0000	141,550.6909	141,550.6909	4.3844	2.5624	142,437.0934
Energy	7.7019	66.7931	35.1719	0.4201		5.3213	5.3213		5.3213	5.3213		84,020.5029	84,020.5029	1.6104	1.5404	84,531.8377
Mobile	790.2765	3,154.2426	9,604.8961	44.8245	2,131.2430	93.6063	2,224.8493	573.1983	86.2047	659.4030		3,534,126.2882	3,534,126.2882	58.3407		3,535,351.4419
Total	**2,043.3631**	**3,232.4321**	**10,628.8595**	**45.2970**	**2,131.2430**	**113.2750**	**2,244.5180**	**573.1983**	**105.7803**	**678.9786**	**0.0000**	**3,759,697.4821**	**3,759,697.4821**	**64.3355**	**4.1027**	**3,762,320.3730**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.26**	**4.87**	**3.26**	**5.47**	**5.42**	**5.47**	**5.42**	**5.42**	**5.48**	**5.43**	**0.00**	**5.51**	**5.51**	**5.22**	**8.47**	**5.51**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

Provide Traffic Calming Measures

Expand Transit Network

Implement Trip Reduction Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	790.2765	3,154.2426	9,604.8961	44.8245	2,131.2430	93.6063	2,224.8493	573.1983	86.2047	659.4030		3,534,126.2882	3,534,126.2882	58.3407		3,535,351.4419
Unmitigated	814.5123	3,303.1735	9,953.5722	47.3430	2,253.3250	98.8447	2,352.1697	606.0323	91.0283	697.0606		3,732,704.3115	3,732,704.3115	61.4890		3,733,995.5806

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	19,421.90	21,145.10	17914.10	110,601,665	104,609,419
Bank (with Drive-Through)	287.36	167.36	62.08	1,353,387	1,280,062
City Park	201.74	201.74	201.74	1,147,029	1,084,885
Convenience Market with Gas Pumps	799.48	1,369.42	1117.57	5,266,881	4,981,529
Elementary School	5,218.50	0.00	0.00	21,193,372	20,045,144
Fast Food Restaurant with Drive Thru	924.62	1,345.43	1011.33	5,669,305	5,362,150
General Heavy Industry	159.50	30.25	11.00	681,266	644,356
General Light Industry	319.00	60.50	30.80	1,369,680	1,295,473
General Office Building	13,945.94	2,997.29	1242.40	60,080,897	56,825,797
Government Office Building	53.88	0.00	0.00	218,817	206,962
High School	4,170.00	1,500.00	600.00	18,640,908	17,630,969
High Turnover (Sit Down Restaurant)	834.24	1,038.96	864.96	4,934,455	4,667,113

Industrial Park	3,058.00	1,094.50	324.50	13,571,718	12,836,421
Junior College (2yr)	1,480.50	605.50	66.50	6,558,432	6,203,105
Junior High School	2,217.60	0.00	0.00	9,006,117	8,518,178
Manufacturing	159.50	62.15	25.85	719,239	680,271
Medical Office Building	2,694.00	669.00	114.00	11,576,857	10,949,639
Other Asphalt Surfaces	0.00	0.00	0.00		
Pharmacy/Drugstore w/o Drive Thru	188.58	188.58	188.58	1,072,206	1,014,115
Refrigerated Warehouse-No Rail	319.00	319.00	319.00	1,813,732	1,715,466
Regional Shopping Center	32,827.34	38,200.98	19294.09	180,018,207	170,265,068
Research & Development	4,849.20	1,134.00	664.20	21,154,141	20,008,039
Single Family Housing	65,177.50	68,625.60	59711.00	368,938,983	348,950,377
Supermarket	6,256.80	10,866.60	10184.40	42,508,580	40,205,524
Unrefrigerated Warehouse-No Rail	638.00	638.00	638.00	3,627,464	3,430,933
Total	166,202.18	152,259.96	114,586.10	891,723,339	843,410,997

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Bank (with Drive-Through)	15.62	15.62	15.62	6.60	74.40	19.00	100	0	0
City Park	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Convenience Market with Gas	15.62	15.62	15.62	0.80	80.20	19.00	100	0	0
Elementary School	15.62	15.62	15.62	65.00	30.00	5.00	100	0	0
Fast Food Restaurant with Drive Th	15.62	15.62	15.62	2.20	78.80	19.00	100	0	0
General Heavy Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Light Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Office Building	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Government Office Building	15.62	15.62	15.62	33.00	62.00	5.00	100	0	0
High School	15.62	15.62	15.62	77.80	17.20	5.00	100	0	0
High Turnover (Sit Down	15.62	15.62	15.62	8.50	72.50	19.00	100	0	0
Industrial Park	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Junior College (2yr)	15.62	15.62	15.62	6.40	88.60	5.00	100	0	0
Junior High School	15.62	15.62	15.62	72.80	22.20	5.00	100	0	0
Manufacturing	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Medical Office Building	15.62	15.62	15.62	29.60	51.40	19.00	100	0	0
Other Asphalt Surfaces	15.62	15.62	15.62	0.00	0.00	0.00	100	0	0
Pharmacy/Drugstore w/o Drive	15.62	15.62	15.62	7.40	73.60	19.00	100	0	0
Refrigerated Warehouse-No Rail	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0
Regional Shopping Center	15.62	15.62	15.62	16.30	64.70	19.00	100	0	0

Research & Development	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Single Family Housing	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Supermarket	15.62	15.62	15.62	6.50	74.50	19.00	100	0	0
Unrefrigerated Warehouse-No	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.355759	0.055439	0.135927	0.179388	0.056975	0.010375	0.023432	0.169902	0.001468	0.001841	0.006095	0.000886	0.002512

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	7.7019	66.7931	35.1719	0.4201		5.3213	5.3213		5.3213	5.3213		84,020.5029	84,020.5029	1.6104	1.5404	84,531.8377
NaturalGas Unmitigated	9.5995	83.2921	44.1463	0.5236		6.6324	6.6324		6.6324	6.6324		104,721.9913	104,721.9913	2.0072	1.9199	105,359.3119

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Land Use	kBTU/yr	lb/day										lb/day				
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	284.822	3.0700e-003	0.0279	0.0235	1.7000e-004		2.1200e-003	2.1200e-003		2.1200e-003	2.1200e-003		33.5085	33.5085	6.4000e-004	6.1000e-004	33.7124
Elementary School	9733.15	0.1050	0.9542	0.8016	5.7300e-003		0.0725	0.0725		0.0725	0.0725		1,145.0765	1,145.0765	0.0220	0.0210	1,152.0452
Fast Food Restaurant with Drive Thru	6950.25	0.0750	0.6814	0.5724	4.0900e-003		0.0518	0.0518		0.0518	0.0518		817.6767	817.6767	0.0157	0.0150	822.6530
General Heavy Industry	2001.1	0.0216	0.1962	0.1648	1.1800e-003		0.0149	0.0149		0.0149	0.0149		235.4231	235.4231	4.5100e-003	4.3200e-003	236.8558
General Light Industry	4002.19	0.0432	0.3924	0.3296	2.3500e-003		0.0298	0.0298		0.0298	0.0298		470.8461	470.8461	9.0200e-003	8.6300e-003	473.7116
General Office Building	58673.6	0.6328	5.7523	4.8319	0.0345		0.4372	0.4372		0.4372	0.4372		6,902.7784	6,902.7784	0.1323	0.1266	6,944.7876
Government Office Building	226.685	2.4400e-003	0.0222	0.0187	1.3000e-004		1.6900e-003	1.6900e-003		1.6900e-003	1.6900e-003		26.6688	26.6688	5.1000e-004	4.9000e-004	26.8311
High School	9322.61	0.1005	0.9140	0.7677	5.4800e-003		0.0695	0.0695		0.0695	0.0695		1,096.7781	1,096.7781	0.0210	0.0201	1,103.4529
High Turnover (Sit Down Restaurant)	6270.9	0.0676	0.6148	0.5164	3.6900e-003		0.0467	0.0467		0.0467	0.0467		737.7534	737.7534	0.0141	0.0135	742.2433
Industrial Park	20779.5	0.2241	2.0372	1.7113	0.0122		0.1548	0.1548		0.1548	0.1548		2,444.6414	2,444.6414	0.0469	0.0448	2,459.5191
Junior College (2yr)	39545.2	0.4265	3.8770	3.2567	0.0233		0.2947	0.2947		0.2947	0.2947		4,652.3771	4,652.3771	0.0892	0.0853	4,680.6907
Junior High School	4626.45	0.0499	0.4536	0.3810	2.7200e-003		0.0345	0.0345		0.0345	0.0345		544.2888	544.2888	0.0104	9.9800e-003	547.6013
Manufacturing	2001.1	0.0216	0.1962	0.1648	1.1800e-003		0.0149	0.0149		0.0149	0.0149		235.4231	235.4231	4.5100e-003	4.3200e-003	236.8558
Medical Office Building	11334.2	0.1222	1.1112	0.9334	6.6700e-003		0.0845	0.0845		0.0845	0.0845		1,333.4408	1,333.4408	0.0256	0.0245	1,341.5559
Apartments Low Rise	127898	1.3793	11.7867	5.0156	0.0752		0.9530	0.9530		0.9530	0.9530		15,046.7922	15,046.7922	0.2884	0.2759	15,138.3644
Bank (with Drive-Through)	1164.27	0.0126	0.1141	0.0959	6.8000e-004		8.6700e-003	8.6700e-003		8.6700e-003	8.6700e-003		136.9734	136.9734	2.6300e-003	2.5100e-003	137.8070
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	260.055	2.8000e-003	0.0255	0.0214	1.5000e-004		1.9400e-003	1.9400e-003		1.9400e-003	1.9400e-003		30.5947	30.5947	5.9000e-004	5.6000e-004	30.7809
Refrigerated Warehouse-No Rail	2190.96	0.0236	0.2148	0.1804	1.2900e-003		0.0163	0.0163		0.0163	0.0163		257.7599	257.7599	4.9400e-003	4.7300e-003	259.3286
Regional Shopping Center	11695	0.1261	1.1466	0.9631	6.8800e-003		0.0871	0.0871		0.0871	0.0871		1,375.8865	1,375.8865	0.0264	0.0252	1,384.2600

Research & Development	19647.1	0.2119	1.9262	1.6180	0.0116		0.1464	0.1464		0.1464	0.1464		2,311.4263	2,311.4263	0.0443	0.0424	2,325.4932
Single Family Housing	548063	5.9105	50.5078	21.4927	0.3224		4.0836	4.0836		4.0836	4.0836		64,478.0130	64,478.0130	1.2358	1.1821	64,870.4154
Supermarket	3466.85	0.0374	0.3399	0.2855	2.0400e-003		0.0258	0.0258		0.0258	0.0258		407.8646	407.8646	7.8200e-003	7.4800e-003	410.3468
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**9.5995**	**83.2921**	**44.1463**	**0.5236**		**6.6324**	**6.6324**		**6.6324**	**6.6324**		**104,721.9913**	**104,721.9913**	**2.0072**	**1.9199**	**105,359.3119**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	0.214719	2.3200e-003	0.0211	0.0177	1.3000e-004		1.6000e-003	1.6000e-003		1.6000e-003	1.6000e-003		25.2611	25.2611	4.8000e-004	4.6000e-004	25.4148
Elementary School	7.43078	0.0801	0.7285	0.6120	4.3700e-003		0.0554	0.0554		0.0554	0.0554		874.2090	874.2090	0.0168	0.0160	879.5293
Fast Food Restaurant with Drive Thru	6.69591	0.0722	0.6565	0.5514	3.9400e-003		0.0499	0.0499		0.0499	0.0499		787.7544	787.7544	0.0151	0.0144	792.5485
General Heavy Industry	1.50534	0.0162	0.1476	0.1240	8.9000e-004		0.0112	0.0112		0.0112	0.0112		177.0991	177.0991	3.3900e-003	3.2500e-003	178.1769
General Light Industry	3.01068	0.0325	0.2952	0.2479	1.7700e-003		0.0224	0.0224		0.0224	0.0224		354.1982	354.1982	6.7900e-003	6.4900e-003	356.3538
General Office Building	45.154	0.4870	4.4269	3.7186	0.0266		0.3364	0.3364		0.3364	0.3364		5,312.2361	5,312.2361	0.1018	0.0974	5,344.5655
Government Office Building	0.174452	1.8800e-003	0.0171	0.0144	1.0000e-004		1.3000e-003	1.3000e-003		1.3000e-003	1.3000e-003		20.5238	20.5238	3.9000e-004	3.8000e-004	20.6487
High School	7.11735	0.0768	0.6978	0.5861	4.1900e-003		0.0530	0.0530		0.0530	0.0530		837.3356	837.3356	0.0161	0.0154	842.4314
High Turnover (Sit Down Restaurant)	6.04142	0.0652	0.5923	0.4975	3.5500e-003		0.0450	0.0450		0.0450	0.0450		710.7558	710.7558	0.0136	0.0130	715.0814
Industrial Park	15.9914	0.1725	1.5678	1.3169	9.4100e-003		0.1192	0.1192		0.1192	0.1192		1,881.3457	1,881.3457	0.0361	0.0345	1,892.7953
Junior College (2yr)	29.7404	0.3207	2.9157	2.4492	0.0175		0.2216	0.2216		0.2216	0.2216		3,498.8719	3,498.8719	0.0671	0.0642	3,520.1654

Junior High School	3.53207	0.0381	0.3463	0.2909	2.0800e-003		0.0263	0.0263		0.0263	0.0263		415.5375	415.5375	7.9600e-003	7.6200e-003	418.0663
Manufacturing	1.50534	0.0162	0.1476	0.1240	8.9000e-004		0.0112	0.0112		0.0112	0.0112		177.0991	177.0991	3.3900e-003	3.2500e-003	178.1769
Medical Office Building	8.7226	0.0941	0.8552	0.7183	5.1300e-003		0.0650	0.0650		0.0650	0.0650		1,026.1886	1,026.1886	0.0197	0.0188	1,032.4338
Apartments Low Rise	102.066	1.1007	9.4061	4.0026	0.0600		0.7605	0.7605		0.7605	0.7605		12,007.7227	12,007.7227	0.2302	0.2201	12,080.7997
Bank (with Drive-Through)	0.875836	9.4500e-003	0.0859	0.0721	5.2000e-004		6.5300e-003	6.5300e-003		6.5300e-003	6.5300e-003		103.0395	103.0395	1.9700e-003	1.8900e-003	103.6666
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	0.196048	2.1100e-003	0.0192	0.0162	1.2000e-004		1.4600e-003	1.4600e-003		1.4600e-003	1.4600e-003		23.0645	23.0645	4.4000e-004	4.2000e-004	23.2048
Refrigerated Warehouse-No Rail	1.87678	0.0202	0.1840	0.1546	1.1000e-003		0.0140	0.0140		0.0140	0.0140		220.7977	220.7977	4.2300e-003	4.0500e-003	222.1415
Regional Shopping Center	8.81656	0.0951	0.8644	0.7261	5.1900e-003		0.0657	0.0657		0.0657	0.0657		1,037.2419	1,037.2419	0.0199	0.0190	1,043.5544
Research & Development	14.7797	0.1594	1.4490	1.2172	8.6900e-003		0.1101	0.1101		0.1101	0.1101		1,738.7913	1,738.7913	0.0333	0.0319	1,749.3733
Single Family Housing	446.01	4.8099	41.1029	17.4906	0.2624		3.3232	3.3232		3.3232	3.3232		52,471.7520	52,471.7520	1.0057	0.9620	52,791.0863
Supermarket	2.71726	0.0293	0.2664	0.2238	1.6000e-003		0.0203	0.0203		0.0203	0.0203		319.6777	319.6777	6.1300e-003	5.8600e-003	321.6232
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**7.7019**	**66.7931**	**35.1719**	**0.4201**		**5.3213**	**5.3213**		**5.3213**	**5.3213**		**84,020.5029**	**84,020.5029**	**1.6104**	**1.5404**	**84,531.8377**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1,245.3847	11.3964	988.7916	0.0524		14.3474	14.3474		14.2543	14.2543	0.0000	141,550.6909	141,550.6909	4.3844	2.5624	142,437.0934
Unmitigated	1,245.3847	11.3964	988.7916	0.0524		14.3474	14.3474		14.2543	14.2543	0.0000	141,550.6909	141,550.6909	4.3844	2.5624	142,437.0934

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	120.4582					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1,082.4752					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	12.8118	5.8000e-004	0.6988	0.0000		8.8518	8.8518		8.7586	8.7586	0.0000	139,764.7059	139,764.7059	2.6788	2.5624	140,615.2906
Landscaping	29.6395	11.3958	988.0927	0.0524		5.4957	5.4957		5.4957	5.4957		1,785.9850	1,785.9850	1.7056		1,821.8028
Total	**1,245.3847**	**11.3964**	**988.7916**	**0.0524**		**14.3474**	**14.3474**		**14.2543**	**14.2543**	**0.0000**	**141,550.6909**	**141,550.6909**	**4.3844**	**2.5624**	**142,437.0934**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	120.4582					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1,082.4752					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	12.8118	5.8000e-004	0.6988	0.0000		8.8518	8.8518		8.7586	8.7586	0.0000	139,764.7059	139,764.7059	2.6788	2.5624	140,615.2906
Landscaping	29.6395	11.3958	988.0927	0.0524		5.4957	5.4957		5.4957	5.4957		1,785.9850	1,785.9850	1.7056		1,821.8028
Total	**1,245.3847**	**11.3964**	**988.7916**	**0.0524**		**14.3474**	**14.3474**		**14.2543**	**14.2543**	**0.0000**	**141,550.6909**	**141,550.6909**	**4.3844**	**2.5624**	**142,437.0934**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Vegetation

CalEEMod Version: CalEEMod.2013.2.2

Date: 10/23/2015 11:17 AM

Grapevine Operational Year 2036 - Full Buildout

Kern-San Joaquin County, Mitigation Report

Operational Percent Reduction Summary

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.54	3.54	3.54	3.53	3.54
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	3.06	4.54	2.95	5.32	5.29	5.29	0.00	5.32	5.32	5.11	0.00	5.32
Natural Gas	19.77	19.81	20.33	19.78	19.77	19.77	0.00	19.77	19.77	19.76	19.77	19.77
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting: Suburban Center

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value 3
No	Land Use	Increase Density	0.00	0.00	0.00	
No	Land Use	Increase Diversity	0.30	0.65		

No	Land Use	Improve Walkability Design	0.00	0.00		
No	Land Use	Improve Destination Accessibility	0.00	0.00		
No	Land Use	Increase Transit Accessibility	0.25	0.00		
No	Land Use	Integrate Below Market Rate Housing	0.00	0.00		
	Land Use	Land Use SubTotal	0.00			
Yes	Neighborhood Enhancements	Improve Pedestrian Network	2.00	Project Site and Connecting Off-Site		
Yes	Neighborhood Enhancements	Provide Traffic Calming Measures	1.00	100.00	100.00	
No	Neighborhood Enhancements	Implement NEV Network	0.01			
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.05			
No	Parking Policy Pricing	Limit Parking Supply	0.00	0.00		
No	Parking Policy Pricing	Unbundle Parking Costs	0.00	0.00		
No	Parking Policy Pricing	On-street Market Pricing	0.00	0.00		
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00			
No	Transit Improvements	Provide BRT System	0.00	0.00		
Yes	Transit Improvements	Expand Transit Network	0.00	50.00		
No	Transit Improvements	Increase Transit Frequency	0.00		0.00	
	Transit Improvements	Transit Improvements Subtotal	0.00			
		Land Use and Site Enhancement Subtotal	0.05			
Yes	Commute	Implement Trip Reduction Program		50.00	Voluntary	
No	Commute	Transit Subsidy	0.00	0.00		
No	Commute	Implement Employee Parking "Cash Out"	0.00	0.00		
No	Commute	Workplace Parking Charge	0.00	0.00		
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00	0.00	0.00	0.00
No	Commute	Market Commute Trip Reduction Option	0.00	0.00		

No	Commute	Employee Vanpool/Shuttle	0.00	0.00	2.00	
No	Commute	Provide Ride Sharing Program	0.00	0.00		
	Commute	Commute Subtotal	0.00			
No	School Trip	Implement School Bus Program	0.00	0.00		
		Total VMT Reduction	0.05			

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	150.00
No	Use Low VOC Paint (Residential Exterior)	150.00
No	Use Low VOC Paint (Non-residential Interior)	150.00
No	Use Low VOC Paint (Non-residential Exterior)	150.00
No	% Electric Lawnmower	
No	% Electric Leafblower	
No	% Electric Chainsaw	

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
Yes	Exceed Title 24	25.00	
No	Install High Efficiency Lighting		
No	On-site Renewable		

Appliance Type	Land Use Subtype	% Improvement

ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy	0.00	0.00
No	Use Reclaimed Water	0.00	0.00
No	Use Grey Water	0.00	
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction	0.00	
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape	0.00	0.00

Solid Waste Mitigation

Mitigation Measures	Input Value
Institute Recycling and Composting Services	75.00
Percent Reduction in Waste Disposed	

Business-As-Usual Scenario Grapevine Operational Year 2036 - Full Buildout

Kern-San Joaquin County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Bank (with Drive-Through)	32.00	1000sqft	2.95	32,000.00	0
General Office Building	1,553.00	1000sqft	136.57	1,553,000.00	0
Government Office Building	6.00	1000sqft	0.51	6,000.00	0
Medical Office Building	300.00	1000sqft	22.69	300,000.00	0
Pharmacy/Drugstore w/o Drive Thru	21.00	1000sqft	1.85	21,000.00	0
Research & Development	540.00	1000sqft	41.19	540,000.00	0
Elementary School	4,970.00	Student	25.00	415,508.75	0
High School	3,000.00	Student	10.00	397,982.93	0
Junior College (2yr)	350.00	1000sqft	27.25	350,000.00	0
Junior High School	1,680.00	Student	40.00	197,503.63	0
General Heavy Industry	55.00	1000sqft	73.59	55,000.00	0
General Light Industry	110.00	1000sqft	93.78	110,000.00	0
Industrial Park	550.00	1000sqft	228.57	550,000.00	0
Manufacturing	55.00	1000sqft	287.19	55,000.00	0
Refrigerated Warehouse-No Rail	110.00	1000sqft	147.18	110,000.00	0
Unrefrigerated Warehouse-No Rail	220.00	1000sqft	614.75	220,000.00	0
Other Asphalt Surfaces	460.00	Acre	460.00	20,037,600.00	0
City Park	131.00	Acre	131.00	5,706,360.00	0
Fast Food Restaurant with Drive Thru	26.60	1000sqft	3.44	26,600.00	0
High Turnover (Sit Down Restaurant)	24.00	1000sqft	3.11	24,000.00	0
Apartments Low Rise	3,590.00	Dwelling Unit	359.00	3,590,000.00	11488
Single Family Housing	8,410.00	Dwelling Unit	2,235.00	15,138,000.00	26912
Convenience Market with Gas Pumps	23.00	1000sqft	2.98	23,000.00	0
Regional Shopping Center	944.40	1000sqft	120.57	944,400.00	0
Supermarket	180.00	1000sqft	23.14	180,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	32
Climate Zone	7			**Operational Year**	2035
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Business-As-Usual under Full Buildout. Kern County, San Joaquin Valley Air Basin. Operational Year 2035 was conservatively used for anticipated Operational Year 2036 since CalEEMod does not include years beyond 2035. Default CalEEMod 2008 CO2 Intensity for PG&E.

Land Use - See 1.1 Land Usage. Population based on 3.2 persons per dwelling unit

Construction Phase - Construction emissions calculated separately.

Vehicle Trips - Modified trip rates to match Trip Generation and VMT factors provided by Fehr & Peers.

Vechicle Emission Factors - Non-Pavley CO2 emission factors input.

Vechicle Emission Factors - Non-Pavley CO2 emission factors input.

Vechicle Emission Factors - Non-Pavley CO2 emission factors input.

Woodstoves - No woodstoves and only gas fireplaces assumed.

Area Coating - Default CalEEMod VOC content. Modified non-residential interior and exterior area to be coated based on CalEEMod architectural coating surface area equations and adjusted for parking/asphalt surface and park land uses.

Energy Use - Historical Energy Data Input for BAU.

Water And Wastewater - Water and wastewater consumption and associated emissions calculated separately.

Construction Off-road Equipment Mitigation - Construction emissions calculated separately.

Waste Mitigation - Percent Reduction in Waste Disposed: 50%. Waste diversion consistent with Assembly Bill 939 (not mitigation).

Mobile Land Use Mitigation - None assumed.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	15927478	4317381
tblAreaCoating	Area_Nonresidential_Interior	47782434	8356493
tblConstructionPhase	NumDays	155,000.00	1.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00

tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblLandUse	LotAcreage	0.73	2.95
tblLandUse	LotAcreage	35.65	136.57
tblLandUse	LotAcreage	0.14	0.51
tblLandUse	LotAcreage	6.89	22.69
tblLandUse	LotAcreage	0.48	1.85
tblLandUse	LotAcreage	12.40	41.19
tblLandUse	LotAcreage	9.54	25.00
tblLandUse	LotAcreage	9.14	10.00
tblLandUse	LotAcreage	8.03	27.25
tblLandUse	LotAcreage	4.53	40.00
tblLandUse	LotAcreage	1.26	73.59
tblLandUse	LotAcreage	2.53	93.78
tblLandUse	LotAcreage	12.63	228.57
tblLandUse	LotAcreage	1.26	287.19
tblLandUse	LotAcreage	2.53	147.18
tblLandUse	LotAcreage	5.05	614.75
tblLandUse	LotAcreage	0.61	3.44
tblLandUse	LotAcreage	0.55	3.11
tblLandUse	LotAcreage	224.38	359.00
tblLandUse	LotAcreage	2,730.52	2,235.00
tblLandUse	LotAcreage	0.53	2.98
tblLandUse	LotAcreage	21.68	120.57
tblLandUse	LotAcreage	4.13	23.14
tblLandUse	Population	10,267.00	11,488.00
tblLandUse	Population	24,053.00	26,912.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	OperationalYear	2014	2035
tblTripsAndVMT	VendorTripNumber	6,504.00	0.00
tblTripsAndVMT	WorkerTripNumber	18,632.00	0.00
tblVehicleEF	LDA	221.16	371.84
tblVehicleEF	LDA	44.18	74.07
tblVehicleEF	LDA	245.60	412.95
tblVehicleEF	LDA	44.18	74.07
tblVehicleEF	LDA	211.67	355.89
tblVehicleEF	LDA	44.18	74.07
tblVehicleEF	LDT1	262.60	431.85
tblVehicleEF	LDT1	52.96	86.18
tblVehicleEF	LDT1	290.59	477.95
tblVehicleEF	LDT1	52.96	86.18
tblVehicleEF	LDT1	251.74	413.96
tblVehicleEF	LDT1	52.96	86.18
tblVehicleEF	LDT2	342.92	504.99
tblVehicleEF	LDT2	68.79	100.98
tblVehicleEF	LDT2	379.69	559.16
tblVehicleEF	LDT2	68.79	100.98
tblVehicleEF	LDT2	328.65	483.97
tblVehicleEF	LDT2	68.79	100.98
tblVehicleEF	MDV	449.80	646.98
tblVehicleEF	MDV	90.39	129.22
tblVehicleEF	MDV	497.55	715.75
tblVehicleEF	MDV	90.39	129.22
tblVehicleEF	MDV	431.27	620.30
tblVehicleEF	MDV	90.39	129.22
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62

tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
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tblVehicleTrips	CC_TL	7.30	15.62
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tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CC_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
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tblVehicleTrips	CNW_TL	7.30	15.62
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tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CNW_TL	7.30	15.62
tblVehicleTrips	CW_TL	9.50	15.62
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tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62
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tblVehicleTrips	CW_TL	9.50	15.62
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tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	CW_TL	9.50	15.62
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	26.00	0.00
tblVehicleTrips	DV_TP	28.00	0.00
tblVehicleTrips	DV_TP	21.00	0.00
tblVehicleTrips	DV_TP	25.00	0.00
tblVehicleTrips	DV_TP	21.00	0.00
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tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
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tblVehicleTrips	DV_TP	19.00	0.00
tblVehicleTrips	DV_TP	20.00	0.00
tblVehicleTrips	DV_TP	19.00	0.00
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tblVehicleTrips	DV_TP	5.00	0.00
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tblVehicleTrips	DV_TP	6.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	35.00	0.00
tblVehicleTrips	DV_TP	15.00	0.00
tblVehicleTrips	DV_TP	11.00	0.00
tblVehicleTrips	DV_TP	30.00	0.00

tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	HO_TL	7.50	15.62
tblVehicleTrips	HO_TL	7.50	15.62
tblVehicleTrips	HS_TL	7.30	15.62
tblVehicleTrips	HS_TL	7.30	15.62
tblVehicleTrips	HW_TL	10.80	15.62
tblVehicleTrips	HW_TL	10.80	15.62
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	47.00	0.00
tblVehicleTrips	PB_TP	6.00	0.00
tblVehicleTrips	PB_TP	65.00	0.00
tblVehicleTrips	PB_TP	12.00	0.00
tblVehicleTrips	PB_TP	50.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	4.00	0.00
tblVehicleTrips	PB_TP	16.00	0.00
tblVehicleTrips	PB_TP	6.00	0.00
tblVehicleTrips	PB_TP	43.00	0.00
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tblVehicleTrips	PB_TP	1.00	0.00
tblVehicleTrips	PB_TP	12.00	0.00
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tblVehicleTrips	PB_TP	10.00	0.00
tblVehicleTrips	PB_TP	53.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	11.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	36.00	0.00

tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	27.00	100.00
tblVehicleTrips	PR_TP	66.00	100.00
tblVehicleTrips	PR_TP	14.00	100.00
tblVehicleTrips	PR_TP	63.00	100.00
tblVehicleTrips	PR_TP	29.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	77.00	100.00
tblVehicleTrips	PR_TP	50.00	100.00
tblVehicleTrips	PR_TP	75.00	100.00
tblVehicleTrips	PR_TP	37.00	100.00
tblVehicleTrips	PR_TP	79.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	63.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	60.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	PR_TP	41.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	54.00	100.00
tblVehicleTrips	PR_TP	82.00	100.00
tblVehicleTrips	PR_TP	86.00	100.00
tblVehicleTrips	PR_TP	34.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	7.16	5.89
tblVehicleTrips	ST_TR	86.32	5.23
tblVehicleTrips	ST_TR	1.59	1.54
tblVehicleTrips	ST_TR	1,448.33	59.54

tblVehicleTrips	ST_TR	722.03	50.58
tblVehicleTrips	ST_TR	1.50	0.55
tblVehicleTrips	ST_TR	1.32	0.55
tblVehicleTrips	ST_TR	2.37	1.93
tblVehicleTrips	ST_TR	0.61	0.50
tblVehicleTrips	ST_TR	158.37	43.29
tblVehicleTrips	ST_TR	2.49	1.99
tblVehicleTrips	ST_TR	11.23	1.73
tblVehicleTrips	ST_TR	1.49	1.13
tblVehicleTrips	ST_TR	8.96	2.23
tblVehicleTrips	ST_TR	90.06	8.98
tblVehicleTrips	ST_TR	2.59	2.90
tblVehicleTrips	ST_TR	49.97	40.45
tblVehicleTrips	ST_TR	1.90	2.10
tblVehicleTrips	ST_TR	10.08	8.16
tblVehicleTrips	ST_TR	177.59	60.37
tblVehicleTrips	ST_TR	2.59	2.90
tblVehicleTrips	SU_TR	6.07	4.99
tblVehicleTrips	SU_TR	31.90	1.94
tblVehicleTrips	SU_TR	1.59	1.54
tblVehicleTrips	SU_TR	1,182.08	48.59
tblVehicleTrips	SU_TR	542.72	38.02
tblVehicleTrips	SU_TR	1.50	0.20
tblVehicleTrips	SU_TR	0.68	0.28
tblVehicleTrips	SU_TR	0.98	0.80
tblVehicleTrips	SU_TR	0.25	0.20
tblVehicleTrips	SU_TR	131.84	36.04
tblVehicleTrips	SU_TR	0.73	0.59
tblVehicleTrips	SU_TR	1.21	0.19
tblVehicleTrips	SU_TR	0.62	0.47

tblVehicleTrips	SU_TR	1.55	0.38
tblVehicleTrips	SU_TR	90.06	8.98
tblVehicleTrips	SU_TR	2.59	2.90
tblVehicleTrips	SU_TR	25.24	20.43
tblVehicleTrips	SU_TR	1.11	1.23
tblVehicleTrips	SU_TR	8.77	7.10
tblVehicleTrips	SU_TR	166.44	56.58
tblVehicleTrips	SU_TR	2.59	2.90
tblVehicleTrips	WD_TR	6.59	5.41
tblVehicleTrips	WD_TR	148.15	8.98
tblVehicleTrips	WD_TR	1.59	1.54
tblVehicleTrips	WD_TR	845.60	34.76
tblVehicleTrips	WD_TR	1.29	1.05
tblVehicleTrips	WD_TR	496.12	34.76
tblVehicleTrips	WD_TR	1.50	2.90
tblVehicleTrips	WD_TR	6.97	2.90
tblVehicleTrips	WD_TR	11.01	8.98
tblVehicleTrips	WD_TR	68.93	8.98
tblVehicleTrips	WD_TR	1.71	1.39
tblVehicleTrips	WD_TR	127.15	34.76
tblVehicleTrips	WD_TR	6.96	5.56
tblVehicleTrips	WD_TR	27.49	4.23
tblVehicleTrips	WD_TR	1.62	1.32
tblVehicleTrips	WD_TR	3.82	2.90
tblVehicleTrips	WD_TR	36.13	8.98

tblVehicleTrips	WD_TR	90.06	8.98
tblVehicleTrips	WD_TR	2.59	2.90
tblVehicleTrips	WD_TR	42.94	34.76
tblVehicleTrips	WD_TR	8.11	8.98
tblVehicleTrips	WD_TR	9.57	7.75
tblVehicleTrips	WD_TR	102.24	34.76
tblVehicleTrips	WD_TR	2.59	2.90
tblWater	IndoorWaterUseRate	233,902,951.98	0.00
tblWater	IndoorWaterUseRate	1,267,933.40	0.00
tblWater	IndoorWaterUseRate	1,703,667.99	0.00
tblWater	IndoorWaterUseRate	12,048,472.80	0.00
tblWater	IndoorWaterUseRate	8,073,996.75	0.00
tblWater	IndoorWaterUseRate	12,718,750.00	0.00
tblWater	IndoorWaterUseRate	25,437,500.00	0.00
tblWater	IndoorWaterUseRate	276,020,510.63	0.00
tblWater	IndoorWaterUseRate	1,191,958.12	0.00
tblWater	IndoorWaterUseRate	13,214,880.00	0.00
tblWater	IndoorWaterUseRate	7,284,809.10	0.00
tblWater	IndoorWaterUseRate	127,187,500.00	0.00
tblWater	IndoorWaterUseRate	17,167,161.38	0.00
tblWater	IndoorWaterUseRate	4,072,723.20	0.00
tblWater	IndoorWaterUseRate	12,718,750.00	0.00
tblWater	IndoorWaterUseRate	37,644,161.27	0.00
tblWater	IndoorWaterUseRate	1,479,397.99	0.00
tblWater	IndoorWaterUseRate	25,437,500.00	0.00
tblWater	IndoorWaterUseRate	69,954,089.29	0.00
tblWater	IndoorWaterUseRate	265,514,731.49	0.00
tblWater	IndoorWaterUseRate	547,945,355.48	0.00
tblWater	IndoorWaterUseRate	22,188,278.68	0.00
tblWater	IndoorWaterUseRate	50,875,000.00	0.00

tblWater	OutdoorWaterUseRate	147,460,556.68	0.00
tblWater	OutdoorWaterUseRate	777,120.47	0.00
tblWater	OutdoorWaterUseRate	156,084,056.81	0.00
tblWater	OutdoorWaterUseRate	1,044,183.61	0.00
tblWater	OutdoorWaterUseRate	30,981,787.20	0.00
tblWater	OutdoorWaterUseRate	515,361.49	0.00
tblWater	OutdoorWaterUseRate	169,173,861.36	0.00
tblWater	OutdoorWaterUseRate	730,554.97	0.00
tblWater	OutdoorWaterUseRate	33,981,120.00	0.00
tblWater	OutdoorWaterUseRate	464,987.81	0.00
tblWater	OutdoorWaterUseRate	26,851,201.13	0.00
tblWater	OutdoorWaterUseRate	10,472,716.80	0.00
tblWater	OutdoorWaterUseRate	7,170,316.43	0.00
tblWater	OutdoorWaterUseRate	906,727.80	0.00
tblWater	OutdoorWaterUseRate	42,875,086.98	0.00
tblWater	OutdoorWaterUseRate	345,443,811.06	0.00
tblWater	OutdoorWaterUseRate	686,235.42	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	222.7282	1.0256	88.9570	4.7200e-003		0.8575	0.8575		0.8537	0.8537	0.0000	5,344.3084	5,344.3084	0.2389	0.0953	5,378.8699
Energy	2.4194	21.0096	11.2537	0.1320		1.6716	1.6716		1.6716	1.6716	0.0000	67,157.7022	67,157.7022	2.4129	0.8433	67,469.7799
Mobile	121.7745	541.3387	1,597.6278	7.0287	345.8747	15.4542	361.3289	93.1749	14.2321	107.4070	0.0000	615,877.8419	615,877.8419	8.7285	0.0000	616,061.1413
Waste						0.0000	0.0000		0.0000	0.0000	4,566.7648	0.0000	4,566.7648	269.8881	0.0000	10,234.4143
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**346.9220**	**563.3740**	**1,697.8385**	**7.1654**	**345.8747**	**17.9833**	**363.8580**	**93.1749**	**16.7574**	**109.9322**	**4,566.7648**	**688,379.8524**	**692,946.6173**	**281.2684**	**0.9386**	**699,144.2054**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	222.7282	1.0256	88.9570	4.7200e-003		0.8575	0.8575		0.8537	0.8537	0.0000	5,344.3084	5,344.3084	0.2389	0.0953	5,378.8699
Energy	2.4194	21.0096	11.2537	0.1320		1.6716	1.6716		1.6716	1.6716	0.0000	67,157.7022	67,157.7022	2.4129	0.8433	67,469.7799
Mobile	121.7745	541.3387	1,597.6278	7.0287	345.8747	15.4542	361.3289	93.1749	14.2321	107.4070	0.0000	615,877.8419	615,877.8419	8.7285	0.0000	616,061.1413
Waste						0.0000	0.0000		0.0000	0.0000	2,283.3824	0.0000	2,283.3824	134.9440	0.0000	5,117.2071
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**346.9220**	**563.3740**	**1,697.8385**	**7.1654**	**345.8747**	**17.9833**	**363.8580**	**93.1749**	**16.7574**	**109.9322**	**2,283.3824**	**688,379.8524**	**690,663.2348**	**146.3244**	**0.9386**	**694,026.9982**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**50.00**	**0.00**	**0.33**	**47.98**	**0.00**	**0.73**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	121.7745	541.3387	1,597.6278	7.0287	345.8747	15.4542	361.3289	93.1749	14.2321	107.4070	0.0000	615,877.8419	615,877.8419	8.7285	0.0000	616,061.1413
Unmitigated	121.7745	541.3387	1,597.6278	7.0287	345.8747	15.4542	361.3289	93.1749	14.2321	107.4070	0.0000	615,877.8419	615,877.8419	8.7285	0.0000	616,061.1413

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	19,421.90	21,145.10	17914.10	110,601,665	110,601,665
Bank (with Drive-Through)	287.36	167.36	62.08	1,353,387	1,353,387
City Park	201.74	201.74	201.74	1,147,029	1,147,029
Convenience Market with Gas Pumps	799.48	1,369.42	1117.57	5,266,881	5,266,881
Elementary School	5,218.50	0.00	0.00	21,193,372	21,193,372
Fast Food Restaurant with Drive Thru	924.62	1,345.43	1011.33	5,669,305	5,669,305
General Heavy Industry	159.50	30.25	11.00	681,266	681,266
General Light Industry	319.00	60.50	30.80	1,369,680	1,369,680
General Office Building	13,945.94	2,997.29	1242.40	60,080,897	60,080,897
Government Office Building	53.88	0.00	0.00	218,817	218,817
High School	4,170.00	1,500.00	600.00	18,640,908	18,640,908
High Turnover (Sit Down Restaurant)	834.24	1,038.96	864.96	4,934,455	4,934,455
Industrial Park	3,058.00	1,094.50	324.50	13,571,718	13,571,718
Junior College (2yr)	1,480.50	605.50	66.50	6,558,432	6,558,432
Junior High School	2,217.60	0.00	0.00	9,006,117	9,006,117
Manufacturing	159.50	62.15	25.85	719,239	719,239
Medical Office Building	2,694.00	669.00	114.00	11,576,857	11,576,857
Other Asphalt Surfaces	0.00	0.00	0.00		
Pharmacy/Drugstore w/o Drive Thru	188.58	188.58	188.58	1,072,206	1,072,206
Refrigerated Warehouse-No Rail	319.00	319.00	319.00	1,813,732	1,813,732
Regional Shopping Center	32,827.34	38,200.98	19294.09	180,018,207	180,018,207
Research & Development	4,849.20	1,134.00	664.20	21,154,141	21,154,141
Single Family Housing	65,177.50	68,625.60	59711.00	368,938,983	368,938,983
Supermarket	6,256.80	10,866.60	10184.40	42,508,580	42,508,580
Unrefrigerated Warehouse-No Rail	638.00	638.00	638.00	3,627,464	3,627,464
Total	166,202.18	152,259.96	114,586.10	891,723,339	891,723,339

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Bank (with Drive-Through)	15.62	15.62	15.62	6.60	74.40	19.00	100	0	0
City Park	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Convenience Market with Gas	15.62	15.62	15.62	0.80	80.20	19.00	100	0	0
Elementary School	15.62	15.62	15.62	65.00	30.00	5.00	100	0	0
Fast Food Restaurant with Drive	15.62	15.62	15.62	2.20	78.80	19.00	100	0	0
General Heavy Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Light Industry	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
General Office Building	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Government Office Building	15.62	15.62	15.62	33.00	62.00	5.00	100	0	0
High School	15.62	15.62	15.62	77.80	17.20	5.00	100	0	0
High Turnover (Sit Down	15.62	15.62	15.62	8.50	72.50	19.00	100	0	0
Industrial Park	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Junior College (2yr)	15.62	15.62	15.62	6.40	88.60	5.00	100	0	0
Junior High School	15.62	15.62	15.62	72.80	22.20	5.00	100	0	0
Manufacturing	15.62	15.62	15.62	59.00	28.00	13.00	100	0	0
Medical Office Building	15.62	15.62	15.62	29.60	51.40	19.00	100	0	0
Other Asphalt Surfaces	15.62	15.62	15.62	0.00	0.00	0.00	100	0	0
Pharmacy/Drugstore w/o Drive	15.62	15.62	15.62	7.40	73.60	19.00	100	0	0
Refrigerated Warehouse-No Rail	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0
Regional Shopping Center	15.62	15.62	15.62	16.30	64.70	19.00	100	0	0
Research & Development	15.62	15.62	15.62	33.00	48.00	19.00	100	0	0
Single Family Housing	15.62	15.62	15.62	46.40	16.40	37.20	100	0	0
Supermarket	15.62	15.62	15.62	6.50	74.50	19.00	100	0	0
Unrefrigerated Warehouse-No	15.62	15.62	15.62	59.00	0.00	41.00	100	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.355759	0.055439	0.135927	0.179388	0.056975	0.010375	0.023432	0.169902	0.001468	0.001841	0.006095	0.000886	0.002512

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: Y

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	43,214.1171	43,214.1171	1.9540	0.4043	43,380.4782
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	43,214.1171	43,214.1171	1.9540	0.4043	43,380.4782
NaturalGas Mitigated	2.4194	21.0096	11.2537	0.1320		1.6716	1.6716		1.6716	1.6716	0.0000	23,943.5850	23,943.5850	0.4589	0.4390	24,089.3017
NaturalGas Unmitigated	2.4194	21.0096	11.2537	0.1320		1.6716	1.6716		1.6716	1.6716	0.0000	23,943.5850	23,943.5850	0.4589	0.4390	24,089.3017

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Bank (with Drive-Through)	622080	3.3500e-003	0.0305	0.0256	1.8000e-004		2.3200e-003	2.3200e-003		2.3200e-003	2.3200e-003	0.0000	33.1966	33.1966	6.4000e-004	6.1000e-004	33.3986
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	158930	8.6000e-004	7.7900e-003	6.5400e-003	5.0000e-005		5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004	0.0000	8.4811	8.4811	1.6000e-004	1.6000e-004	8.5327
Elementary School	5.37668e+006	0.0290	0.2636	0.2214	1.5800e-003		0.0200	0.0200		0.0200	0.0200	0.0000	286.9203	286.9203	5.5000e-003	5.2600e-003	288.6664
Fast Food Restaurant with Drive Thru	2.71134e+006	0.0146	0.1329	0.1116	8.0000e-004		0.0101	0.0101		0.0101	0.0101	0.0000	144.6873	144.6873	2.7700e-003	2.6500e-003	145.5679

General Heavy Industry	1.0692e+006	5.7700e-003	0.0524	0.0440	3.1000e-004		3.9800e-003	3.9800e-003		3.9800e-003	3.9800e-003	0.0000	57.0566	57.0566	1.0900e-003	1.0500e-003	57.4038
General Light Industry	2.1384e+006	0.0115	0.1048	0.0881	6.3000e-004		7.9700e-003	7.9700e-003		7.9700e-003	7.9700e-003	0.0000	114.1132	114.1132	2.1900e-003	2.0900e-003	114.8076
General Office Building	3.21782e+007	0.1735	1.5774	1.3250	9.4600e-003		0.1199	0.1199		0.1199	0.1199	0.0000	1,717.1492	1,717.1492	0.0329	0.0315	1,727.5994
Government Office Building	124320	6.7000e-004	6.0900e-003	5.1200e-003	4.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004	0.0000	6.6342	6.6342	1.3000e-004	1.2000e-004	6.6746
High School	5.1499e+006	0.0278	0.2525	0.2121	1.5100e-003		0.0192	0.0192		0.0192	0.0192	0.0000	274.8182	274.8182	5.2700e-003	5.0400e-003	276.4907
High Turnover (Sit Down Restaurant)	2.44632e+006	0.0132	0.1199	0.1007	7.2000e-004		9.1100e-003	9.1100e-003		9.1100e-003	9.1100e-003	0.0000	130.5450	130.5450	2.5000e-003	2.3900e-003	131.3394
Industrial Park	1.1396e+007	0.0615	0.5586	0.4693	3.3500e-003		0.0425	0.0425		0.0425	0.0425	0.0000	608.1340	608.1340	0.0117	0.0112	611.8350
Junior College (2yr)	2.0727e+007	0.1118	1.0160	0.8535	6.1000e-003		0.0772	0.0772		0.0772	0.0772	0.0000	1,106.0717	1,106.0717	0.0212	0.0203	1,112.8030
Junior High School	2.5557e+006	0.0138	0.1253	0.1052	7.5000e-004		9.5200e-003	9.5200e-003		9.5200e-003	9.5200e-003	0.0000	136.3817	136.3817	2.6100e-003	2.5000e-003	137.2117
Manufacturing	1.0692e+006	5.7700e-003	0.0524	0.0440	3.1000e-004		3.9800e-003	3.9800e-003		3.9800e-003	3.9800e-003	0.0000	57.0566	57.0566	1.0900e-003	1.0500e-003	57.4038
Apartments Low Rise	6.30393e+007	0.3399	2.9048	1.2361	0.0185		0.2349	0.2349		0.2349	0.2349	0.0000	3,364.0183	3,364.0183	0.0645	0.0617	3,384.4912
Medical Office Building	6.216e+006	0.0335	0.3047	0.2560	1.8300e-003		0.0232	0.0232		0.0232	0.0232	0.0000	331.7094	331.7094	6.3600e-003	6.0800e-003	333.7282
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	145110	7.8000e-004	7.1100e-003	5.9800e-003	4.0000e-005		5.4000e-004	5.4000e-004		5.4000e-004	5.4000e-004	0.0000	7.7436	7.7436	1.5000e-004	1.4000e-004	7.7908
Refrigerated Warehouse-No Rail	1.0604e+006	5.7200e-003	0.0520	0.0437	3.1000e-004		3.9500e-003	3.9500e-003		3.9500e-003	3.9500e-003	0.0000	56.5870	56.5870	1.0800e-003	1.0400e-003	56.9314
Regional Shopping Center	6.5258e+006	0.0352	0.3199	0.2687	1.9200e-003		0.0243	0.0243		0.0243	0.0243	0.0000	348.2418	348.2418	6.6700e-003	6.3800e-003	350.3611
Research & Development	1.04976e+007	0.0566	0.5146	0.4323	3.0900e-003		0.0391	0.0391		0.0391	0.0391	0.0000	560.1919	560.1919	0.0107	0.0103	563.6012
Single Family Housing	2.71783e+008	1.4655	12.5233	5.3291	0.0799		1.0125	1.0125		1.0125	1.0125	0.0000	14,503.3638	14,503.3638	0.2780	0.2659	14,591.6289
Supermarket	1.6956e+006	9.1400e-003	0.0831	0.0698	5.0000e-004		6.3200e-003	6.3200e-003		6.3200e-003	6.3200e-003	0.0000	90.4837	90.4837	1.7300e-003	1.6600e-003	91.0343
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**2.4194**	**21.0096**	**11.2536**	**0.1320**		**1.6716**	**1.6716**		**1.6716**	**1.6716**	**0.0000**	**23,943.5850**	**23,943.5850**	**0.4589**	**0.4390**	**24,089.3017**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	158930	8.6000e-004	7.7900e-003	6.5400e-003	5.0000e-005		5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004	0.0000	8.4811	8.4811	1.6000e-004	1.6000e-004	8.5327
Elementary School	5.37668e+006	0.0290	0.2636	0.2214	1.5800e-003		0.0200	0.0200		0.0200	0.0200	0.0000	286.9203	286.9203	5.5000e-003	5.2600e-003	288.6664
Fast Food Restaurant with Drive Thru	2.71134e+006	0.0146	0.1329	0.1116	8.0000e-004		0.0101	0.0101		0.0101	0.0101	0.0000	144.6873	144.6873	2.7700e-003	2.6500e-003	145.5679
General Heavy Industry	1.0692e+006	5.7700e-003	0.0524	0.0440	3.1000e-004		3.9800e-003	3.9800e-003		3.9800e-003	3.9800e-003	0.0000	57.0566	57.0566	1.0900e-003	1.0500e-003	57.4038
General Light Industry	2.1384e+006	0.0115	0.1048	0.0881	6.3000e-004		7.9700e-003	7.9700e-003		7.9700e-003	7.9700e-003	0.0000	114.1132	114.1132	2.1900e-003	2.0900e-003	114.8076
General Office Building	3.21782e+007	0.1735	1.5774	1.3250	9.4600e-003		0.1199	0.1199		0.1199	0.1199	0.0000	1,717.1492	1,717.1492	0.0329	0.0315	1,727.5994
Government Office Building	124320	6.7000e-004	6.0900e-003	5.1200e-003	4.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004	0.0000	6.6342	6.6342	1.3000e-004	1.2000e-004	6.6746
High School	5.1499e+006	0.0278	0.2525	0.2121	1.5100e-003		0.0192	0.0192		0.0192	0.0192	0.0000	274.8182	274.8182	5.2700e-003	5.0400e-003	276.4907
High Turnover (Sit Down Restaurant)	2.44632e+006	0.0132	0.1199	0.1007	7.2000e-004		9.1100e-003	9.1100e-003		9.1100e-003	9.1100e-003	0.0000	130.5450	130.5450	2.5000e-003	2.3900e-003	131.3394
Industrial Park	1.1396e+007	0.0615	0.5586	0.4693	3.3500e-003		0.0425	0.0425		0.0425	0.0425	0.0000	608.1340	608.1340	0.0117	0.0112	611.8350
Junior College (2yr)	2.0727e+007	0.1118	1.0160	0.8535	6.1000e-003		0.0772	0.0772		0.0772	0.0772	0.0000	1,106.0717	1,106.0717	0.0212	0.0203	1,112.8030
Junior High School	2.5557e+006	0.0138	0.1253	0.1052	7.5000e-004		9.5200e-003	9.5200e-003		9.5200e-003	9.5200e-003	0.0000	136.3817	136.3817	2.6100e-003	2.5000e-003	137.2117
Manufacturing	1.0692e+006	5.7700e-003	0.0524	0.0440	3.1000e-004		3.9800e-003	3.9800e-003		3.9800e-003	3.9800e-003	0.0000	57.0566	57.0566	1.0900e-003	1.0500e-003	57.4038
Medical Office Building	6.216e+006	0.0335	0.3047	0.2560	1.8300e-003		0.0232	0.0232		0.0232	0.0232	0.0000	331.7094	331.7094	6.3600e-003	6.0800e-003	333.7282
Apartments Low Rise	6.30393e+007	0.3399	2.9048	1.2361	0.0185		0.2349	0.2349		0.2349	0.2349	0.0000	3,364.0183	3,364.0183	0.0645	0.0617	3,384.4912
Bank (with Drive-Through)	622080	3.3500e-003	0.0305	0.0256	1.8000e-004		2.3200e-003	2.3200e-003		2.3200e-003	2.3200e-003	0.0000	33.1966	33.1966	6.4000e-004	6.1000e-004	33.3986
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	145110	7.8000e-004	7.1100e-003	5.9800e-003	4.0000e-005		5.4000e-004	5.4000e-004		5.4000e-004	5.4000e-004	0.0000	7.7436	7.7436	1.5000e-004	1.4000e-004	7.7908

Refrigerated Warehouse-No Rail	1.0604e+006	5.7200e-003	0.0520	0.0437	3.1000e-004		3.9500e-003	3.9500e-003		3.9500e-003	3.9500e-003	0.0000	56.5870	56.5870	1.0800e-003	1.0400e-003	56.9314
Regional Shopping Center	6.5258e+006	0.0352	0.3199	0.2687	1.9200e-003		0.0243	0.0243		0.0243	0.0243	0.0000	348.2418	348.2418	6.6700e-003	6.3800e-003	350.3611
Research & Development	1.04976e+007	0.0566	0.5146	0.4323	3.0900e-003		0.0391	0.0391		0.0391	0.0391	0.0000	560.1919	560.1919	0.0107	0.0103	563.6012
Single Family Housing	2.71783e+008	1.4655	12.5233	5.3291	0.0799		1.0125	1.0125		1.0125	1.0125	0.0000	14,503.3638	14,503.3638	0.2780	0.2659	14,591.6289
Supermarket	1.6956e+006	9.1400e-003	0.0831	0.0698	5.0000e-004		6.3200e-003	6.3200e-003		6.3200e-003	6.3200e-003	0.0000	90.4837	90.4837	1.7300e-003	1.6600e-003	91.0343
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**2.4194**	**21.0096**	**11.2536**	**0.1320**		**1.6716**	**1.6716**		**1.6716**	**1.6716**	**0.0000**	**23,943.5850**	**23,943.5850**	**0.4589**	**0.4390**	**24,089.3017**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	1.39296e+007	4,052.2893	0.1832	0.0379	4,067.8894
Bank (with Drive-Through)	87360	25.4140	1.1500e-003	2.4000e-004	25.5119
City Park	0	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	278530	81.0276	3.6600e-003	7.6000e-004	81.3395
Elementary School	3.63986e+006	1,058.8760	0.0479	9.9100e-003	1,062.9524
Fast Food Restaurant with Drive-Thru	982072	285.6960	0.0129	2.6700e-003	286.7959
General Heavy Industry	150150	43.6804	1.9800e-003	4.1000e-004	43.8485
General Light Industry	300300	87.3607	3.9500e-003	8.2000e-004	87.6970
General Office Building	1.81235e+007	5,272.3369	0.2384	0.0493	5,292.6338
Government Office Building	70020	20.3696	9.2000e-004	1.9000e-004	20.4480

High School	3.48633e+006	1,014.2135	0.0459	9.4900e-003	1,018.1179
High Turnover (Sit Down Restaurant)	886080	257.7708	0.0117	2.4100e-003	258.7632
Industrial Park	6.4185e+006	1,867.2153	0.0844	0.0175	1,874.4035
Junior College (2yr)	6.3875e+006	1,858.1970	0.0840	0.0174	1,865.3505
Junior High School	1.73013e+006	503.3152	0.0228	4.7100e-003	505.2528
Manufacturing	150150	43.6804	1.9800e-003	4.1000e-004	43.8485
Medical Office Building	3.501e+006	1,018.4810	0.0461	9.5300e-003	1,022.4019
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	254310	73.9817	3.3500e-003	6.9000e-004	74.2665
Refrigerated Warehouse-No Rail	3.256e+006	947.2077	0.0428	8.8600e-003	950.8542
Regional Shopping Center	1.14367e+007	3,327.0625	0.1504	0.0311	3,339.8707
Research & Development	1.4742e+006	428.8617	0.0194	4.0100e-003	430.5127
Single Family Housing	6.47258e+007	18,829.4771	0.8514	0.1762	18,901.9648
Supermarket	7.2792e+006	2,117.6028	0.0958	0.0198	2,125.7549
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**43,214.1171**	**1.9540**	**0.4043**	**43,380.4782**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	1.39296e+007	4,052.2893	0.1832	0.0379	4,067.8894

Bank (with Drive-Through)	87360	25.4140	1.1500e-003	2.4000e-004	25.5119
City Park	0	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	278530	81.0276	3.6600e-003	7.6000e-004	81.3395
Elementary School	3.63986e+006	1,058.8760	0.0479	9.9100e-003	1,062.9524
Fast Food Restaurant with Drive Thru	982072	285.6960	0.0129	2.6700e-003	286.7959
General Heavy Industry	150150	43.6804	1.9800e-003	4.1000e-004	43.8485
General Light Industry	300300	87.3607	3.9500e-003	8.2000e-004	87.6970
General Office Building	1.81235e+007	5,272.3369	0.2384	0.0493	5,292.6338
Government Office Building	70020	20.3696	9.2000e-004	1.9000e-004	20.4480
High School	3.48633e+006	1,014.2135	0.0459	9.4900e-003	1,018.1179
High Turnover (Sit Down Restaurant)	886080	257.7708	0.0117	2.4100e-003	258.7632
Industrial Park	6.4185e+006	1,867.2153	0.0844	0.0175	1,874.4035
Junior College (2yr)	6.3875e+006	1,858.1970	0.0840	0.0174	1,865.3505
Junior High School	1.73013e+006	503.3152	0.0228	4.7100e-003	505.2528
Manufacturing	150150	43.6804	1.9800e-003	4.1000e-004	43.8485
Medical Office Building	3.501e+006	1,018.4810	0.0461	9.5300e-003	1,022.4019
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	254310	73.9817	3.3500e-003	6.9000e-004	74.2665
Refrigerated Warehouse-No Rail	3.256e+006	947.2077	0.0428	8.8600e-003	950.8542
Regional Shopping Center	1.14367e+007	3,327.0625	0.1504	0.0311	3,339.8707
Research & Development	1.4742e+006	428.8617	0.0194	4.0100e-003	430.5127
Single Family Housing	6.47258e+007	18,829.4771	0.8514	0.1762	18,901.9648
Supermarket	7.2792e+006	2,117.6028	0.0958	0.0198	2,125.7549

Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**43,214.1171**	**1.9540**	**0.4043**	**43,380.4782**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	222.7282	1.0256	88.9570	4.7200e-003		0.8575	0.8575		0.8537	0.8537	0.0000	5,344.3084	5,344.3084	0.2389	0.0953	5,378.8699
Unmitigated	222.7282	1.0256	88.9570	4.7200e-003		0.8575	0.8575		0.8537	0.8537	0.0000	5,344.3084	5,344.3084	0.2389	0.0953	5,378.8699

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	21.9836					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	197.5517					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.5253	2.0000e-005	0.0287	0.0000		0.3629	0.3629		0.3591	0.3591	0.0000	5,198.4887	5,198.4887	0.0996	0.0953	5,230.1259
Landscaping	2.6676	1.0256	88.9284	4.7200e-003		0.4946	0.4946		0.4946	0.4946	0.0000	145.8197	145.8197	0.1393	0.0000	148.7441

Total	**222.7282**	**1.0256**	**88.9570**	**4.7200e-003**		**0.8575**	**0.8575**		**0.8537**	**0.8537**	**0.0000**	**5,344.3084**	**5,344.3084**	**0.2389**	**0.0953**	**5,378.8699**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	21.9836					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	197.5517					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.5253	2.0000e-005	0.0287	0.0000		0.3629	0.3629		0.3591	0.3591	0.0000	5,198.4887	5,198.4887	0.0996	0.0953	5,230.1259
Landscaping	2.6676	1.0256	88.9284	4.7200e-003		0.4946	0.4946		0.4946	0.4946	0.0000	145.8197	145.8197	0.1393	0.0000	148.7441
Total	**222.7282**	**1.0256**	**88.9570**	**4.7200e-003**		**0.8575**	**0.8575**		**0.8537**	**0.8537**	**0.0000**	**5,344.3084**	**5,344.3084**	**0.2389**	**0.0953**	**5,378.8699**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	0 / 0	0.0000	0.0000	0.0000	0.0000
Bank (with Drive-Through)	0 / 0	0.0000	0.0000	0.0000	0.0000
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas [illegible]	0 / 0	0.0000	0.0000	0.0000	0.0000
Elementary School	0 / 0	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant with [illegible]	0 / 0	0.0000	0.0000	0.0000	0.0000
General Heavy Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Government Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
High School	0 / 0	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	0 / 0	0.0000	0.0000	0.0000	0.0000
Industrial Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Junior College (2yr)	0 / 0	0.0000	0.0000	0.0000	0.0000
Junior High School	0 / 0	0.0000	0.0000	0.0000	0.0000
Manufacturing	0 / 0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000

Pharmacy/Drugstore w/o Drive Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0 / 0	0.0000	0.0000	0.0000	0.0000
Research & Development	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Supermarket	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	0 / 0	0.0000	0.0000	0.0000	0.0000
Bank (with Drive-Through)	0 / 0	0.0000	0.0000	0.0000	0.0000
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Convenience Market with Gas Pumps	0 / 0	0.0000	0.0000	0.0000	0.0000
Elementary School	0 / 0	0.0000	0.0000	0.0000	0.0000
Fast Food Restaurant with Drive-Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
General Heavy Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000

Government Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
High School	0 / 0	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	0 / 0	0.0000	0.0000	0.0000	0.0000
Industrial Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Junior College (2yr)	0 / 0	0.0000	0.0000	0.0000	0.0000
Junior High School	0 / 0	0.0000	0.0000	0.0000	0.0000
Manufacturing	0 / 0	0.0000	0.0000	0.0000	0.0000
Medical Office Building	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0 / 0	0.0000	0.0000	0.0000	0.0000
Research & Development	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0 / 0	0.0000	0.0000	0.0000	0.0000
Supermarket	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Unmitigated	4,566.7648	269.8881	0.0000	10,234.4143
Mitigated	2,283.3824	134.9440	0.0000	5,117.2071

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	1651.4	335.2193	19.8109	0.0000	751.2480
Bank (with Drive-Through)	29.86	6.0613	0.3582	0.0000	13.5838
City Park	11.27	2.2877	0.1352	0.0000	5.1269
Convenience Market with Gas Pumps	69.12	14.0307	0.8292	0.0000	31.4438
Elementary School	907.02	184.1169	10.8810	0.0000	412.6178
Fast Food Restaurant with Drive-Thru	306.4	62.1964	3.6757	0.0000	139.3862
General Heavy Industry	68.2	13.8440	0.8182	0.0000	31.0253
General Light Industry	136.4	27.6880	1.6363	0.0000	62.0505
General Office Building	1444.29	293.1778	17.3263	0.0000	657.0304
Government Office Building	5.58	1.1327	0.0669	0.0000	2.5384

High School	547.5	111.1376	6.5680	0.0000	249.0664
High Turnover (Sit Down Restaurant)	285.6	57.9742	3.4262	0.0000	129.9240
Industrial Park	682	138.4398	8.1816	0.0000	310.2526
Junior College (2yr)	455	92.3609	5.4584	0.0000	206.9867
Junior High School	306.6	62.2370	3.6781	0.0000	139.4772
Manufacturing	68.2	13.8440	0.8182	0.0000	31.0253
Medical Office Building	3240	657.6907	38.8684	0.0000	1,473.9273
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	63.15	12.8189	0.7576	0.0000	28.7279
Refrigerated Warehouse-No Rail	103.4	20.9893	1.2404	0.0000	47.0383
Regional Shopping Center	991.62	201.2899	11.8959	0.0000	451.1036
Research & Development	41.04	8.3308	0.4923	0.0000	18.6698
Single Family Housing	9861.73	2,001.8421	118.3055	0.0000	4,486.2571
Supermarket	1015.2	206.0764	12.1788	0.0000	461.8306
Unrefrigerated Warehouse-No Rail	206.8	41.9785	2.4809	0.0000	94.0766
Total		**4,566.7649**	**269.8881**	**0.0000**	**10,234.4143**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	825.7	167.6096	9.9055	0.0000	375.6240

Bank (with Drive-Through)	14.93	3.0307	0.1791	0.0000	6.7919
City Park	5.635	1.1439	0.0676	0.0000	2.5635
Convenience Market with Gas Pumps	34.56	7.0154	0.4146	0.0000	15.7219
Elementary School	453.51	92.0584	5.4405	0.0000	206.3089
Fast Food Restaurant with Drive-Thru	153.2	31.0982	1.8379	0.0000	69.6931
General Heavy Industry	34.1	6.9220	0.4091	0.0000	15.5126
General Light Industry	68.2	13.8440	0.8182	0.0000	31.0253
General Office Building	722.145	146.5889	8.6632	0.0000	328.5152
Government Office Building	2.79	0.5663	0.0335	0.0000	1.2692
High School	273.75	55.5688	3.2840	0.0000	124.5332
High Turnover (Sit Down Restaurant)	142.8	28.9871	1.7131	0.0000	64.9620
Industrial Park	341	69.2199	4.0908	0.0000	155.1263
Junior College (2yr)	227.5	46.1804	2.7292	0.0000	103.4934
Junior High School	153.3	31.1185	1.8391	0.0000	69.7386
Manufacturing	34.1	6.9220	0.4091	0.0000	15.5126
Medical Office Building	1620	328.8454	19.4342	0.0000	736.9636
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Pharmacy/Drugstore w/o Drive Thru	31.575	6.4094	0.3788	0.0000	14.3640
Refrigerated Warehouse-No Rail	51.7	10.4946	0.6202	0.0000	23.5192
Regional Shopping Center	495.81	100.6450	5.9480	0.0000	225.5518
Research & Development	20.52	4.1654	0.2462	0.0000	9.3349
Single Family Housing	4930.86	1,000.9210	59.1527	0.0000	2,243.1285
Supermarket	507.6	103.0382	6.0894	0.0000	230.9153

Unrefrigerated Warehouse-No Rail	103.4	20.9893	1.2404	0.0000	47.0383
Total		**2,283.3824**	**134.9441**	**0.0000**	**5,117.2072**

9.0 Operational Offroad

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

10.0 Vegetation

CalEEMod Version: CalEEMod.2013.2.2

Date: 10/23/2015 11:24 AM

Business-As-Usual Scenario Grapevine Operational Year 2036 - Full Buildout

Kern-San Joaquin County, Mitigation Report

Operational Percent Reduction Summary

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting:

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value 3
No	Land Use	Increase Density	0.00			
No	Land Use	Increase Diversity	0.30	0.65		

No	Land Use	Improve Walkability Design	0.00			
No	Land Use	Improve Destination Accessibility	0.00			
No	Land Use	Increase Transit Accessibility	0.25			
No	Land Use	Integrate Below Market Rate Housing	0.00			
	Land Use	Land Use SubTotal	0.00			
No	Neighborhood Enhancements	Improve Pedestrian Network				
No	Neighborhood Enhancements	Provide Traffic Calming Measures				
No	Neighborhood Enhancements	Implement NEV Network	0.00			
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.00			
No	Parking Policy Pricing	Limit Parking Supply	0.00			
No	Parking Policy Pricing	Unbundle Parking Costs	0.00			
No	Parking Policy Pricing	On-street Market Pricing	0.00			
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00			
No	Transit Improvements	Provide BRT System	0.00			
No	Transit Improvements	Expand Transit Network	0.00			
No	Transit Improvements	Increase Transit Frequency	0.00			
	Transit Improvements	Transit Improvements Subtotal	0.00			
		Land Use and Site Enhancement Subtotal	0.00			
No	Commute	Implement Trip Reduction Program				
No	Commute	Transit Subsidy				
No	Commute	Implement Employee Parking "Cash Out"				
No	Commute	Workplace Parking Charge				
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00			
No	Commute	Market Commute Trip Reduction Option	0.00			

No	Commute	Employee Vanpool/Shuttle	0.00		2.00	
No	Commute	Provide Ride Sharing Program				
	Commute	Commute Subtotal	0.00			
No	School Trip	Implement School Bus Program	0.00			
		Total VMT Reduction	0.00			

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	150.00
No	Use Low VOC Paint (Residential Exterior)	150.00
No	Use Low VOC Paint (Non-residential Interior)	150.00
No	Use Low VOC Paint (Non-residential Exterior)	150.00
No	% Electric Lawnmower	
No	% Electric Leafblower	
No	% Electric Chainsaw	

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Exceed Title 24		
No	Install High Efficiency Lighting		
No	On-site Renewable		

Appliance Type	Land Use Subtype	% Improvement

ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy		
No	Use Reclaimed Water		
No	Use Grey Water		
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction		
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape		

Solid Waste Mitigation

Mitigation Measures	Input Value
Institute Recycling and Composting Services	50.00
Percent Reduction in Waste Disposed	

Pacific Gas & Electric

Effect of 25% RPS

Based on 2008 Baseline Data

2008 Emission Factor[1]	641.35	lb CO2/MWh	
2008 Renewables[2]	14%		
Without RPS	745.76	lb CO2/MWh	
Future Renewables	25%		(by Dec 31 2016)
With Future RPS	559.32	lb CO2/MWh	
Reduction from 14% RPS	12.8%		

All renewable energy is assumed to be carbon neutral (i.e., no GHG emissions or from biogenic sources).

1. CalEEMod User's Guide, Appendix D, Table 1.2
2. PG&E 2008 Corporate Responsibility Report http://www.pgecorp.com/corp_responsibility/reports/2008/img/pge_crr_summary_2008.pdf.

Pacific Gas & Electric

Effect of 33% RPS

Based on 2008 Baseline Data

2008 Emission Factor[1]	641.35	lb CO2/MWh
2008 Renewables[2]	14%	
Without RPS	745.76	lb CO2/MWh
Future Renewables	33%	
With Future RPS	499.66	lb CO2/MWh

Reduction from 14% RPS	22.1%
Reduction from 20% RPS	10.7%

Notes:

All renewable energy is assumed to be carbon neutral (i.e., no GHG emissions or from biogenic sources).

1. CalEEMod User's Guide, Appendix D, Table 1.2
2. PG&E 2008 Corporate Responsibility Report http://www.pgecorp.com/corp_responsibility/reports/2008/img/pge_crr_summary_2008.pdf.

Pacific Gas & Electric

Effect of 50% RPS

Based on 2008 Baseline Data

2008 Emission Factor[1]	641.35	lb CO2/MWh
2008 Renewables[2]	14%	
Without RPS	745.76	lb CO2/MWh
Future Renewables	50%	
With Future RPS	372.88	lb CO2/MWh

Reduction from 14% RPS	41.9%
Reduction from 33% RPS	25.4%

Notes:

All renewable energy is assumed to be carbon neutral (i.e., no GHG emissions or from biogenic sources).

1. CalEEMod User's Guide, Appendix D, Table 1.2
2. PG&E 2008 Corporate Responsibility Report http://www.pgecorp.com/corp_responsibility/reports/2008/img/pge_crr_summary_2008.pdf.

Grapevine Specific Plan Project
Planning Area 1 - Proposed Project
Estimated Water Consumption and Associated Electricity Usage and Planning Area Generated Greenhouse Gas Emissions

GHG Intensity Factors

GHG	Units	Year 2019	Year 2020 to 2030	Year 2030 and later
CO_2	lb/MWh[1, 2]	559.32	499.66	372.88
CH_4	lb/MWh[1, 2]	0.029	0.029	0.029
N_2O	lb/MWh[1, 2]	0.006	0.006	0.006

Electricity Intensity Factors

Process	Units	
Supply	kwh/MG	2,117
Treat	kwh/MG	111
Distribute	kwh/MG	1,272
Wastewater Treatment	kwh/MG	1,911
Total	**kwh/MG**	**5,411**

Water Demand[3]

Land Use	Units	Total Water Demand	Indoor Water Use	Outdoor Water Use
Residential	AFY	468	237	231
Commercial, institutional and industrial	AFY	70	50	20
Landscaping	AFY	237	-	237
Treatment system losses	AFY	31	-	-
Distribution system losses	AFY	39	14	24
Total	**AFY**	**845**	**301**	**513**

Recycled Water Production[4]

Land Use	Units	Recylced Water Produced
Residential		
Indoor	AFY	201
Outdoor	AFY	-
Irrigated Residential Common Area	AFY	-
Commercial, Institutional and Industrial		
Indoor	AFY	43
Outdoor	AFY	-
School Landscaping	AFY	-
Parks	AFY	-
Road and Other Public Landscaping	AFY	-
Total	**AFY**	**244**

Grapevine Specific Plan Project
Planning Area 1 - Proposed Project
Estimated Water Consumption and Associated Electricity Usage and Planning Area Generated Greenhouse Gas Emissions

Planning Area Water Demand Summary by Use and Source

Conversion Factor	Units	Total Water Demand	Potable Water - Indoor	Potable Water - Outdoor	Recycled Water - Outdoor	Treatment & Distribution Loses
1.00	AFY	845	287	244	244	70
0.325851	MG/yr	275.34	93.52	79.51	79.51	22.81

Planning Area-Generated GHG Emissions

	Units	Potable Water - Indoor	Potable Water - Outdoor	Recycled Water - Outdoor	Treatment & Distribution Loses	Total
Electricity Intensity Factor						
Supply	kwh/MG	2,117	2,117	-	2,117	N/A
Treat	kwh/MG	111	111	-	-	N/A
Distribute	kwh/MG	1,272	1,272	1,272	-	N/A
Wastewater Treatment	kwh/MG	1,911	-	-	-	N/A
Total	**kwh/MG**	**5,411**	**3,500**	**1,272**	**2,117**	N/A
Water Consumption	**MG/yr**	**94**	**80**	**80**	**23**	**275**
Electricity Usage	**kwh/yr**	**506,033**	**278,277**	**101,134**	**48,288**	**933,731**
GHG Emissions - Year 2019						
CO_2E	metric tons/yr	**128.95**	**70.91**	**25.77**	**12.30**	**237.94**
CO_2	metric tons/yr	128.38	70.60	25.66	12.25	236.89
CH_4	metric tons/yr	0.01	0.00	0.00	0.00	0.01
N_2O	metric tons/yr	0.00	0.00	0.00	0.00	0.00
GHG Emissions - 2020 to 2030						
CO_2E	metric tons/yr	**115.25**	**63.38**	**23.03**	**11.00**	**212.67**
CO_2	metric tons/yr	114.69	63.07	22.92	10.94	211.62
CH_4	metric tons/yr	0.01	0.00	0.00	0.00	0.01
N_2O	metric tons/yr	0.00	0.00	0.00	0.00	0.00
GHG Emissions - 2030 and later						
CO_2E	metric tons/yr	**86.15**	**47.38**	**17.22**	**8.22**	**158.97**
CO_2	metric tons/yr	85.59	47.07	17.11	8.17	157.93
CH_4	metric tons/yr	0.01	0.00	0.00	0.00	0.01
N_2O	metric tons/yr	0.00	0.00	0.00	0.00	0.00

Grapevine Specific Plan Project
Planning Area 2 - Proposed Project
Estimated Water Consumption and Associated Electricity Usage and Planning Area Generated Greenhouse Gas Emissions

GHG Intensity Factors

GHG	Units	Year 2019	Year 2020 to 2030	Year 2030 and later
CO_2	lb/MWh[1, 2]	559.32	499.66	372.88
CH_4	lb/MWh[1, 2]	0.029	0.029	0.029
N_2O	lb/MWh[1, 2]	0.006	0.006	0.006

Electricity Intensity Factors

Process	Units	
Supply	kwh/MG	2,117
Treat	kwh/MG	111
Distribute	kwh/MG	1,272
Wastewater Treatment	kwh/MG	1,911
Total	**kwh/MG**	**5,411**

Water Demand[3]

Land Use	Units	Total Water Demand	Indoor Water Use	Outdoor Water Use
Residential	AFY	823	442	381
Commercial, institutional and industrial	AFY	287	200	86
Landscaping	AFY	581	-	581
Treatment system losses	AFY	61	-	-
Distribution system losses	AFY	84	32	52
Total	**AFY**	**1,835**	**674**	**1,101**

Recycled Water Production[4]

Land Use	Units	Recylced Water Produced
Residential		
Indoor	AFY	375
Outdoor	AFY	-
Irrigated Residential Common Area	AFY	-
Commercial, Institutional and Industrial		
Indoor	AFY	170
Outdoor	AFY	-
School Landscaping	AFY	-
Parks	AFY	-
Road and Other Public Landscaping	AFY	-
Total	**AFY**	**545**

Grapevine Specific Plan Project
Planning Area 2 - Proposed Project
Estimated Water Consumption and Associated Electricity Usage and Planning Area Generated Greenhouse Gas Emissions

Planning Area Water Demand Summary by Use and Source

Conversion Factor	Units	Total Water Demand	Potable Water - Indoor	Potable Water - Outdoor	Recycled Water - Outdoor	Treatment & Distribution Loses
1.00	AFY	1,835	642	503	545	145
0.325851	MG/yr	597.94	209.20	163.90	177.59	47.25

Planning Area-Generated GHG Emissions

	Units	Potable Water - Indoor	Potable Water - Outdoor	Recycled Water - Outdoor	Treatment & Distribution Loses	Total
Electricity Intensity Factor						
Supply	kwh/MG	2,117	2,117	-	2,117	N/A
Treat	kwh/MG	111	111	-	-	N/A
Distribute	kwh/MG	1,272	1,272	1,272	-	N/A
Wastewater Treatment	kwh/MG	1,911	-	-	-	N/A
Total	**kwh/MG**	**5,411**	**3,500**	**1,272**	**2,117**	N/A
Water Consumption	**MG/yr**	**209**	**164**	**178**	**47**	**598**
Electricity Usage	**kwh/yr**	**1,131,961**	**573,661**	**225,893**	**100,025**	**2,031,540**
GHG Emissions - Year 2019						
CO_2E	metric tons/yr	**288.45**	**146.18**	**57.56**	**25.49**	**517.68**
CO_2	metric tons/yr	287.18	145.54	57.31	25.38	515.41
CH_4	metric tons/yr	0.01	0.01	0.00	0.00	0.03
N_2O	metric tons/yr	0.00	0.00	0.00	0.00	0.01
GHG Emissions - 2020 to 2030						
CO_2E	metric tons/yr	**257.82**	**130.66**	**51.45**	**22.78**	**462.71**
CO_2	metric tons/yr	256.55	130.02	51.20	22.67	460.43
CH_4	metric tons/yr	0.01	0.01	0.00	0.00	0.03
N_2O	metric tons/yr	0.00	0.00	0.00	0.00	0.01
GHG Emissions - 2030 and later						
CO_2E	metric tons/yr	**192.72**	**97.67**	**38.46**	**17.03**	**345.88**
CO_2	metric tons/yr	191.45	97.03	38.21	16.92	343.61
CH_4	metric tons/yr	0.01	0.01	0.00	0.00	0.03
N_2O	metric tons/yr	0.00	0.00	0.00	0.00	0.01

Grapevine Specific Plan Project
Planning Area 3 - Proposed Project
Estimated Water Consumption and Associated Electricity Usage and Planning Area Generated Greenhouse Gas Emissions

GHG Intensity Factors

GHG	Units	Year 2019	Year 2020 to 2030	Year 2030 and later
CO_2	lb/MWh[1, 2]	559.32	499.66	372.88
CH_4	lb/MWh[1, 2]	0.029	0.029	0.029
N_2O	lb/MWh[1, 2]	0.006	0.006	0.006

Electricity Intensity Factors

Process	Units	
Supply	kwh/MG	2,117
Treat	kwh/MG	111
Distribute	kwh/MG	1,272
Wastewater Treatment	kwh/MG	1,911
Total	**kwh/MG**	**5,411**

Water Demand[3]

Land Use	Units	Total Water Demand	Indoor Water Use	Outdoor Water Use
Residential	AFY	565	306	259
Commercial, institutional and industrial	AFY	309	228	81
Landscaping	AFY	387	-	387
Treatment system losses	AFY	46	-	-
Distribution system losses	AFY	63	27	36
Total	**AFY**	**1,369**	**561**	**763**

Recycled Water Production[4]

Land Use	Units	Recylced Water Produced
Residential		
Indoor	AFY	260
Outdoor	AFY	-
Irrigated Residential Common Area	AFY	-
Commercial, Institutional and Industrial		
Indoor	AFY	194
Outdoor	AFY	-
School Landscaping	AFY	-
Parks	AFY	-
Road and Other Public Landscaping	AFY	-
Total	**AFY**	**454**

Grapevine Specific Plan Project
Planning Area 3 - Proposed Project
Estimated Water Consumption and Associated Electricity Usage and Planning Area Generated Greenhouse Gas Emissions

Planning Area Water Demand Summary by Use and Source

Conversion Factor	Units	Total Water Demand	Potable Water - Indoor	Potable Water - Outdoor	Recycled Water - Outdoor	Treatment & Distribution Loses
1.00	AFY	1,370	534	273	454	109
0.325851	MG/yr	446.42	174.00	88.96	147.94	35.52

Planning Area-Generated GHG Emissions

	Units	Potable Water - Indoor	Potable Water - Outdoor	Recycled Water - Outdoor	Treatment & Distribution Loses	Total
Electricity Intensity Factor						
Supply	kwh/MG	2,117	2,117	-	2,117	N/A
Treat	kwh/MG	111	111	-	-	N/A
Distribute	kwh/MG	1,272	1,272	1,272	-	N/A
Wastewater Treatment	kwh/MG	1,911	-	-	-	N/A
Total	**kwh/MG**	**5,411**	**3,500**	**1,272**	**2,117**	N/A
Water Consumption	**MG/yr**	**174**	**89**	**148**	**36**	**446**
Electricity Usage	**kwh/yr**	**941,538**	**311,351**	**188,175**	**75,191**	**1,516,255**
GHG Emissions - Year 2019						
CO_2E	metric tons/yr	**239.93**	**79.34**	**47.95**	**19.16**	**386.38**
CO_2	metric tons/yr	238.87	78.99	47.74	19.08	384.68
CH_4	metric tons/yr	0.01	0.00	0.00	0.00	0.02
N_2O	metric tons/yr	0.00	0.00	0.00	0.00	0.00
GHG Emissions - 2020 to 2030						
CO_2E	metric tons/yr	**214.45**	**70.91**	**42.86**	**17.13**	**345.34**
CO_2	metric tons/yr	213.39	70.57	42.65	17.04	343.65
CH_4	metric tons/yr	0.01	0.00	0.00	0.00	0.02
N_2O	metric tons/yr	0.00	0.00	0.00	0.00	0.00
GHG Emissions - 2030 and later						
CO_2E	metric tons/yr	**160.30**	**53.01**	**32.04**	**12.80**	**258.15**
CO_2	metric tons/yr	159.25	52.66	31.83	12.72	256.45
CH_4	metric tons/yr	0.01	0.00	0.00	0.00	0.02
N_2O	metric tons/yr	0.00	0.00	0.00	0.00	0.00

Grapevine Specific Plan Project
Planning Area 4 - Proposed Project
Estimated Water Consumption and Associated Electricity Usage and Planning Area Generated Greenhouse Gas Emissions

GHG Intensity Factors

GHG	Units	Year 2019	Year 2020 to 2030	Year 2030 and later
CO_2	lb/MWh[1, 2]	559.32	499.66	372.88
CH_4	lb/MWh[1, 2]	0.029	0.029	0.029
N_2O	lb/MWh[1, 2]	0.006	0.006	0.006

Electricity Intensity Factors

Process	Units	
Supply	kwh/MG	2,117
Treat	kwh/MG	111
Distribute	kwh/MG	1,272
Wastewater Treatment	kwh/MG	1,911
Total	**kwh/MG**	**5,411**

Water Demand[3]

Land Use	Units	Total Water Demand	Indoor Water Use	Outdoor Water Use
Residential	AFY	747	387	360
Commercial, institutional and industrial	AFY	55	27	28
Landscaping	AFY	821	-	821
Treatment system losses	AFY	48	-	-
Distribution system losses	AFY	81	21	60
Total	**AFY**	**1,753**	**435**	**1,270**

Recycled Water Production[4]

Land Use	Units	Recylced Water Produced
Residential		
Indoor	AFY	329
Outdoor	AFY	-
Irrigated Residential Common Area	AFY	-
Commercial, Institutional and Industrial		
Indoor	AFY	23
Outdoor	AFY	-
School Landscaping	AFY	-
Parks	AFY	-
Road and Other Public Landscaping	AFY	-
Total	**AFY**	**352**

Grapevine Specific Plan Project
Planning Area 4 - Proposed Project
Estimated Water Consumption and Associated Electricity Usage and Planning Area Generated Greenhouse Gas Emissions

Planning Area Water Demand Summary by Use and Source

Conversion Factor	Units	Total Water Demand	Potable Water - Indoor	Potable Water - Outdoor	Recycled Water - Outdoor	Treatment & Distribution Loses
1.00	AFY	1,752	414	857	352	129
0.325851	MG/yr	570.89	134.90	279.25	114.70	42.03

Planning Area-Generated GHG Emissions

	Units	Potable Water - Indoor	Potable Water - Outdoor	Recycled Water - Outdoor	Treatment & Distribution Loses	Total
Electricity Intensity Factor						
Supply	kwh/MG	2,117	2,117	-	2,117	N/A
Treat	kwh/MG	111	111	-	-	N/A
Distribute	kwh/MG	1,272	1,272	1,272	-	N/A
Wastewater Treatment	kwh/MG	1,911	-	-	-	N/A
Total	**kwh/MG**	**5,411**	**3,500**	**1,272**	**2,117**	N/A
Water Consumption	**MG/yr**	**135**	**279**	**115**	**42**	**571**
Electricity Usage	**kwh/yr**	**729,956**	**977,390**	**145,898**	**88,988**	**1,942,232**
GHG Emissions - Year 2019						
CO_2E	metric tons/yr	**186.01**	**249.06**	**37.18**	**22.68**	**494.93**
CO_2	metric tons/yr	185.19	247.97	37.01	22.58	492.75
CH_4	metric tons/yr	0.01	0.01	0.00	0.00	0.03
N_2O	metric tons/yr	0.00	0.00	0.00	0.00	0.01
GHG Emissions - 2020 to 2030						
CO_2E	metric tons/yr	**166.26**	**222.61**	**33.23**	**20.27**	**442.37**
CO_2	metric tons/yr	165.44	221.52	33.07	20.17	440.19
CH_4	metric tons/yr	0.01	0.01	0.00	0.00	0.03
N_2O	metric tons/yr	0.00	0.00	0.00	0.00	0.01
GHG Emissions - 2030 and later						
CO_2E	metric tons/yr	**124.28**	**166.41**	**24.84**	**15.15**	**330.68**
CO_2	metric tons/yr	123.46	165.31	24.68	15.05	328.50
CH_4	metric tons/yr	0.01	0.01	0.00	0.00	0.03
N_2O	metric tons/yr	0.00	0.00	0.00	0.00	0.01

Grapevine Specific Plan Project
Planning Area 5A - Proposed Project
Estimated Water Consumption and Associated Electricity Usage and Planning Area Generated Greenhouse Gas Emissions

GHG Intensity Factors

GHG	Units	Year 2019	Year 2020 to 2030	Year 2030 and later
CO_2	lb/MWh[1, 2]	559.32	499.66	372.88
CH_4	lb/MWh[1, 2]	0.029	0.029	0.029
N_2O	lb/MWh[1, 2]	0.006	0.006	0.006

Electricity Intensity Factors

Process	Units	
Supply	kwh/MG	2,117
Treat	kwh/MG	111
Distribute	kwh/MG	1,272
Wastewater Treatment	kwh/MG	1,911
Total	**kwh/MG**	**5,411**

Water Demand[3]

Land Use	Units	Total Water Demand	Indoor Water Use	Outdoor Water Use
Residential	AFY	650	330	321
Commercial, institutional and industrial	AFY	13	6.7	6.1
Landscaping	AFY	279	-	279
Treatment system losses	AFY	40	-	-
Distribution system losses	AFY	47	17	30
Total	**AFY**	**1,030**	**353**	**636**

Recycled Water Production[4]

Land Use	Units	Recylced Water Produced
Residential		
Indoor	AFY	280
Outdoor	AFY	-
Irrigated Residential Common Area	AFY	-
Commercial, Institutional and Industrial		
Indoor	AFY	6
Outdoor	AFY	-
School Landscaping	AFY	-
Parks	AFY	-
Road and Other Public Landscaping	AFY	-
Total	**AFY**	**286**

Grapevine Specific Plan Project
Planning Area 5A - Proposed Project
Estimated Water Consumption and Associated Electricity Usage and Planning Area Generated Greenhouse Gas Emissions

Planning Area Water Demand Summary by Use and Source

Conversion Factor	Units	Total Water Demand	Potable Water - Indoor	Potable Water - Outdoor	Recycled Water - Outdoor	Treatment & Distribution Loses
1.00	AFY	1,030	337	320	286	87
0.325851	MG/yr	335.56	109.71	104.30	93.19	28.35

Planning Area-Generated GHG Emissions

	Units	Potable Water - Indoor	Potable Water - Outdoor	Recycled Water - Outdoor	Treatment & Distribution Loses	Total
Electricity Intensity Factor						
Supply	kwh/MG	2,117	2,117	-	2,117	N/A
Treat	kwh/MG	111	111	-	-	N/A
Distribute	kwh/MG	1,272	1,272	1,272	-	N/A
Wastewater Treatment	kwh/MG	1,911	-	-	-	N/A
Total	**kwh/MG**	**5,411**	**3,500**	**1,272**	**2,117**	N/A
Water Consumption	**MG/yr**	**110**	**104**	**93**	**28**	**336**
Electricity Usage	**kwh/yr**	**593,663**	**365,067**	**118,542**	**60,015**	**1,137,287**
GHG Emissions - Year 2019						
CO_2E	metric tons/yr	**151.28**	**93.03**	**30.21**	**15.29**	**289.81**
CO_2	metric tons/yr	150.61	92.62	30.07	15.23	288.53
CH_4	metric tons/yr	0.01	0.00	0.00	0.00	0.01
N_2O	metric tons/yr	0.00	0.00	0.00	0.00	0.00
GHG Emissions - 2020 to 2030						
CO_2E	metric tons/yr	**135.21**	**83.15**	**27.00**	**13.67**	**259.03**
CO_2	metric tons/yr	134.55	82.74	26.87	13.60	257.76
CH_4	metric tons/yr	0.01	0.00	0.00	0.00	0.01
N_2O	metric tons/yr	0.00	0.00	0.00	0.00	0.00
GHG Emissions - 2030 and later						
CO_2E	metric tons/yr	**101.07**	**62.15**	**20.18**	**10.22**	**193.63**
CO_2	metric tons/yr	100.41	61.75	20.05	10.15	192.36
CH_4	metric tons/yr	0.01	0.00	0.00	0.00	0.01
N_2O	metric tons/yr	0.00	0.00	0.00	0.00	0.00

Grapevine Specific Plan Project
Planning Area 5B - Proposed Project
Estimated Water Consumption and Associated Electricity Usage and Planning Area Generated Greenhouse Gas Emissions

GHG Intensity Factors

GHG	Units	Year 2019	Year 2020 to 2030	Year 2030 and later
CO_2	lb/MWh[1, 2]	559.32	499.66	372.88
CH_4	lb/MWh[1, 2]	0.029	0.029	0.029
N_2O	lb/MWh[1, 2]	0.006	0.006	0.006

Electricity Intensity Factors

Process	Units	
Supply	kwh/MG	2,117
Treat	kwh/MG	111
Distribute	kwh/MG	1,272
Wastewater Treatment	kwh/MG	1,911
Total	**kwh/MG**	**5,411**

Water Demand[3]

Land Use	Units	Total Water Demand	Indoor Water Use	Outdoor Water Use
Residential	AFY	12	5.6	6
Commercial, institutional and industrial	AFY	-	-	-
Landscaping	AFY	53	-	53
Treatment system losses	AFY	1.8	-	-
Distribution system losses	AFY	3.2	0.3	3
Total	**AFY**	**70**	**6**	**62**

Recycled Water Production[4]

Land Use	Units	Recylced Water Produced
Residential		
Indoor	AFY	5
Outdoor	AFY	-
Irrigated Residential Common Area	AFY	-
Commercial, Institutional and Industrial		
Indoor	AFY	-
Outdoor	AFY	-
School Landscaping	AFY	-
Parks	AFY	-
Road and Other Public Landscaping	AFY	-
Total	**AFY**	**5**

Grapevine Specific Plan Project
Planning Area 5B - Proposed Project
Estimated Water Consumption and Associated Electricity Usage and Planning Area Generated Greenhouse Gas Emissions

Planning Area Water Demand Summary by Use and Source

Conversion Factor	Units	Total Water Demand	Potable Water - Indoor	Potable Water - Outdoor	Recycled Water - Outdoor	Treatment & Distribution Loses
1.00	AFY	70	6	54	5	5
0.325851	MG/yr	22.68	1.82	17.60	1.63	1.63

Planning Area-Generated GHG Emissions

	Units	Potable Water - Indoor	Potable Water - Outdoor	Recycled Water - Outdoor	Treatment & Distribution Loses	Total
Electricity Intensity Factor						
Supply	kwh/MG	2,117	2,117	-	2,117	N/A
Treat	kwh/MG	111	111	-	-	N/A
Distribute	kwh/MG	1,272	1,272	1,272	-	N/A
Wastewater Treatment	kwh/MG	1,911	-	-	-	N/A
Total	**kwh/MG**	**5,411**	**3,500**	**1,272**	**2,117**	N/A
Water Consumption	**MG/yr**	**2**	**18**	**2**	**2**	**23**
Electricity Usage	**kwh/yr**	**9,874**	**61,586**	**2,072**	**3,449**	**76,981**
GHG Emissions - Year 2019						
CO_2E	metric tons/yr	**2.52**	**15.69**	**0.53**	**0.88**	**19.62**
CO_2	metric tons/yr	2.51	15.62	0.53	0.88	19.53
CH_4	metric tons/yr	0.00	0.00	0.00	0.00	0.00
N_2O	metric tons/yr	0.00	0.00	0.00	0.00	0.00
GHG Emissions - 2020 to 2030						
CO_2E	metric tons/yr	**2.25**	**14.03**	**0.47**	**0.79**	**17.53**
CO_2	metric tons/yr	2.24	13.96	0.47	0.78	17.45
CH_4	metric tons/yr	0.00	0.00	0.00	0.00	0.00
N_2O	metric tons/yr	0.00	0.00	0.00	0.00	0.00
GHG Emissions - 2030 and later						
CO_2E	metric tons/yr	**1.68**	**10.49**	**0.35**	**0.59**	**13.11**
CO_2	metric tons/yr	1.67	10.42	0.35	0.58	13.02
CH_4	metric tons/yr	0.00	0.00	0.00	0.00	0.00
N_2O	metric tons/yr	0.00	0.00	0.00	0.00	0.00

Grapevine Specific Plan Project
Planning Area 6A - Proposed Project
Estimated Water Consumption and Associated Electricity Usage and Planning Area Generated Greenhouse Gas Emissions

GHG Intensity Factors

GHG	Units	Year 2019	Year 2020 to 2030	Year 2030 and later
CO_2	lb/MWh[1, 2]	559.32	499.66	372.88
CH_4	lb/MWh[1, 2]	0.029	0.029	0.029
N_2O	lb/MWh[1, 2]	0.006	0.006	0.006

Electricity Intensity Factors

Process	Units	
Supply	kwh/MG	2,117
Treat	kwh/MG	111
Distribute	kwh/MG	1,272
Wastewater Treatment	kwh/MG	1,911
Total	**kwh/MG**	**5,411**

Water Demand[3]

Land Use	Units	Total Water Demand	Indoor Water Use	Outdoor Water Use
Residential	AFY	373	214	159
Commercial, institutional and industrial	AFY	165	80	85
Landscaping	AFY	149	-	149
Treatment system losses	AFY	26	-	-
Distribution system losses	AFY	34	15	20
Total	**AFY**	**747**	**308**	**412**

Recycled Water Production[4]

Land Use	Units	Recylced Water Produced
Residential		
Indoor	AFY	182
Outdoor	AFY	-
Irrigated Residential Common Area	AFY	-
Commercial, Institutional and Industrial		
Indoor	AFY	68
Outdoor	AFY	-
School Landscaping	AFY	-
Parks	AFY	-
Road and Other Public Landscaping	AFY	-
Total	**AFY**	**250**

Grapevine Specific Plan Project
Planning Area 6A - Proposed Project
Estimated Water Consumption and Associated Electricity Usage and Planning Area Generated Greenhouse Gas Emissions

Planning Area Water Demand Summary by Use and Source

Conversion Factor	Units	Total Water Demand	Potable Water - Indoor	Potable Water - Outdoor	Recycled Water - Outdoor	Treatment & Distribution Loses
1.00	AFY	747	294	143	250	60
0.325851	MG/yr	243.41	95.80	46.60	81.46	19.55

Planning Area-Generated GHG Emissions

	Units	Potable Water - Indoor	Potable Water - Outdoor	Recycled Water - Outdoor	Treatment & Distribution Loses	Total
Electricity Intensity Factor						
Supply	kwh/MG	2,117	2,117	-	2,117	N/A
Treat	kwh/MG	111	111	-	-	N/A
Distribute	kwh/MG	1,272	1,272	1,272	-	N/A
Wastewater Treatment	kwh/MG	1,911	-	-	-	N/A
Total	**kwh/MG**	**5,411**	**3,500**	**1,272**	**2,117**	N/A
Water Consumption	**MG/yr**	**96**	**47**	**81**	**20**	**243**
Electricity Usage	**kwh/yr**	**518,375**	**163,088**	**103,621**	**41,390**	**826,473**
GHG Emissions - Year 2019						
CO_2E	metric tons/yr	**132.09**	**41.56**	**26.40**	**10.55**	**210.60**
CO_2	metric tons/yr	131.51	41.38	26.29	10.50	209.68
CH_4	metric tons/yr	0.01	0.00	0.00	0.00	0.01
N_2O	metric tons/yr	0.00	0.00	0.00	0.00	0.00
GHG Emissions - 2020 to 2030						
CO_2E	metric tons/yr	**118.07**	**37.15**	**23.60**	**9.43**	**188.24**
CO_2	metric tons/yr	117.49	36.96	23.48	9.38	187.31
CH_4	metric tons/yr	0.01	0.00	0.00	0.00	0.01
N_2O	metric tons/yr	0.00	0.00	0.00	0.00	0.00
GHG Emissions - 2030 and later						
CO_2E	metric tons/yr	**88.26**	**27.77**	**17.64**	**7.05**	**140.71**
CO_2	metric tons/yr	87.68	27.58	17.53	7.00	139.79
CH_4	metric tons/yr	0.01	0.00	0.00	0.00	0.01
N_2O	metric tons/yr	0.00	0.00	0.00	0.00	0.00

Grapevine Specific Plan Project
Planning Area 6B - Proposed Project
Estimated Water Consumption and Associated Electricity Usage and Planning Area Generated Greenhouse Gas Emissions

GHG Intensity Factors

GHG	Units	Year 2019	Year 2020 to 2030	Year 2030 and later
CO_2	lb/MWh[1, 2]	559.32	499.66	372.88
CH_4	lb/MWh[1, 2]	0.029	0.029	0.029
N_2O	lb/MWh[1, 2]	0.006	0.006	0.006

Electricity Intensity Factors

Process	Units	
Supply	kwh/MG	2,117
Treat	kwh/MG	111
Distribute	kwh/MG	1,272
Wastewater Treatment	kwh/MG	1,911
Total	**kwh/MG**	**5,411**

Water Demand[3]

Land Use	Units	Total Water Demand	Indoor Water Use	Outdoor Water Use
Residential	AFY	-	-	-
Commercial, institutional and industrial	AFY	15	1	13.8
Landscaping	AFY	-	-	-
Treatment system losses	AFY	-	-	-
Distribution system losses	AFY	1	-	1
Total	**AFY**	**16**	**1**	**15**

Recycled Water Production[4]

Land Use	Units	Recylced Water Produced
Residential		
Indoor	AFY	-
Outdoor	AFY	-
Commercial, Institutional and Industrial		
Indoor	AFY	1
Outdoor	AFY	-
School Landscaping	AFY	-
Parks	AFY	-
Road and Other Public Landscaping	AFY	-
Total	**AFY**	**1**

Grapevine Specific Plan Project
Planning Area 6B - Proposed Project
Estimated Water Consumption and Associated Electricity Usage and Planning Area Generated Greenhouse Gas Emissions

Planning Area Water Demand Summary by Use and Source

Conversion Factor	Units	Total Water Demand	Potable Water - Indoor	Potable Water - Outdoor	Recycled Water - Outdoor	Treatment & Distribution Loses
1.00	AFY	16	1	13	1	1
0.325851	MG/yr	5.08	0.33	4.17	0.33	0.26

Planning Area-Generated GHG Emissions

	Units	Potable Water - Indoor	Potable Water - Outdoor	Recycled Water - Outdoor	Treatment & Distribution Loses	Total
Electricity Intensity Factor						
Supply	kwh/MG	2,117	2,117	-	2,117	N/A
Treat	kwh/MG	111	111	-	-	N/A
Distribute	kwh/MG	1,272	1,272	1,272	-	N/A
Wastewater Treatment	kwh/MG	1,911	-	-	-	N/A
Total	**kwh/MG**	**5,411**	**3,500**	**1,272**	**2,117**	N/A
Water Consumption	**MG/yr**	**0.33**	**4.17**	**0.33**	**0.26**	**5.08**
Electricity Usage	**kwh/yr**	**1,763**	**14,598**	**414**	**552**	**17,328**
GHG Emissions - Year 2019						
CO_2E	metric tons/yr	**0.45**	**3.72**	**0.11**	**0.14**	**4.42**
CO_2	metric tons/yr	0.45	3.70	0.11	0.14	4.40
CH_4	metric tons/yr	0.00	0.00	0.00	0.00	0.00
N_2O	metric tons/yr	0.00	0.00	0.00	0.00	0.00
GHG Emissions - 2020 to 2030						
CO_2E	metric tons/yr	**0.40**	**3.32**	**0.09**	**0.13**	**3.95**
CO_2	metric tons/yr	0.40	3.31	0.09	0.13	3.93
CH_4	metric tons/yr	0.00	0.00	0.00	0.00	0.00
N_2O	metric tons/yr	0.00	0.00	0.00	0.00	0.00
GHG Emissions - 2030 and later						
CO_2E	metric tons/yr	**0.30**	**2.49**	**0.07**	**0.09**	**2.95**
CO_2	metric tons/yr	0.30	2.47	0.07	0.09	2.93
CH_4	metric tons/yr	0.00	0.00	0.00	0.00	0.00
N_2O	metric tons/yr	0.00	0.00	0.00	0.00	0.00

Grapevine Specific Plan Project
Planning Area 6C - Proposed Project
Estimated Water Consumption and Associated Electricity Usage and Planning Area Generated Greenhouse Gas Emissions

GHG Intensity Factors

GHG	Units	Year 2019	Year 2020 to 2030	Year 2030 and later
CO_2	lb/MWh[1, 2]	559.32	499.66	372.88
CH_4	lb/MWh[1, 2]	0.029	0.029	0.029
N_2O	lb/MWh[1, 2]	0.006	0.006	0.006

Electricity Intensity Factors

Process	Units	
Supply	kwh/MG	2,117
Treat	kwh/MG	111
Distribute	kwh/MG	1,272
Wastewater Treatment	kwh/MG	1,911
Total	**kwh/MG**	**5,411**

Water Demand[3]

Land Use	Units	Total Water Demand	Indoor Water Use	Outdoor Water Use
Residential	AFY	-	-	-
Commercial, institutional and industrial	AFY	1	-	1
Landscaping	AFY	-	-	-
Treatment system losses	AFY	-	-	-
Distribution system losses	AFY	-	-	-
Total	**AFY**	**1**	**0**	**1**

Recycled Water Production[4]

Land Use	Units	Recylced Water Produced
Residential		
Indoor	AFY	-
Outdoor	AFY	-
Commercial, Institutional and Industrial		
Indoor	AFY	-
Outdoor	AFY	-
School Landscaping	AFY	-
Parks	AFY	-
Road and Other Public Landscaping	AFY	-
Total	**AFY**	**0**

Grapevine Specific Plan Project
Planning Area 6C - Proposed Project
Estimated Water Consumption and Associated Electricity Usage and Planning Area Generated Greenhouse Gas Emissions

Planning Area Water Demand Summary by Use and Source

Conversion Factor	Units	Total Water Demand	Potable Water - Indoor	Potable Water - Outdoor	Recycled Water - Outdoor	Treatment & Distribution Loses
1.00	AFY	1	0	1	0	0
0.325851	MG/yr	0.26	0.00	0.25	0.01	0.00

Planning Area-Generated GHG Emissions

	Units	Potable Water - Indoor	Potable Water - Outdoor	Recycled Water - Outdoor	Treatment & Distribution Loses	Total
Electricity Intensity Factor						
Supply	kwh/MG	2,117	2,117	-	2,117	N/A
Treat	kwh/MG	111	111	-	-	N/A
Distribute	kwh/MG	1,272	1,272	1,272	-	N/A
Wastewater Treatment	kwh/MG	1,911	-	-	-	N/A
Total	**kwh/MG**	**5,411**	**3,500**	**1,272**	**2,117**	N/A
Water Consumption	**MG/yr**	**0.00**	**0.25**	**0.01**	**0.00**	**0.26**
Electricity Usage	**kwh/yr**	**0**	**890**	**8**	**0**	**898**
GHG Emissions - Year 2019						
CO_2E	metric tons/yr	**0.00**	**0.23**	**0.00**	**0.00**	**0.23**
CO_2	metric tons/yr	0.00	0.23	0.00	0.00	0.23
CH_4	metric tons/yr	0.00	0.00	0.00	0.00	0.00
N_2O	metric tons/yr	0.00	0.00	0.00	0.00	0.00
GHG Emissions - 2020 to 2030						
CO_2E	metric tons/yr	**0.00**	**0.20**	**0.00**	**0.00**	**0.20**
CO_2	metric tons/yr	0.00	0.20	0.00	0.00	0.20
CH_4	metric tons/yr	0.00	0.00	0.00	0.00	0.00
N_2O	metric tons/yr	0.00	0.00	0.00	0.00	0.00
GHG Emissions - 2030 and later						
CO_2E	metric tons/yr	**0.00**	**0.15**	**0.00**	**0.00**	**0.15**
CO_2	metric tons/yr	0.00	0.15	0.00	0.00	0.15
CH_4	metric tons/yr	0.00	0.00	0.00	0.00	0.00
N_2O	metric tons/yr	0.00	0.00	0.00	0.00	0.00

Grapevine Specific Plan Project
Planning Area 6D - Proposed Project
Estimated Water Consumption and Associated Electricity Usage and Planning Area Generated Greenhouse Gas Emissions

GHG Intensity Factors

GHG	Units	Year 2019	Year 2020 to 2030	Year 2030 and later
CO_2	lb/MWh[1, 2]	559.32	499.66	372.88
CH_4	lb/MWh[1, 2]	0.029	0.029	0.029
N_2O	lb/MWh[1, 2]	0.006	0.006	0.006

Electricity Intensity Factors

Process	Units	
Supply	kwh/MG	2,117
Treat	kwh/MG	111
Distribute	kwh/MG	1,272
Wastewater Treatment	kwh/MG	1,911
Total	**kwh/MG**	**5,411**

Water Demand[3]

Land Use	Units	Total Water Demand	Indoor Water Use	Outdoor Water Use
Residential	AFY	-	-	-
Commercial, institutional and industrial	AFY	1	-	1
Landscaping	AFY	-	-	-
Treatment system losses	AFY	-	-	-
Distribution system losses	AFY	-	-	-
Total	**AFY**	**1**	**0**	**1**

Recycled Water Production[4]

Land Use	Units	Recylced Water Produced
Residential		
Indoor	AFY	-
Outdoor	AFY	-
Commercial, Institutional and Industrial		
Indoor	AFY	-
Outdoor	AFY	-
School Landscaping	AFY	-
Parks	AFY	-
Road and Other Public Landscaping	AFY	-
Total	**AFY**	**0**

Grapevine Specific Plan Project
Planning Area 6D - Proposed Project
Estimated Water Consumption and Associated Electricity Usage and Planning Area Generated Greenhouse Gas Emissions

Planning Area Water Demand Summary by Use and Source

Conversion Factor	Units	Total Water Demand	Potable Water - Indoor	Potable Water - Outdoor	Recycled Water - Outdoor	Treatment & Distribution Loses
1.00	AFY	1	0	1	0	0
0.325851	MG/yr	0.26	0.00	0.26	0.00	0.00

Planning Area-Generated GHG Emissions

	Units	Potable Water - Indoor	Potable Water - Outdoor	Recycled Water - Outdoor	Treatment & Distribution Loses	Total
Electricity Intensity Factor						
Supply	kwh/MG	2,117	2,117	-	2,117	N/A
Treat	kwh/MG	111	111	-	-	N/A
Distribute	kwh/MG	1,272	1,272	1,272	-	N/A
Wastewater Treatment	kwh/MG	1,911	-	-	-	N/A
Total	**kwh/MG**	**5,411**	**3,500**	**1,272**	**2,117**	N/A
Water Consumption	**MG/yr**	**0.00**	**0.26**	**0.00**	**0.00**	**0.26**
Electricity Usage	**kwh/yr**	**0**	**901**	**4**	**0**	**905**
GHG Emissions - Year 2019						
CO_2E	metric tons/yr	**0.00**	**0.23**	**0.00**	**0.00**	**0.23**
CO_2	metric tons/yr	0.00	0.23	0.00	0.00	0.23
CH_4	metric tons/yr	0.00	0.00	0.00	0.00	0.00
N_2O	metric tons/yr	0.00	0.00	0.00	0.00	0.00
GHG Emissions - 2020 to 2030						
CO_2E	metric tons/yr	**0.00**	**0.21**	**0.00**	**0.00**	**0.21**
CO_2	metric tons/yr	0.00	0.20	0.00	0.00	0.21
CH_4	metric tons/yr	0.00	0.00	0.00	0.00	0.00
N_2O	metric tons/yr	0.00	0.00	0.00	0.00	0.00
GHG Emissions - 2030 and later						
CO_2E	metric tons/yr	**0.00**	**0.15**	**0.00**	**0.00**	**0.15**
CO_2	metric tons/yr	0.00	0.15	0.00	0.00	0.15
CH_4	metric tons/yr	0.00	0.00	0.00	0.00	0.00
N_2O	metric tons/yr	0.00	0.00	0.00	0.00	0.00

Grapevine Specific Plan Project
Planning Area 6E - Proposed Project
Estimated Water Consumption and Associated Electricity Usage and Planning Area Generated Greenhouse Gas Emissions

GHG Intensity Factors

GHG	Units	Year 2019	Year 2020 to 2030	Year 2030 and later
CO_2	lb/MWh[1, 2]	559.32	499.66	372.88
CH_4	lb/MWh[1, 2]	0.029	0.029	0.029
N_2O	lb/MWh[1, 2]	0.006	0.006	0.006

Electricity Intensity Factors

Process	Units	
Supply	kwh/MG	2,117
Treat	kwh/MG	111
Distribute	kwh/MG	1,272
Wastewater Treatment	kwh/MG	1,911
Total	**kwh/MG**	**5,411**

Water Demand[3]

Land Use	Units	Total Water Demand	Indoor Water Use	Outdoor Water Use
Residential	AFY	-	-	-
Commercial, institutional and industrial	AFY	1	0	1
Landscaping	AFY	-	-	-
Treatment system losses	AFY	0	-	-
Distribution system losses	AFY	0	0	0
Total	**AFY**	**1**	**0**	**1**

Recycled Water Production[4]

Land Use	Units	Recylced Water Produced
Residential		
Indoor	AFY	-
Outdoor	AFY	-
Commercial, Institutional and Industrial		
Indoor	AFY	0
Outdoor	AFY	-
School Landscaping	AFY	-
Parks	AFY	-
Road and Other Public Landscaping	AFY	-
Total	**AFY**	**0**

Grapevine Specific Plan Project
Planning Area 6E - Proposed Project
Estimated Water Consumption and Associated Electricity Usage and Planning Area Generated Greenhouse Gas Emissions

Planning Area Water Demand Summary by Use and Source

Conversion Factor	Units	Total Water Demand	Potable Water - Indoor	Potable Water - Outdoor	Recycled Water - Outdoor	Treatment & Distribution Loses
1.00	AFY	1	0	1	0	0
0.325851	MG/yr	0.26	0.00	0.26	0.00	0.00

Planning Area-Generated GHG Emissions

	Units	Potable Water - Indoor	Potable Water - Outdoor	Recycled Water - Outdoor	Treatment & Distribution Loses	Total
Electricity Intensity Factor						
Supply	kwh/MG	2,117	2,117	-	2,117	N/A
Treat	kwh/MG	111	111	-	-	N/A
Distribute	kwh/MG	1,272	1,272	1,272	-	N/A
Wastewater Treatment	kwh/MG	1,911	-	-	-	N/A
Total	**kwh/MG**	**5,411**	**3,500**	**1,272**	**2,117**	N/A
Water Consumption	**MG/yr**	**0.00**	**0.26**	**0.00**	**0.00**	**0.26**
Electricity Usage	**kwh/yr**	**0**	**901**	**4**	**0**	**905**
GHG Emissions - Year 2019						
CO_2E	metric tons/yr	**0.00**	**0.23**	**0.00**	**0.00**	**0.23**
CO_2	metric tons/yr	0.00	0.23	0.00	0.00	0.23
CH_4	metric tons/yr	0.00	0.00	0.00	0.00	0.00
N_2O	metric tons/yr	0.00	0.00	0.00	0.00	0.00
GHG Emissions - 2020 to 2030						
CO_2E	metric tons/yr	**0.00**	**0.21**	**0.00**	**0.00**	**0.21**
CO_2	metric tons/yr	0.00	0.20	0.00	0.00	0.21
CH_4	metric tons/yr	0.00	0.00	0.00	0.00	0.00
N_2O	metric tons/yr	0.00	0.00	0.00	0.00	0.00
GHG Emissions - 2030 and later						
CO_2E	metric tons/yr	**0.00**	**0.15**	**0.00**	**0.00**	**0.15**
CO_2	metric tons/yr	0.00	0.15	0.00	0.00	0.15
CH_4	metric tons/yr	0.00	0.00	0.00	0.00	0.00
N_2O	metric tons/yr	0.00	0.00	0.00	0.00	0.00

Grapevine Specific Plan Project
Estimated Water Consumption and Associated Electricity Usage and Planning Area Generated Greenhouse Gas Emissions

Notes/Sources:

1. Emission factors for GHGs from CalEEMod User's Guide, Version 2013.2.2 Appendix D for PG&E

2. The CO2 equivalent for a gas is derived by multiplying the mass of the gas by the associated GWP, such that metric tons of CO2E = (metric tons of a GHG) × (GWP of the GHG). CalEEMod assumes that the GWP for CH4 is 21, which means that emissions of 1 metric ton of CH4 are equivalent to emissions of 21 metric tons of CO2, and the GWP for N2O is 310, based on the Intergovernmental Panel on Climate Change (IPCC) Second Assessment Report. Although the IPCC has released subsequent Assessment Reports with updated GWPs, CARB reporting and other statewide documents utilize the GWP in the IPCC Second Assessment Report. As such, it is appropriate to use the hardwired GWP values in CalEEMod from the IPCC Second Assessment Report.

3. Source: Based on Table 10 Estimated Grapevine Project Annual Water Demand by Planning Area (E&K 2015)

4. Source: Based on Table 11 Recycled Water Production and Demand by Planning Area (E&K 2015)

Grapevine Vehicle Miles of Travel (VMT) Summary - OD Method

VMT Type		VMT - AM Peak Period (3 Hours)	VMT - Midday Period (7 Hours)	VMT - PM Peak Period (3 Hours)	VMT - Evening Period (11 Hours)	Daily					
						Estimated Daily Trip Generation[1]			Estimated Average Trip Length (Miles)	Daily VMT	
						% of Total	Project Trip Ends[2]	Project Trips[3]		% of Total	VMT
Grapevine: Internal-Internal (I-I)	*Trips that stay within Grapevine*	*12,877*	*41,418*	*28,180*	*39,846*	*58%*	*136,044*	*68,022*	*1.8*	*4.7%*	*122,320*
Grapevine: Internal-External (I-X)	Grapevine to TRCC & San Emidio	5,050	15,004	10,917	16,141	7%	15,704	15,704	3.0	1.8%	47,112
	Grapevine to Other External	184,206	358,221	208,937	413,559	14%	33,489	33,489	34.8	44.9%	1,164,924
	I-X Total	*189,256*	*373,226*	*219,854*	*429,700*	*21%*	*49,193*	*49,193*	*24.6*	*46.7%*	*1,212,036*
Grapevine: External-Internal (X-I)	TRCC & San Emidio to Grapevine	3,814	17,056	10,867	13,791	6%	15,176	15,176	3.0	1.8%	45,528
	Other External to Grapevine	120,779	393,930	280,308	420,789	14%	33,811	33,811	36.0	46.8%	1,215,806
	X-I Total	*124,592*	*410,987*	*291,175*	*434,580*	*21%*	*48,987*	*48,987*	*25.7*	*48.6%*	*1,261,334*
	Project Total (I-I, I-X & X-I)	***326,726***	***825,630***	***539,208***	***904,126***	***100%***	***234,224***	***166,202***	***15.6***	***100%***	***2,595,690***

Notes: [1]Estimated daily trip generation based on Kern COG TDF model outputs.

[2]"Trip Ends" count the origin and destination ends of a trip separately (i.e., the start starting point is one trip end and ending point is a second trip end)

[3]"Trips" consist of two trip ends. Internal (I-I) trips have both trip ends (i.e., start and end) within the project. Therefore, two I-I trip ends constitute one "project trip."

I-X and X-I trips have one trip end inside the project and the other outside of the project. Therefore, each I-X and X-I trip end is considered one "project trip." See Attachment A for illustration.

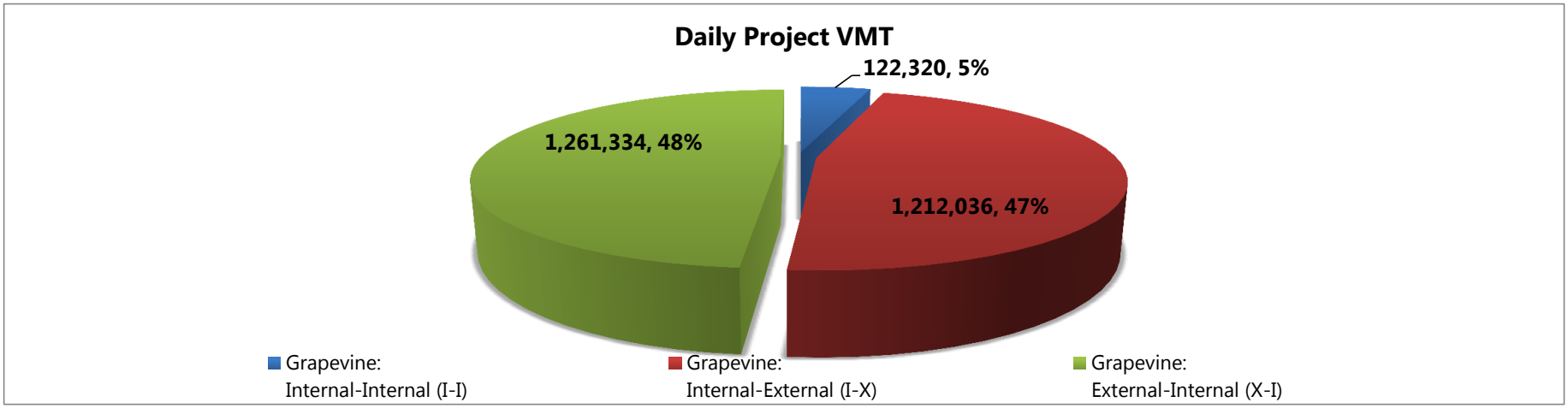
Internal - Internal (I-I) includes trips within the project site

Internal - External (I-X) includes trips from Grapevine to TRCC and San Emidio, and trips from Grapevine to other areas (e.g. Southern California, Bakersfield, etc.)

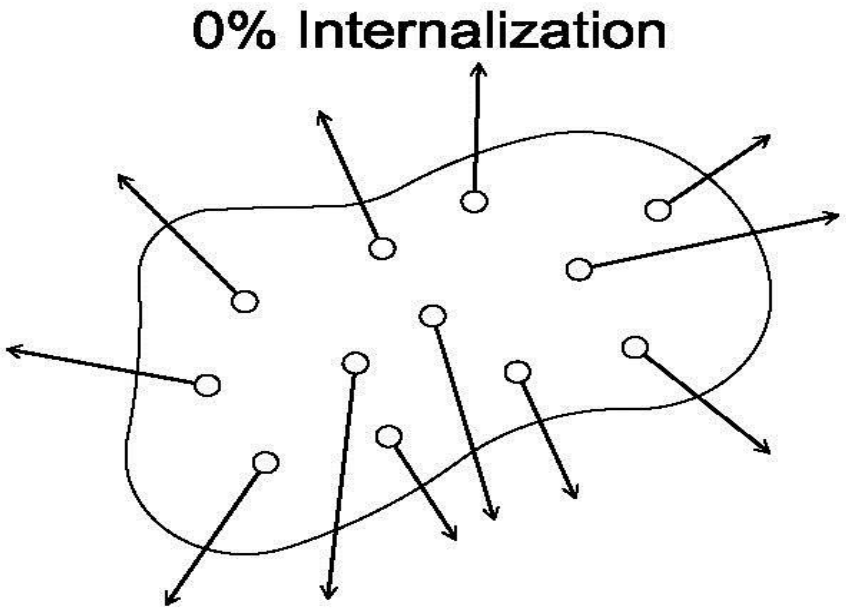
External - Internal (X-I) includes trips from TRCC and San Emidio to Grapevine, and trips to Grapevine from other areas (e.g. Southern California, Bakersfield, etc.)

VMT and estimated average trip length presented in miles. Trip Generation data presented in trip ends/trips.

Source: Fehr & Peers, 2015

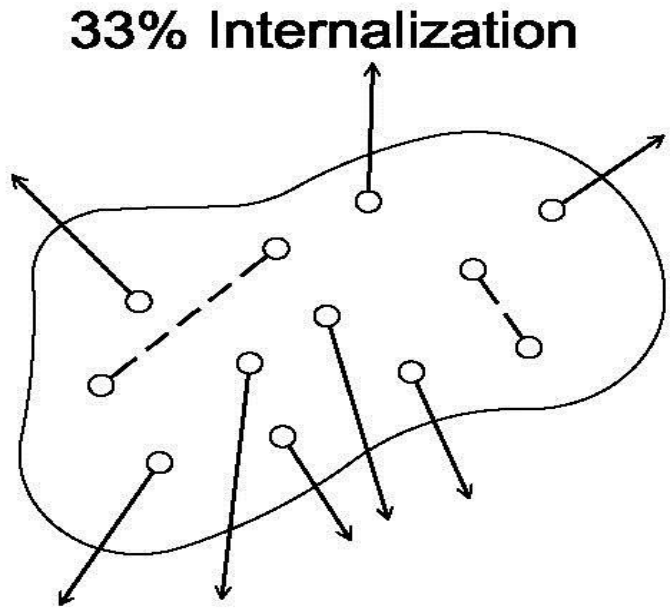

Daily Project VMT
122,320, 5%
1,261,334, 48%
1,212,036, 47%
Grapevine: Internal-Internal (I-I)
Grapevine: Internal-External (I-X)
Grapevine: External-Internal (X-I)

Attachment A : Trip Ends versus Trips for Internal Project Trips



12 Tripends
100% for External Trips

12 Trips



12 Tripends
33% (4) for Internal Trips
67% (8) for External Trips

10 Trips [2 Internal, 8 External]

Legend:

- Project Tripend
- External Trip
- Internal Trip
- Project Site

APPENDIX D

Air Quality and
Meteorological Monitoring Data Report
(Ramboll Environ US Corporation)

Prepared for
Tejon Ranch Company
Tejon Ranch, California

Prepared by
Ramboll Environ US Corporation
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AIR QUALITY AND METEOROLOGICAL MONITORING DATA REPORT

TEJON RANCH

TEJON RANCH, CALIFORNIA

RAMBOLL ENVIRON

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1. INTRODUCTION

Ramboll Environ US Corporation (Ramboll Environ) has conducted air quality and meteorological monitoring for the Grapevine planning area (the "Project" or "Site") on behalf of the Tejon Ranch Company. Under the Clean Air Act, the U.S. EPA is required to set National Ambient Air Quality Standards for pollutants considered to be harmful to public health[1]. The six principal pollutants for which the EPA has set national standards are known as criteria pollutants. The California Air Resource Board has also established its own standards for these pollutants. The primary responsibility for meeting these standards rests with Air Pollution Control Districts and Air Pollution Management Districts, county or regional agencies with the authority to regulate emissions form stationary sources. The Grapevine planning area is situated in the San Joaquin Valley Air Pollution Control District (SJVAPCD). A summary of SJVAPCD attainment status for the six criteria pollutants can be found in Table 1.

This monitoring program focused on the three criteria pollutants for which the SJVAPCD is in non-attainment of either state and/or federal standards: ozone, particulate matter, and nitrogen dioxide. This report summarizes the air monitor siting location, the air monitoring equipment, the air monitoring protocol, the collected data from the monitoring program for 2013, 2014, and 2015.

1.1 Air Monitor Siting Location and Instrumentation

The Site was selected based on various factors with the primary objective to monitor for air quality to gather data for regional air quality in the Grapevine planning area. Factors considered for Site selection included accessibility, proximity to potential sources of emissions (e.g., traffic), availability of power sources, and security. The chosen location was southeast of the I-5 and California Aqueduct intersection, which was sufficiently far from I-5 per EPA guidance[2] and met other necessary logistical factors for the Site (See Figure 1).

The monitoring station was installed in November of 2013. The set up included an 8' x 20' storage container ("Mobile Mini") for storing and mounting the air quality monitors, as well as an electrical meter pole for powering the monitors. The ambient air monitoring system consisted of a gas and particulate monitoring system. The gas monitoring system included an oxides of nitrogen (NO_X) analyzer and an ozone (O_3) analyzer. The particulate monitoring system consisted of continuous monitor for the measurement of particulate matter less than 10 microns (PM_{10}) and particulate matter less than 2.5 microns ($PM_{2.5}$). A 10-meter (M) meteorological tower was also installed for recording air temperature, wind speed and direction, and solar radiation. Additional details regarding the monitoring equipment are included below. A back-up generator was also installed to ensure continuous operation during power outages. See Appendix A for photos of the Site.

[1] USEPA. "National Ambient Air Quality Standards (NAAQS)." Available at: http://www3.epa.gov/ttn/naaqs/criteria.html. Accessed October 2015

[2] USEPA, 1998. 40 CFR Part 58, Appendix E to Part 58 – Probe and Monitoring Path Siting Criteria for Ambient Air Quality Monitoring." Available at: http://www.gpo.gov/fdsys/pkg/CFR-1998-title40-vol5/pdf/CFR-1998-title40-vol5-part58-appE.pdf. Accessed October 2015.

2. SUMMARY OF MONITORS

The air quality station contains the following equipment. A detailed description for each respective monitoring system is provided in the following sections. A summary of equipment model, serial number, range, and accuracy specifications is provided in Table 2.

- Teledyne Advanced Pollution Instrumentation (TAPI) Model T200 Nitrogen Oxide Analyzer (NO_X);
- TAPI Model T400 Photometric Ozone Analyzer (O_3);
- TAPI T700 Calibrator (with internal gas phase titration (GPT) system and O_3 Photometer);
- TAPI 701 Zero Air Generator;
- EPA-protocol nitric oxide (NO) gas cylinder with 2-stage regulator;
- Met One Inc. (Met One) BAM1020 PM_{10} Monitor;
- Met One BAM1020 $PM_{2.5}$ Monitor;
- RM Young Company 05304 horizontal wind speed and direction sensor at 10 M above ground level (agl);
- RM Young Company 41342 National Institute of Standards and Technology (NIST) - Certified temperature sensor at 2 M and 10 M agl; Delta-Temperature;
- Licor, Inc. (Licor) LI200X solar radiation sensor at 2 M agl;
- Campbell Scientific Inc. (Campbell) CR3000 Data Logger;
- Campbell CS100 barometric pressure sensor;
- Dell Laptop Computer with cellular modem;
- Two American Power Conversion Uninterrupted Power Supply (UPS) units; and
- LAN networking peripherals.

2.1 Continuous Gas Analyzers

The gas monitoring system is equipped with a TAPI Model T200 NO_X Analyzer and a TAPI Model T400 O_3 Analyzer. The T200 Nitrogen Oxides Analyzer uses chemiluminescence detection, coupled with state-of-the-art microprocessor technology to provide the sensitivity, stability, and ease of use needed for ambient monitoring requirements of nitric oxide (NO), nitrogen dioxide (NO_2) and the total nitrogen oxides (NO_X). TAPI T200 analyzer measures NO_X and then converts it to NO using a high temperature molybdenum converter and then subtracts the values to achieve the result for NO_2.

The TAPI Model T400 photometric ozone analyzer is a microprocessor-controlled analyzer that measures low ranges of ozone in ambient air using a method based on the Beer Lambert law, an empirical relationship that relates the absorption of light to the properties of the material through which the light is traveling over a given distance. The T200 and T400 have been given U.S. Environmental Protection Agency (EPA) Federal Equivalency Method (FEM) designation for measurement of NO_X and O_3, respectively. The TAPI T400 analyzer measures O_3 by measuring the intensity of an ultra-violent light after it passes through a chamber, called the sample cell, where it is absorbed in proportion to the amount of ozone

present. Every three seconds, a switching valve alternates measurement between a gas stream containing ozone and a stream that has been scrubbed of ozone.

2.1.1 Calibration Equipment

One TAPI Model 700T dynamic dilution calibration and titration system (with EPA-certified calibration gas) and one TAPI Model 701 zero air generator were installed at the Site and integrated into the gas monitoring system. The 700T is configured with three key components: 1) gas dilution system for diluting various concentrations of calibration gas, 2) Gas Phase Titration (GPT) system for generating O_3 to react with NO and create NO_2, and 3) O_3 photometer for generating various concentrations of O_3. Prior to installation, the 700T mass flow controllers (MFCs) were certified with a primary flow meter and the O_3 photometer was certified using the US EPA O_3 6X6 transfer standard certification process[3]. The MFCs were certified in August 2013 and again in November 2014; the O_3 photometer was certified in September 2013 and again in November 2014. A summary of equipment model, serial number, range, and accuracy specifications is provided in Table 2. Copies of certification sheets are provided in Appendix B.

2.2 Particulate Samplers

Two separate Met One Inc. Beta Attenuation Monitors 1020 (BAM) configured with size-specific inlets and particle impactors measure and record 1-hour and twenty-four hour mass concentrations of ambient particulate matter less than or equal to 10 microns in diameter (PM_{10}) and 2.5 microns ($PM_{2.5}$) in diameter. The BAM units function by utilizing a small 14C (carbon-14) element that emits a constant source of high-energy electrons (known as beta rays) through a spot of clean filter tape. These beta rays are detected and counted by a sensitive scintillation detector to determine a zero reading. The BAM-1020 automatically advances this spot of tape to the sample nozzle, where a vacuum pump then pulls a measured and controlled amount of dust-laden air through the filter tape, loading it with ambient PM_{10} and $PM_{2.5}$. At the end of the hour, this dirty spot is placed back between the beta source and the detector thereby causing an attenuation of the beta ray signal, which is in turn used to determine the mass of the particulate matter on the filter tape and the volumetric concentration of particulate matter in ambient air.

Both BAM units have been given EPA-approved Federal Equivalency Method (FEM) designation for measurement of PM_{10} (EQPM-0798-122) and is an EPA-approved Class III FEM for measurement of $PM_{2.5}$ (EQPM-0308-170), and it is widely used across the United States by state and federal agencies. The integrated data acquisition system operates continuously and records $PM_{2.5}$ and PM_{10} concentrations on an hourly average basis. In addition, coarse particulate matter (PMc) is calculated as the difference between PM_{10} and $PM_{2.5}$ and recorded on an hourly basis. The BAM units are integrated into a LAN with a laptop computer onsite, which is accessed remotely through cellular technology for conducting calibrations and downloading data.

2.3 Meteorological Monitors

The meteorological monitoring systems include sensors that record wind speed and direction, air temperature, delta temperature, and solar radiation. The 10-M triangular fixed tower is located approximately 10 meters northwest of the Mobile Mini. Data is collected in

[3] USEPA, 2013. Transfer Standards for Calibration of Air Monitoring Analyzers for Ozone. Available at: http://www3.epa.gov/ttnamti1/files/ambient/qaqc/OzoneTransferStandardGuidance.pdf. Accessed: October 2015

accordance with guidance outlined in the U.S. EPA's *Meteorological Monitoring Guidance for Regulatory Modeling Applications*[4]. Wind speed and direction are measured using a RM Young 05305 Wind Sensor propeller anemometer and vane system. The Wind Sensor is mounted 10-M above ground level on a horizontal boom. Two RM Young 41342 certified temperature sensors are mounted at 2 and 10 meters above ground level and encased in solar-shielded aspirated housing. Delta temperature is calculated from the 2 and 10 meters temperature probes. Solar radiation is measured using a LI200X pyranometer mounted on a south facing leveling plate approximately 2.5 meters above ground level.

2.4 Data Acquisition and Validation

The monitoring system is equipped with a Campbell Scientific CR3000 data logger and laptop computer for storing data and a Verizon Hotspot modem for data retrieval. The data is downloaded every 3-7 days and receives visual and basic validation to ensure the monitors are operating correctly.

2.5 Power

The air monitoring station is powered using electrical power from the grid with a 30KW back-up diesel generator designed to automatically switch on in the case of a power outage. Each monitor within the station is connected to an uninterruptable power supply (UPS) that protects the equipment from power surges and provides an additional 24 hours of power in case the grid and generator both loose power.

[4] USEPA, 2000. "Meteorological Monitoring Guidance for Regulatory Modeling Applications. Available at: http://www3.epa.gov/scram001/guidance/met/mmgrma.pdf. Accessed October 2015.

3. MONITORING PROTOCOL

3.1 Data Collection

All data is collected on a continuous basis using a Campbell Scientific Inc. (Campbell) CR3000 Data Logger. Data is then output in 15 and sixty minute averages to a laptop computer located in the Mobile Mini from which it can be accessed and downloaded.

3.2 Quality Assurance/Quality Control

The quality objectives for the Project were designed to be consistent with those outlined in 40CFR58 Appendix A and EPA Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II, Ambient Air Monitoring Program (QA Handbook)[4]. The QA Handbook specifies the minimum system requirements applicable to data collection and quality assurance requirements for criteria pollutants.

3.2.1 Accuracy and Performance Audits

The audit procedure utilized for the Project included quarterly audits of the NO_X, O_3, PM_{10}, and $PM_{2.5}$ monitors and 6-month audits on the meteorological sensors. The audit procedures included using an third party calibrator/photometer and an independent source of audit gas and zero air. Both audit gas and zero air were provided via separate certified cylinders. The audit gas was introduced to NO_X and O_3 analyzers through the sample inlet and utilized the same port used for calibrations. The PM_{10} and $PM_{2.5}$ BAMs were audited using a separate primary standard flow, temperature, and barometric pressure device.

The goals of the audits were to provide accuracy assessments for the station measurements. The NO_X and O_3 audits followed specifications outlined in the QA Handbook, which recommends to introduce at least 3 consecutive audit concentrations (not including zero) to challenge the Site monitor. Per the guidance, each concentration from level 3 through 10 introduced to each analyzer must meet the accuracy requirement of +/- 15% for all NO_2 and O_3 gas concentrations.

3.2.2 Calibration Protocol

The 700T, 701, and calibration gas were used to calibrate the T200 and T400 gas analyzers through the California Air Resource Board (CARB)-recommended Ace Glass Inc. inlet and manifold system. Ramboll Environ followed a standard EPA calibration sequence protocol that involved various concentrations of gas and zero air. This guidance is outlined in the U.S. EPA's Quality Assurance Handbook for Air Pollution Measurement Systems.[5]

As discussed above, the full calibration system is integrated into the inlet and manifold so that calibrations incorporate the entire sampling system. Per EPA guidance, the calibration system was used to provide accurate QC precision, span and zero checks of NO, NO_2, NO_X, and O_3 gases every two weeks. Both the T200 and T400 are integrated into a local area network (LAN) with a laptop computer onsite, which is accessed remotely through cellular technology for conducting calibrations, downloading data, diagnostics, and troubleshooting.

The calibration protocol includes multiple steps including precision, span, and zero checks. The calibration sequence for the T200 begins by producing precision and span values of NO

[5] USEPA, 2013. Quality Assurance Handbook for Ambient Air Quality Monitoring. Volume II Ambient Air Quality Monitoring Program. Available at: http://www.epa.gov/ttn/amtic/files/ambient/pm25/qa/QA-Handbook-Vol-II.pdf. Accessed: October 2015.

gas. The precision check involves supplying approximately 50 parts per billion (ppb) NO precision gas to the T200 and allowing the monitor to stabilize. The T700 is then used to titrate NO_2 gas and complete a one point precision check. The span check involves providing approximately 400 ppb NO span gas to the T200 and allowing the monitor to stabilize. The zero check involves providing zero gas to the T200 and allowing the monitor to stabilize. The acceptable precision and span gas NO, NO_2, and NO_X response must not drift by more than +/- 10%.

Similarly, the calibration sequence for the T400 involves generating O_3 gas and producing precision and span concentrations of O_3 gas. The precision check involves providing approximately 70 ppb O_3 precision gas to the T400 and allowing the monitor to stabilize. The span check involves providing approximately 400 ppb O_3 span gas to the T400 and allowing the monitor to stabilize. The zero check involves providing zero gas to the 400T and allowing the monitor to stabilize. The acceptable precision and span O_3 response must not drift by more than +/- 7.5%.

The BAM monitors undergo monthly quality assurance checks that include flow, temperature, and pressure, and leak checks using a BGI Inc. Delta Cal certified flow, temperature, and pressure device. Periodic cleaning of the nozzle and vane on the monitors is done to prevent leaks. When the temperature, flow or pressure is out of the range it is re-calibrated on the monitors.

The ambient temperatures sensors at 2 and 10 meters are calibrated on a quarterly basis using a 3 point water bath with a NIST traceable thermistor or thermometer. The anemometer is calibrated for wind speed on a quarterly basis with a NIST-traceable synchronous motor and for wind direction using a GPS Magnetic Compass. The pyranometer is calibrated on a quarterly basis using a separate NIST-traceable Pyranometer.

3.2.3 Completeness

The Project-specific quarterly data completeness goals are ≥ 75% for criteria pollutants and ≥ 90% for meteorological data. Data completeness is the amount of valid data divided by the amount of potential data possible over a specified time period, expressed as a percentage. Hours lost due to routine maintenance and calibrations have been deleted from the database in the data validation process. Table 3 outlines the limits for satisfactory audit results for accuracy, precision and completeness.

4. SITE PERFORMANCE STATISTICS AND SIGNIFICANT EVENTS

Program activities conducted during the 22-month monitoring period were associated with equipment programing and calibrations, monthly Site inspections, quarterly audit procedures, equipment troubleshooting and repair, routine data acquisition, and data screening. Other activities performed during the period included routine network operation, maintenance, and data validation.

Seven quarterly quality assurance audits were conducted during the monitoring period on the NO_X, O_3, PM_{10}, and $PM_{2.5}$ monitoring systems. In addition, three audits were conducted during the monitoring period on the meteorological monitoring systems. The audit summaries are included in Appendix C. The data recovery statistics for each parameter are presented in this section, along with a brief summary of missing data.

Table 3 outlines the limits for satisfactory audit results for accuracy, precision, and completeness.

The Site experienced equipment failures during the monitoring period that are explained in further detail below. While the failures resulted in some lost data, the amount of data lost did not negatively affect the overall performance of the air quality station. With the exception of third quarter 2015 for PM_{10} the data recovery percentages and quality assurance goals for each parameter were met as presented in Table 3.

NO_X, O_3, PM_{10}, and $PM_{2.5}$ Data Loss October 15 – 17, 2014

During a power outage, the UPS system powering the NO_X and O_3 analyzers failed on October 15, 2014 at approximately 2AM and lasted for approximately 61 hours. Therefore, all NO_X and O_3 data was lost during this timeframe. On October 17, we removed the analyzers from the UPS and connected directly to line power. The NO_X and O_3 analyzers resumed operating at approximately 8PM on October 17. A new UPS was installed on December 5, 2014.

O_3 Data Loss January 25 – 28 and February 2-4, 2015

During a routine calibration, it was discovered that the T400 O_3 analyzer had a UV lamp failure on January 25, 2015, which resulted in data loss of approximately 59 hours. The UV lamp operation was restored; however, it failed again on February 2, 2015. On February 4, 2015, a new UV lamp was installed and the analyzer was calibrated and resumed data collection. The total data loss for both time periods was approximately 106 hours.

O_3 Data Loss August, 2015

A malfunction with an internal valve controller the O_3 gas analyzer resulted in data loss beginning on July 29, 2015 resulted in 326 hours of data loss. This malfunction was identified on August 2, 2015 and Ramboll Environ personnel worked closely with the vendor to obtain a replacement valve controller and the analyzer was repaired on August 12, 2015.

NO_X, O_3, PM_{10}, and $PM_{2.5}$ Data Loss September, 2015

A malfunction in the air-conditioning unit caused it to stop supplying cool air to the shelter. Due to the extreme heat in the region, the NO_X, O_3, PM_{10}, and $PM_{2.5}$ monitors were shut-down on September 10, 2015 to prevent damage. The AC unit was repaired and power

restored to the monitors on September 16, 2015. This event resulted in a loss of 155 hours of data.

BAM Data Losses

A summary of the BAM data losses is included below:

- A malfunction occurred on December 10, 2013 with the BAM PM_{10} monitor, resulting in 55 hours of data loss. It was resolved on December 12, 2013.
- Another malfunction occurred with the BAM PM_{10} monitor on January 24, 2014, resulting in 120 hours of data loss. It was resolved on January 29, 2014.
- A power failure on February 28, 2014 resulted in 23 hours of PM_{10} and $PM_{2.5}$ data loss.
- Overheating with the shelter resulted in 23 hours of $PM_{2.5}$ data loss between July 6, 2014 and July 8, 2014.
- A malfunction with the BAM $PM_{2.5}$ monitor beginning on January 4, 2015 resulted in 108 hours of data loss. The malfunction was resolved on January 8, 2015.
- A tape break on the BAM PM_{10} monitor on February 21, 2015 resulted in 227 hours of data loss. The tape was fixed and monitoring resumed on March 2, 2015.
- A series of tape breaks, possibly resulting from equipment malfunctions, began in July of 2015. The first break lasted from July 1, 2015 to July 16, 2015 and resulted in 366 of PM_{10} data loss. The next began on July 17, 2015 and lasted until August 6, 2015, resulting in 489 hours of PM_{10} data loss. The third began on August 7, 2015 and lasted until August 12, 2015, resulting in 110 hours of data loss. On August 12th, the manufacturer was consulted and adjustments made to the BAM PM_{10} monitor to prevent further tape breaks.

No additional equipment failures or malfunctions were identified that resulted in lost or invalidated data. A chronology of significant events and total data loss is summarized in Table 4.

5. AIR QUALITY DATA SUMMARY

Air quality data collected at the Site included continuous measurements of NO_2, O_3, PM_{10}, and $PM_{2.5}$ data. This section summarizes the data collected at the Site between December 1, 2013 and September 30, 2015.

5.1 Gaseous NO_2 Data Summary

The NO_2 data is compared against the NAAQS, which USEPA has set at 100 parts per billion (ppb) for a 1-hr average (primary standard) and 53 ppb for an annual average (secondary standard). Neither the 1-hr nor annual average NO_2 NAAQS was exceeded during the 21-month monitoring period. The maximum 1-hr NO_2 concentration was 75.74 ppb, which was recorded September 12, 2014 at 4:00 pm. The 2014 annual average NO_2 concentration was NO_2 concentration of 12.01 ppb and the 2015 9-month average NO_2 concentration was 9.84 ppb. The 2014 average and 2015 average concentrations are approximately 23 percent and 19 percent of the NAAQS, respectively. A summary of NO_2 data is presented in Tables 5 and 6, and Figure 2.

5.2 Gaseous O_3 Data Summary

The ozone data is compared against the primary federal ozone 8-hour average standard of 75 ppb and the California 1-hour standard of 90 ppb.[6] The primary 8-hour ozone standard was exceeded 69 times; the California 1-hour standard was exceed 165 times over the entire sampling period. The maximum 8-hr average O_3 concentration during 2014 and 2015 was 99.64 ppb and 97.85 ppb, respectively recorded on June 9, 2014 at 6:00 pm and September 20, 2015 at 6:00 pm. It should be noted that USEPA revised the 8-hr average O_3 standard from 75 ppb to 70 ppb on October 1, 2015. A summary of O_3 data is presented in Tables 5 and 6, and Figure 3.

5.3 Continuous PM_{10} Data Summary

The PM_{10} data is compared against the NAAQS and CAAQS. The current NAAQS for PM_{10} is 150 µg/m_3 for a 24-hr average period and the current California standard for PM_{10} is 50 µg/m_3 for a 24-hr average period. California also has an annual average standard of 20 µg/m_3. The California 24-hr PM_{10} concentration limit was exceeded 137 times during 2014 and 2015. The maximum 24-hr average concentration of 414.5 µg/m_3 was recorded on October 15, 2014 at 6:00 pm. A summary of PM_{10} data is presented in Tables 5 and 6, and Figure 4.

5.4 Continuous $PM_{2.5}$ 1- and 24-Hour Mass Concentration Summary

The PM_{10} data is compared against the NAAQS and CAAQS. The current NAAQS and California standard for $PM_{2.5}$ is 35 µg/m_3 for a 24-hr average period. California also has an annual average $PM_{2.5}$ standard of 20 µg/m_3.

The NAAQS and California standard for 24-hr PM_{10} was exceeded 42 times during 2014 and 2015. The maximum 24-hr average concentration of 152.4 µg/m_3 was recorded on October 15, 2014 at 7:00 pm. A summary of $PM_{2.5}$ data is presented in Tables 5 and 6, and Figure 5.

[6] Note that USEPA is in the process of revising the NAAQS. Available at: http://www3.epa.gov/airquality/ozonepollution/pdfs/20151001fr.pdf. Accessed: October 2015.

6. METEOROLOGICAL DATA SUMMARY

Meteorological data collected at the Tejon Ranch meteorological tower includes horizontal wind speed and direction at 10 meters; ambient temperature at 2 and 10 meters; and solar radiation at 2.5 meters.

Calculated meteorological values include temperature difference between the 2 and 10 meters levels (delta-T) and the standard deviation of horizontal wind direction at 10 meters, which is a measure of wind direction variability over the average period using the Yamartino method, which is an algorithm for calculating an approximation to the standard deviation of wind direction during a single pass through the incoming data. The standard deviation of wind direction is a measure of lateral turbulence and is used in a method for estimating the Pasquill stability category.

This section summarizes the meteorological data collected between December 1, 2013 and September 30, 2015.

6.1 Wind Data Summary

The 2014 and 2015 (9-month) average annual wind speeds at the Site at 10 meters was 3.26 and 2.74 m/s, respectively. Average wind speeds per month are listed in Table 7. The maximum hourly average wind speed for the 22-month monitoring period was 20.01 m/s (44.76 miles per hour [mph]) and occurred on February 28, 2014 at 6:00 am. Figures 6, 7, 8, and 9 present wind rose plots for 2013 (1 month), 2014, 2015 (9 months), and the entire 22-month period respectively. Each wind rose presents a visible representation of how the wind speed and direction were distributed for these periods monitoring period at the Site.

6.2 Temperature Data Summary

Temperature data was collected at a height of 2 and 10 meters agl using NIST-certified probes housed in fan-aspirated shields. Temperature at the Site ranged from a low of –3.98 degrees Celsius (^{O}C) on December 9, 2013 at 7:00 am to a high of 39.66 ^{O}C on June 9, 2014 at 4:00 pm. The Site is also subject to isolated inversion conditions, typically occurring during winter months that result in elevated delta-T values. The maximum delta- T value of 8.09 ^{O}C for the monitoring period was recorded on March 10, 2015 at 12:00 pm. A summary of monthly average, minimum, and maximum temperatures for the Site is summarized in Table 7. A summary of temperature data is presented Figure 10.

6.3 Solar Radiation Data Summary

Solar radiation data was collected at a height of 2.5 meters agl on a south-facing cross arm using a silicon photovoltaic detector mounted in a cosine-corrected head. The highest hourly average solar radiation value observed at the Site during the monitoring period occurred on June 12, 2015 at 1:00 pm and was 1051.0 watts per square meter (W/m2). The average solar radiation for the duration of the monitoring period was 233.21 W/m2. Average monthly solar radiation for both 2014 and 2015 peaked in June of 2014 at 354.94 W/m2 and decreased over the remainder of the year. Figure 11 presents a graph showing the monthly average solar radiation during the monitoring period.

TABLES

Table 1. San Joaquin Valley Attainment Status
Tejon Ranch Company
Lebec, California

Pollutant	Designation / Classification	
	Federal Standards[a]	State Standards[b]
Ozone - One hour	No Federal Standard[f]	Nonattainment/Severe
Ozone - Eight hour	Nonattainment/Extreme[e]	Nonattainment
PM_{10}	Attainment[c]	Nonattainment
$PM_{2.5}$	Nonattainment[d]	Nonattainment
Carbon Monoxide	Attainment/Unclassified	Attainment/Unclassified
Nitrogen Dioxide	Attainment/Unclassified	Attainment
Sulfur Dioxide	Attainment/Unclassified	Attainment

Notes:

[a] See 40 CFR Part 81

[b] See CCR Title 17 Sections 60200-60210

[c] On September 25, 2008, EPA redesignated the San Joaquin Valley to attainment for the PM_{10} National Ambient Air Quality Standard (NAAQS) and approved the PM_{10} Maintenance Plan.

[d] The Valley is designated nonattainment for the 1997 $PM_{2.5}$ NAAQS. EPA designated the Valley as nonattainment for the 2006 $PM_{2.5}$ NAAQS on November 13, 2009 (effective December 14, 2009).

[e] Though the Valley was initially classified as serious nonattainment for the 1997 8-hour ozone standard, EPA approved Valley reclassification to extreme nonattainment in the Federal Register on May 5, 2010 (effective June 4, 2010).

[f] Effective June 15, 2005, the U.S. Environmental Protection Agency (EPA) revoked the federal 1-hour ozone standard, including associated designations and classifications. EPA had previously classified the SJVAB as extreme nonattainment for this standard. EPA approved the 2004 Extreme Ozone Attainment Demonstration Plan on March 8, 2010 (effective April 7, 2010). Many applicable requirements for extreme 1-hour ozone nonattainment areas continue to apply to the SJVAB.

http://www.valleyair.org/aqinfo/attainment.htm

Table 2. Air Quality Monitoring Station Equipment Specifications
Tejon Ranch Company
Lebec, California

Instrumentation	Manufacturer	Model	Instrument Serial Number	Range	Accuracy
Oxides of Nitrogen (NO, NO_2, NO_X)	Teledyne Advanced Pollution Instrumentation	T200	953	0 – 500 ppb	Zero Drift: < 1.0 ppb/7 days; Span Drift: < 1% of reading/7 days
Ozone (O_3)	Teledyne Advanced Pollution Instrumentation	T400	957	0 – 500 ppb	Zero Drift: < 1.0 ppb/7 days; Span Drift: < 1% of reading/7 days
Gas Calibrator/Photometer	Teledyne Advanced Pollution Instrumentation	T700	871	0 – 10 LPM	± 1% full scale
Zero Air Generator	Teledyne Advanced Pollution Instrumentation	701	4667	N/A	< 0.5 ppb NO, SO_2, CO, or O_3
Multi-Blend NO Calibration Gas Cylinder and Regulator	Scott Marrin	Size 31A, CGA 660 SS	AA183957	N/A	EPA-Protocol Gas
Particulate matter less than 10 microns (PM_{10}) Continuous Monitor	Met One, Inc.	BAM 1020 (with PM_{10} inlet)	P16082	0 to 1,000 ug/m^3	Exceeds US-EPA Class III $PM_{2.5}$ FEM standards
Particulate matter less than 2.5 microns ($PM_{2.5}$) Continuous Monitor	Met One, Inc.	BAM 1020 (with $PM_{2.5}$ inlet)	P16081	0 to 1,000 ug/m^3	Exceeds US-EPA Class III $PM_{2.5}$ FEM standards
Data acquisition and storage	Campbell Scientific Inc.	CR3000 Data Logger	--	0 to 500 millivolts	0.1% of FSR
Barometric pressure sensor	Campbell Scientific Inc.	CS100 Barometric Pressure Sensor	--	450 to 825 mm Hg	± 0.4mm Hg
Temperature sensor (@ 2 meters)	RM Young Company	41342	--	-50 to +50 °C	± 0.1 °C
Solar radiation sensor (@ 2.5 meters)	Licor	LI-200X	--	0 - 2,000 w/m^2	± 2.5%
Horizontal Wind speed sensor (@ 10 meters)	RM Young	05305-AQ	--	0 to 50 m/s	± 0.2 m/s
Horizontal wind direction sensor (@ 10 meters)	RM Young	05305-AQ	--	0 to 360 degrees	± 3 degrees
Temperature sensor (@ 10 meters)	RM Young	43347-L	--	-50 to +50 °C	± 0.1 °C

Table 3. Summary of Accuracy, Precision, and Completeness Requirements
Tejon Ranch Company
Lebec, California

Measurement	Target Accuracy	Target Precision	Target Completeness[1-4]	Completeness							
				2013	2014				2015		
				Q4[5]	Q1	Q2	Q3	Q4	Q1	Q2	Q3
NOx, NO, NO_2[1]	±15%	±10%	≥75%	99%	98%	98%	99%	95%	97%	99%	90%
O_3[1]	±15%	±7%	≥75%	99%	98%	98%	99%	95%	92%	99%	76%
$PM_{2.5}$ (flow rate)[2]	±5%	±4%	≥75%	99%	95%	99%	98%	99%	95%	100%	93%
PM_{10} (flow rate)[3]	±10%	±10%	≥75%	92%	93%	99%	99%	99%	89%	100%	49%
Wind Direction[4]	±5°	±5°	≥90%	100%	100%	100%	100%	100%	100%	100%	99%
Wind Speed[4]	±0.2 m/s	±0.2 m/s	≥90%	100%	100%	100%	100%	100%	100%	100%	99%
Temperature[4]	±0.5 °C	±0.5 °C	≥90%	100%	100%	100%	100%	100%	100%	100%	99%
Delta Temperature[4]	±0.1 °C	±0.1 °C	≥90%	100%	100%	100%	100%	100%	100%	100%	99%
Solar Radiation[4]	±5%	±5%	≥90%	100%	100%	100%	100%	100%	100%	100%	99%

Notes:

[1]USEPA Quality Assurance Handbook for Air Pollution Measurement Systems (Volume II Ambient Air Quality Monitoring Program) recommends three consecutive response concentrations be within +/- 15% of the audit concentration for quarterly audits. For bi-weekly QC checks acceptable monitor responses are +/-10% for NO_2 and +/-7% for O_3. The data completeness target for NO_2 and O_3 are ≥75%.

[2]USEPA Quality Assurance Handbook for Ambient Air Quality Monitoring (Volume II Ambient Air Quality Monitoring Program) requires the flow rate on continuous $PM_{2.5}$ monitors to be within 5% of the design standard as measured during semi-annual audits, and 4% of the transfer standard during annual verification/calibration. The data completeness target for $PM_{2.5}$ is ≥75%.

[3]USEPA Quality Assurance Handbook for Ambient Air Quality Monitoring (Volume II Ambient Air Quality Monitoring Program) requires the flow rate on continuous PM_{10} monitors to be within 10% of the audit standard as measured during semi-annual audits, and 3 of 4 points to be within 10% of design standard during annual verification/calibration. The data completeness target for PM_{10} is ≥75%.

[4]Table 0-10, USEPA Quality Assurance Handbook for Air Pollution Measurement Systems (Volume IV: Meteorological Measurements, Version 2.0). Temperature is measured at two meters above ground level.

[5]Monitoring data for 2013 begins December 1st.

Table 4. Chronology of Significant Events and Data Loss
Tejon Ranch Company
Lebec, California

Date	Description	Hours of Data Lost	Parameters Affected
11/25/2013	Beginning of monitoring period	N/A	N/A
11/29/2013	Bi-Weekly Calibration	3	NO_X, O_3
12/10/2013 - 12/12/2013	Equipment Malfunction	55	PM_{10}
12/12/2013	Calibration	2	PM_{10}, $PM_{2.5}$
12/11/2013	Bi-Weekly Calibration	3	NO_X, O_3
12/26/2013	Bi-Weekly Calibration	3	NO_X, O_3
1/6/2014	Bi-Weekly Calibration	6	NO_X, O_3
1/7/2014	Bi-Weekly Calibration	2	NO_X, O_3
1/15/2014	Bi-Weekly Calibration	6	NO_X, O_3
1/24/2014-1/29/2014	Equipment Malfunction	120	PM_{10}
1/27/2014	Bi-Weekly Calibration	3	NO_X, O_3
1/29/2014	1st Quarter 2014 Audit	9	NO_X, O_3
2/19/2014	Bi-Weekly Calibration	4	NO_X, O_3
2/28/2014	Power Failure	3	NO_X, O_3
2/28/2014-3/1/2014	Power Failure, Monthly Checks	23	PM_{10}, $PM_{2.5}$
3/7/2014	Bi-Weekly Calibration	7	NO_X, O_3
3/21/2014	Bi-Weekly Calibration	7	NO_X, O_3
4/3/2014	Monthly Checks	2	PM_{10}, $PM_{2.5}$
4/8/2014	Extended Bi-Weekly Calibration	10	NO_X, O_3
4/23/2014	Bi-Weekly Calibration	6	NO_X, O_3
4/28/2014	Monthly Checks	2	PM_{10}, $PM_{2.5}$
5/6/2014	Bi-Weekly Calibration	4	NO_X, O_3
5/19/2014	QC Audit	4	PM_{10}, $PM_{2.5}$
5/19/2014	Bi-Weekly Calibration	3	NO_X, O_3
5/20/2014	Maintenance, Routine Repairs	7	PM_{10}, $PM_{2.5}$
5/20/2014	2nd Quarter 2014 Audit	11	NO_X, O_3
6/10/2014	Equipment Malfunction	1	PM_{10}, $PM_{2.5}$
6/17/2014	Extended Bi-Weekly Calibration	10	NOX, O3
6/25/2014	Monthly Checks	2	PM_{10}, $PM_{2.5}$
7/3/2014	Bi-Weekly Calibration	6	NO_X, O_3
7/6/2014-7/8/2014	Equipment Malfunction due to overheating	23	$PM_{2.5}$
7/21/2014	Bi-Weekly Calibration	6	NO_X, O_3
7/25/2014	Monthly Checks	3	PM_{10}, $PM_{2.5}$
8/4/2014	Bi-Weekly Calibration	4	NO_X, O_3
8/20/2014	Bi-Weekly Calibration	5	NO_X, O_3
8/28/2014	3rd Quarter 2014 Audit	6	NO_X, O_3, PM_{10}, $PM_{2.5}$
9/19/2014	Monthly Checks	2	PM_{10}, $PM_{2.5}$
9/19/2014	Bi-Weekly Calibration	5	NO_X, O_3
10/15/2014	UPS Failure	61	NO_X, O_3
10/17/2014	Extended Monthly Checks	4	PM_{10}, $PM_{2.5}$
10/17/2014	Calibration after units restarted	6	NO_X, O_3
10/29/2014	Bi-Weekly Calibration	7	NO_X, O_3
10/31/2014	Equipment Malfunction	1	PM_{10}, $PM_{2.5}$
11/14/2014	Bi-Weekly Calibration	7	NO_X, O_3
10/20/2014	QC Audit, Maintenance and Repair	5	PM_{10}, $PM_{2.5}$
11/20/2014	4th Quarter 2014 Audit	8	NO_X, O_3
11/25/2014	Equipment Malfunction	1	PM_{10}, $PM_{2.5}$
12/5/2014	Monthly Checks, Maintenace and Repair	5	PM_{10}, $PM_{2.5}$
12/5/2014	Bi-Weekly Calibration	6	NO_X, O_3
12/12/2014	Equipment Malfunction	1	PM_{10}
12/22/2014	Bi-Weekly Calibration	5	NO_X, O_3
1/4/2015-1/8/2015	Equipment Malfunction	108	$PM_{2.5}$
1/7/2015	Extended Bi-Weekly Calibration	12	NO_X, O_3
1/8/2015	Monthly Checks	2	PM_{10}, $PM_{2.5}$
1/8/2015	Calibration System Left On	23	NO_X, O_3
1/22/2015	Bi-Weekly Calibration	8	NO_X, O_3
1/25/2015	O3 UV Lamp Failure	59	O_3
2/2/1014	O3 UV Lamp Failure	47	O_3
2/2/1015	Monthly Checks	1	PM_{10}, $PM_{2.5}$
2/20/2015	Bi-Weekly Calibration	3	NO_X, O_3
2/21/2015 - 3/2/2015	Tape Break	227	PM_{10}
3/2/2015	Bi-Weekly Calibration	7	NO_X, O_3
3/9 - 3/10/2015	1st Quarter 2015 Audit	9	NO_X, O_3
3/10/2015	QC Audit	2	PM_{10}, $PM_{2.5}$
4/13/2015	Monthly Checks	2	PM_{10}, $PM_{2.5}$
4/13/2015	Bi-Weekly Calibration	6	NO_X, O_3
4/24/2015	Bi-Weekly Calibration	3	NO_X, O_3
5/13/2015	Bi-Weekly Calibration	6	NO_X, O_3
5/22/2015	Bi-Weekly Calibration	4	NO_X, O_3
6/12/2015	Monthly Checks	1	PM_{10}, $PM_{2.5}$
6/12/2015	Bi-Weekly Calibration	4	NO_X, O_3
7/1/2015-7/16/2015	Tape Break	366	PM_{10}
7/16/2015	Monthly Checks	1	PM_{10}, $PM_{2.5}$
7/17/2015-8/6/2015	Tape Break	489	PM_{10}
8/6/2015	Monthly Checks	2	PM_{10}, $PM_{2.5}$
8/7/2015-8/12/2015	Tape Break	110	PM_{10}
8/13/2015	QC Audit, Maintenance and Repair	8	PM_{10}, $PM_{2.5}$
7/29/2015-8/12/2015	O3 Analyzer Malfunction	326	O_3
9/10/2015-9/16/2015	Power shut-off following AC Unit Breakdown	155	NO_X, O_3, PM_{10}, $PM_{2.5}$

Table 5. Comparison of Tejon Data with Federal and State Standards
Tejon Ranch Company
Lebec, California

Pollutant	Air Quality Standards[1]			2013					
Averaging Time	State	Federal (Primary)	Federal (Secondary)	1st Highest Concentration	% State Standard	% Federal Primary Standard	% Federal Secondary Standard	2nd Highest Concentration	3rd Highest Concentration
Ozone (O_3)									
1-Hour (ppm)	0.09	-	-	0.063	70%	-	-	0.060	0.059
8-Hour[2] (ppm)	0.07	0.075	0.075	0.053	76%	71%	71%	0.053	0.051
Particulate ($PM_{2.5}$)									
24-Hour (ug/m^3)	-	35	35	108	-	309%	309%	104	102
Annual Arithmetic Mean (ug/m^3)	12	12	15	21	173%	173%	139%		
Particulate (PM_{10})									
24-Hour (ug/m^3)	50	150	150	105	209%	70%	70%	104	104
Annual Arithmetic Mean (ug/m^3)	20	-	-	41	206%	-	-		
Particulate (PM_c)									
24-Hour (ug/m^3)	-	-	-	78.2	-	-	-	77.8	77.7
Annual Arithmetic Mean (ug/m^3)	-	-	-	21	-	-	-		
Nitrogen Dioxide (NO_2)									
1-Hour (ppm)	0.18	0.100	-	0.066	36%	66%	-	0.065	0.063
Annual Arithmetic Mean (ppm)	0.03	0.053	0.053	0.020	67%	38%	38%		
Nitric Oxide (NO)									
1-Hour (ppm)	-	-	-	0.087	-	-	-	0.067	0.066
Annual Arithmetic Mean (ppm)	-	-	-	0.007	-	-	-		
Nitrogen Oxides (NO_X)									
1-Hour (ppm)	-	-	-	0.137	-	-	-	0.112	0.110
Annual Arithmetic Mean (ppm)	-	-	-	0.027	-	-	-		

Table 5. Comparison of Tejon Data with Federal and State Standards
Tejon Ranch Company
Lebec, California

Pollutant	Air Quality Standards[1]			2014					
Averaging Time	State	Federal (Primary)	Federal (Secondary)	1st Highest Concentration	% State Standard	% Federal Primary Standard	% Federal Secondary Standard	2nd Highest Concentration	3rd Highest Concentration
Ozone (O_3)									
1-Hour (ppm)	0.09	-	-	0.113	126%	-	-	0.111	0.1059
8-Hour[2] (ppm)	0.07	0.075	0.075	0.100	142%	133%	133%	0.099	0.098
Particulate ($PM_{2.5}$)									
24-Hour (ug/m^3)	-	35	35	152	-	435%	435%	152	150
Annual Arithmetic Mean (ug/m^3)	12	12	15	15	124%	124%	99%		
Particulate (PM_{10})									
24-Hour (ug/m^3)	50	150	150	415	829%	276%	276%	413	409
Annual Arithmetic Mean (ug/m^3)	20	-	-	43	215%	-	-		
Particulate (PM_c)									
24-Hour (ug/m^3)	-	-	-	340	-	-	-	337	328
Annual Arithmetic Mean (ug/m^3)	-	-	-	28	-	-	-		
Nitrogen Dioxide (NO_2)									
1-Hour (ppm)	0.18	0.100	-	0.076	42%	76%	-	0.070	0.068
Annual Arithmetic Mean (ppm)	0.03	0.053	0.053	0.012	40%	23%	23%		
Nitric Oxide (NO)									
1-Hour (ppm)	-	-	-	0.060	-	-	-	0.059	0.058
Annual Arithmetic Mean (ppm)	-	-	-	0.002	-	-	-		
Nitrogen Oxides (NOx)									
1-Hour (ppm)	-	-	-	0.112	-	-	-	0.111	0.110
Annual Arithmetic Mean (ppm)	-	-	-	0.014	-	-	-		

Table 5. Comparison of Tejon Data with Federal and State Standards
Tejon Ranch Company
Lebec, California

Pollutant	Air Quality Standards[1]			2015					
Averaging Time	State	Federal (Primary)	Federal (Secondary)	1st Highest Concentration	% State Standard	% Federal Primary Standard	% Federal Secondary Standard	2nd Highest Concentration	3rd Highest Concentration
Ozone (O_3)									
1-Hour (ppm)	0.09	-	-	0.1161	129%	-	-	0.1066	0.1063
8-Hour[2] (ppm)	0.07	0.075	0.075	0.098	140%	130%	130%	0.097	0.0966
Particulate ($PM_{2.5}$)									
24-Hour (ug/m^3)	-	35	35	73	-	208%	208%	73	72
Annual Arithmetic Mean (ug/m^3)	12	12	15	15	124%	124%	99%		
Particulate (PM_{10})									
24-Hour (ug/m^3)	50	150	150	91	182%	61%	61%	91	91
Annual Arithmetic Mean (ug/m^3)	20	-	-	32	158%	-	-		
Particulate (PM_c)									
24-Hour (ug/m^3)	-	-	-	73	-	-	-	71	70
Annual Arithmetic Mean (ug/m^3)	-	-	-	17	-	-	-		
Nitrogen Dioxide (NO_2)									
1-Hour (ppm)	0.18	0.100	-	0.066	37%	66%	-	0.059	0.058
Annual Arithmetic Mean (ppm)	0.03	0.053	0.053	0.0098	33%	19%	19%		
Nitric Oxide (NO)									
1-Hour (ppm)	-	-	-	0.058	-	-	-	0.055	0.049
Annual Arithmetic Mean (ppm)	-	-	-	0.001	-	-	-		
Nitrogen Oxides (NO_X)									
1-Hour (ppm)	-	-	-	0.102	-	-	-	0.098	0.097
Annual Arithmetic Mean (ppm)	-	-	-	0.011	-	-	-		

Notes:
[1]Ambient Air Quality Standards, California Air Resource Board. Available at: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf. Accessed: October, 2015.
[2]The USEPA is in the process of revising the NAAQS. Available at: http://www3.epa.gov/airquality/ozonepollution/pdfs/20151001fr.pdf. Accessed: October, 2015.

Table 6. Summary of Monitoring Results by Month
Tejon Ranch Company
Lebec, California

Pollutant	Nov-13	Dec-13	Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14
Ozone														
Maximum Concentration, 1-Hour period, ppm	0.047	0.063	0.073	0.071	0.082	0.082	0.095	0.113	0.092	0.093	0.104	0.096	0.090	0.049
Maximum Concentration, 8-Hour period, ppm	0.042	0.053	0.060	0.064	0.072	0.074	0.087	0.100	0.085	0.085	0.095	0.084	0.082	0.048
Number of Exceedances, California 1-Hour Standard	0	0	0	0	0	0	2	18	5	2	25	10	0	0
Number of Exceedances, California 8-Hour Standard	0	0	0	0	2	6	6	19	19	18	18	9	3	0
Number of Exceedances, Federal 8-Hour Standard[1]	0	0	0	0	0	0	5	14	11	8	12	6	2	0
$PM_{2.5}$														
Maximum Concentration, 24-Hour period, ug/m^3	--	78	72	36	21	14	14	63	20	22	18	152	99	40
Annual Arithmetic Mean, ug/m^3	--	-	15											
Number of Exceedances, Federal and California 24-Hour Standar	--	7	14	0	0	0	0	1	0	0	0	4	8	1
PM_{10}														
Maximum Concentration, 24-Hour period, ug/m^3	--	105	119	58	69	51	61	305	79	83	119	415	124	42
Annual Arithmetic Mean, ug/m^3	--	-	43											
Number of Exceedances, California 24-Hour Standard	--	10	17	0	2	1	2	7	9	10	22	23	13	0
Number of Exceedances, Federal 24-Hour Standard	--	0	0	0	0	0	0	1	0	0	0	2	0	0
NO_2														
Maximum Concentration, 1-Hour period, ppm	0.039	0.066	0.060	0.052	0.062	0.056	0.058	0.060	0.063	0.057	0.076	0.063	0.050	0.033
Annual Arithmetic Mean, ppm	-	-	0.012											
Number of Exceedances, California 1-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Exceedances, Federal 1-Hour Standard	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Pollutant	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15
Ozone									
Maximum Concentration, 1-Hour period, ppm	0.053	0.069	0.077	0.088	0.096	0.103	0.096	0.116	0.107
Maximum Concentration, 8-Hour period, ppm	0.044	0.062	0.070	0.082	0.087	0.094	0.088	0.097	0.098
Number of Exceedances, California 1-Hour Standard	0	0	0	0	3	20	9	41	30
Number of Exceedances, California 8-Hour Standard	0	0	1	7	6	20	8	13	13
Number of Exceedances, Federal 8-Hour Standard[1]	0	0	0	0	0	3	0	4	4
$PM_{2.5}$									
Maximum Concentration, 24-Hour period, ug/m^3	73	45	21	17	20	38	38	28	26
Annual Arithmetic Mean, ug/m^3	15								
Number of Exceedances, Federal and California 24-Hour Standar	8	5	0	0	0	0	1	0	0
PM_{10}									
Maximum Concentration, 24-Hour period, ug/m^3	82	54	43	44	80	50	47	89	91
Annual Arithmetic Mean, ug/m^3	33								
Number of Exceedances, California 24-Hour Standard	4	2	0	0	1	0	0	15	9
Number of Exceedances, Federal 24-Hour Standard	0	0	0	0	0	0	0	0	0
NO_2									
Maximum Concentration, 1-Hour period, ppm	0.046	0.053	0.050	0.056	0.043	0.055	0.053	0.048	0.066
Annual Arithmetic Mean, ppm	0.010								
Number of Exceedances, California 1-Hour Standard	0	0	0	0	0	0	0	0	0
Number of Exceedances, Federal 1-Hour Standard	0	0	0	0	0	0	0	0	0

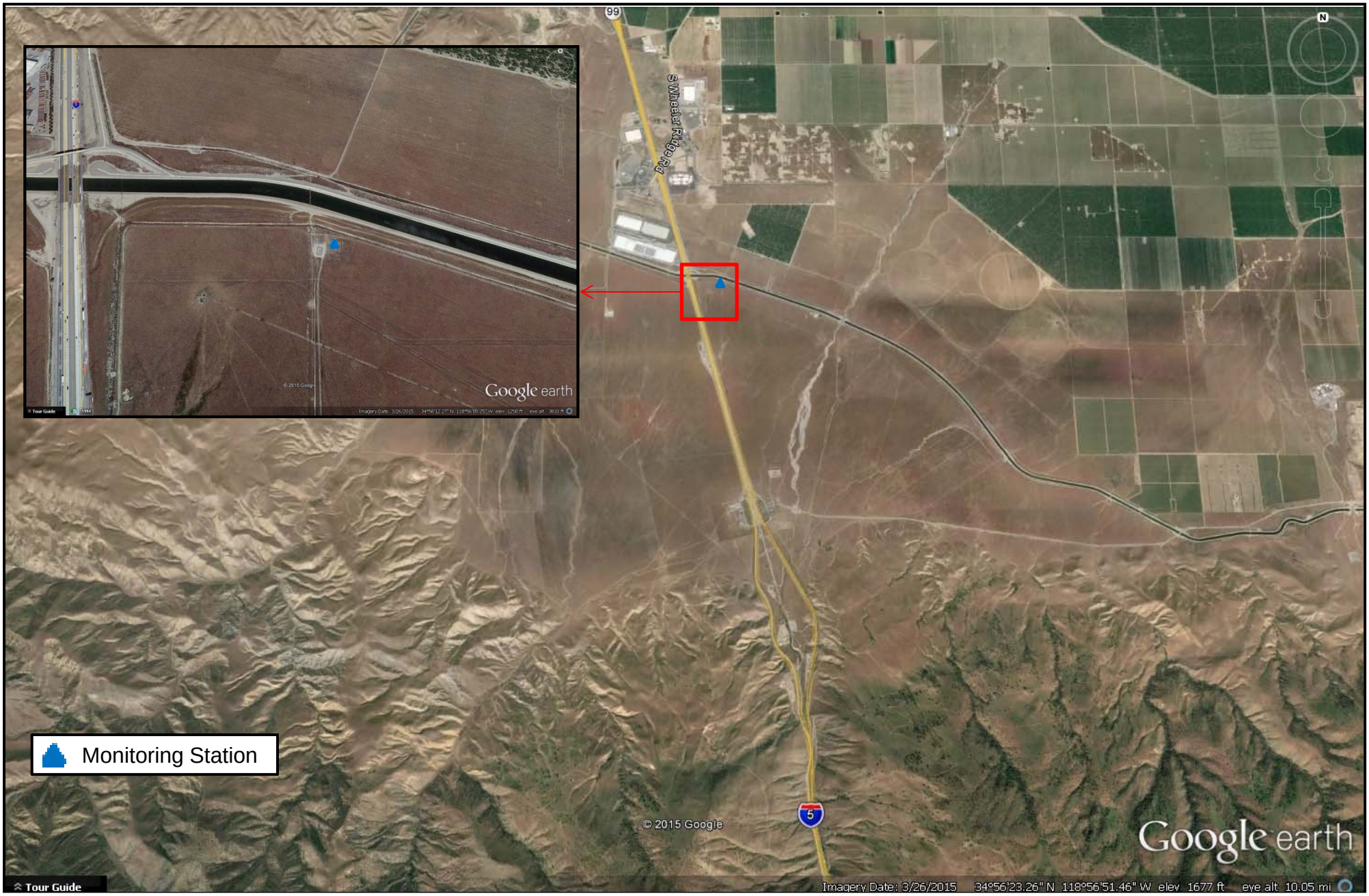
Notes:
[1]The USEPA is in the process of revising the NAAQS. Available at: http://www3.epa.gov/airquality/ozonepollution/pdfs/20151001fr.pdf. Accessed: October, 2015.

Table 7. Summary of Meteorological Data
Tejon Ranch Company
Lebec, California

Month	Temperature, F[1]			Wind Speed, mph		Solar Radiation	
	Avg.	Max.	Min.	Avg.	Max.	Avg.	Max.
Nov ('13)	57.1	67.8	43.7	5.0	14.9	101	557
Dec	46.3	75.7	24.8	2.6	12.7	123	577
Jan ('14)	52.9	74.6	36.4	3.0	17.7	123	628
Feb	54.3	74.4	33.9	3.2	20.0	155	752
Mar	59.9	81.8	44.2	3.7	15.6	220	933
Apr	63.9	88.9	42.2	3.7	15.0	276	1017
May	72.4	94.4	33.9	3.7	12.8	329	1037
June	80.0	103.4	59.1	3.2	8.4	355	1027
Jul	85.7	102.2	65.9	2.8	6.1	320	1002
Aug	83.0	102.0	65.4	3.0	8.3	300	1010
Sep	78.8	98.8	58.6	3.0	8.8	247	919
Oct	69.7	95.3	50.9	3.2	11.1	195	836
Nov	57.1	75.6	41.4	2.9	16.6	127	658
Dec	51.8	72.0	32.2	3.8	19.5	92	609
Jan ('15)	48.3	70.4	31.0	2.0	11.1	104	611
Feb	56.2	80.3	41.8	2.7	12.2	168	790
Mar	61.9	97.7	42.2	2.9	6.5	221	916
Apr	63.4	88.5	43.0	3.4	11.8	278	994
May	67.1	92.3	48.1	2.7	10.0	297	1030
June	81.6	102.7	57.6	2.9	12.7	331	1051
Jul	81.9	101.6	61.8	2.8	13.1	318	998
Aug	82.3	102.7	58.1	2.5	6.5	299	970
Sep	79.0	99.2	55.6	2.8	7.5	248	909

Notes:
[1]Temperature at 2 meters above ground level

FIGURES



Q:\D\DMBPV GrapevineMonitoringreport\Figure 1. Site Location.pptx

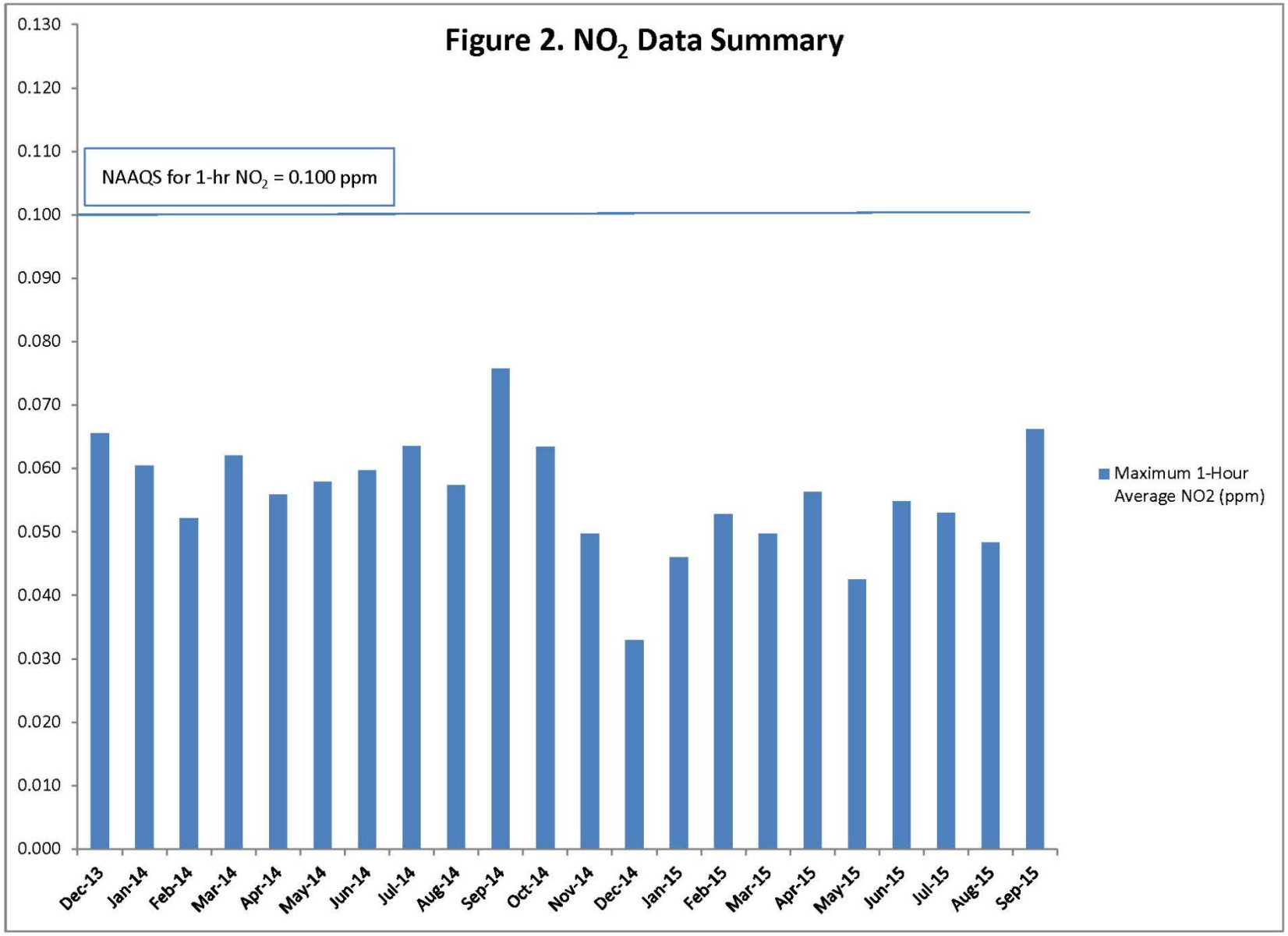
RAMBOLL ENVIRON

Monitoring Station Location

Tejon Ranch Company Air Quality and Meteorological Monitoring Project
Grapevine, California

Figure
1

DRAFTED BY: GT | DATE: 10/01/15 | PROJECT: 03-24287K1



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RAMBOLL ENVIRON

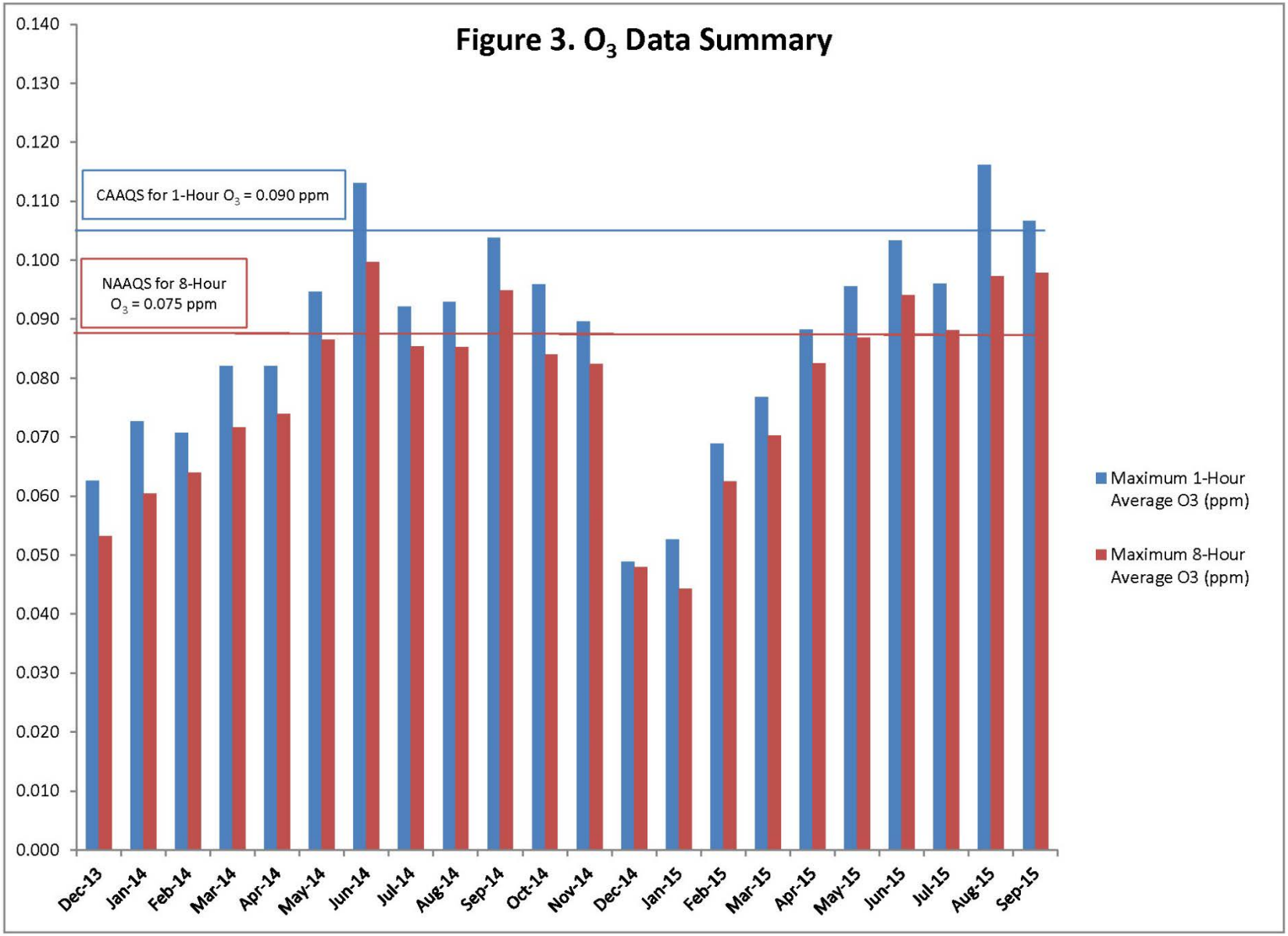
DRAFTED BY: KMY | DATE: 10/23/2015

NO_2 Data Summary

Tejon Ranch Company Air Quality and Meteorological Monitoring Project
Grapevine, California

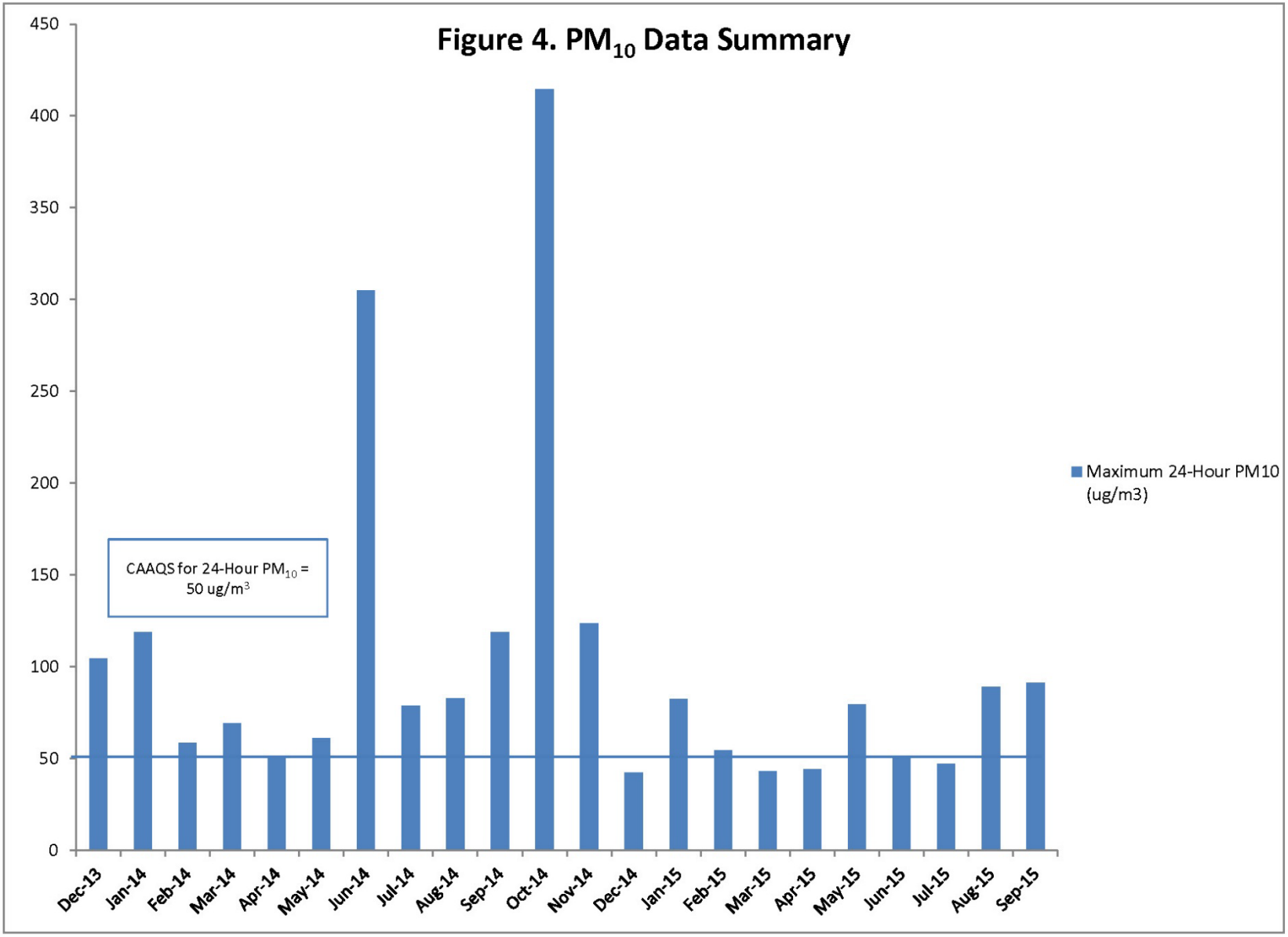
Figure 2

PROJECT: 03-24287K1



FILE: \\ \\wcirvfps1\projects\DDMBPV GrapevineMonitoringreport\figures

RAMBOLL ENVIRON	O_3 Data Summary		Figure 3
DRAFTED BY: KMY	DATE: 10/23/2015	Tejon Ranch Company Air Quality and Meteorological Monitoring Project Grapevine, California	PROJECT: 03-24287K1



FILE: \\ \\wcirvfps1\projects\DIDMBPV GrapevineMonitoringreport\figures

RAMBOLL ENVIRON

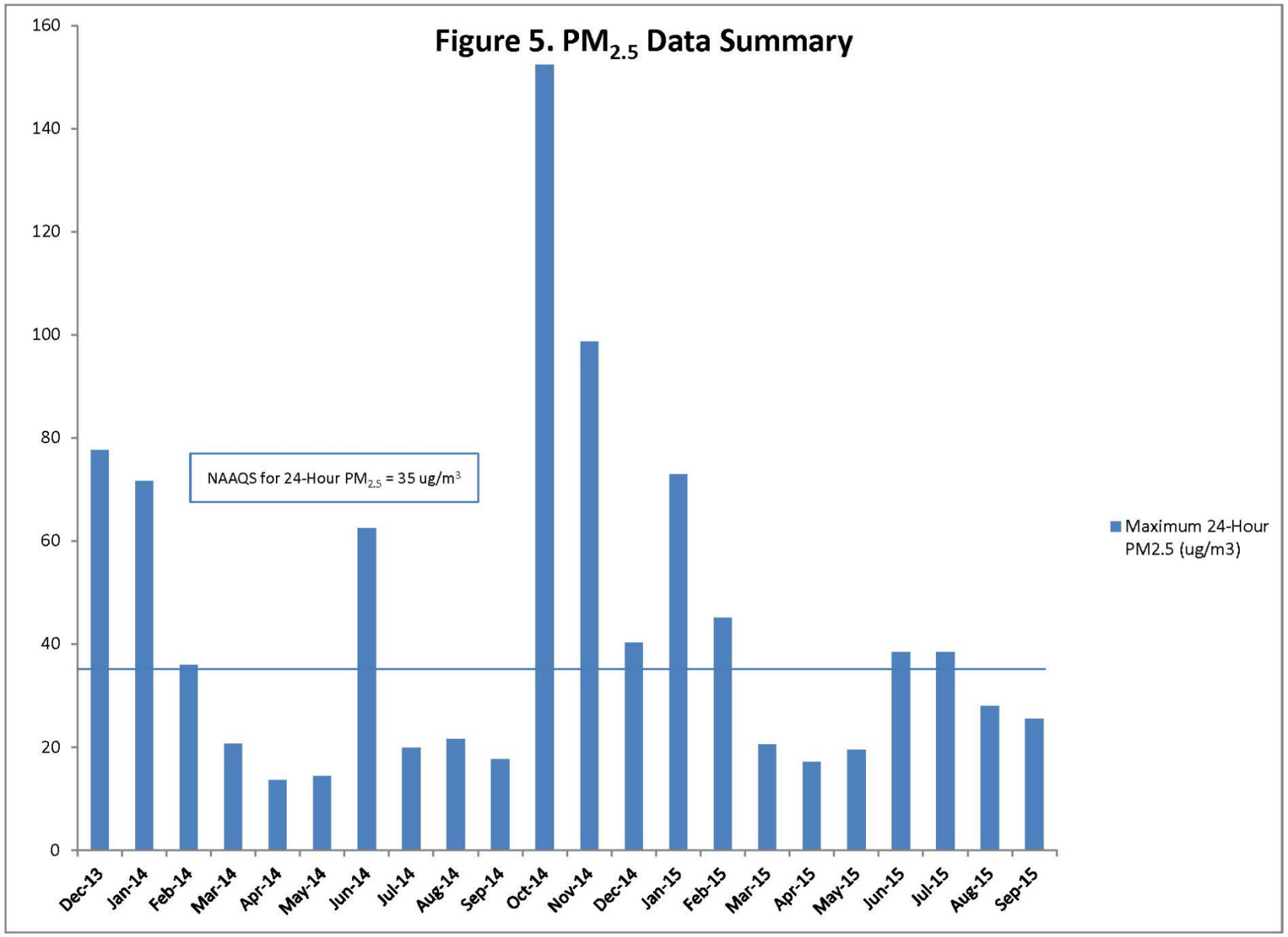
DRAFTED BY: KMY | DATE: 10/23/2015

PM_{10} Data Summary

Tejon Ranch Company Air Quality and Meteorological Monitoring Project
Grapevine, California

Figure 4

PROJECT: 03-24287K1



FILE: \\ \\wcirvfps1\projects\DDMBPV GrapevineMonitoringreport\figures

RAMBOLL ENVIRON

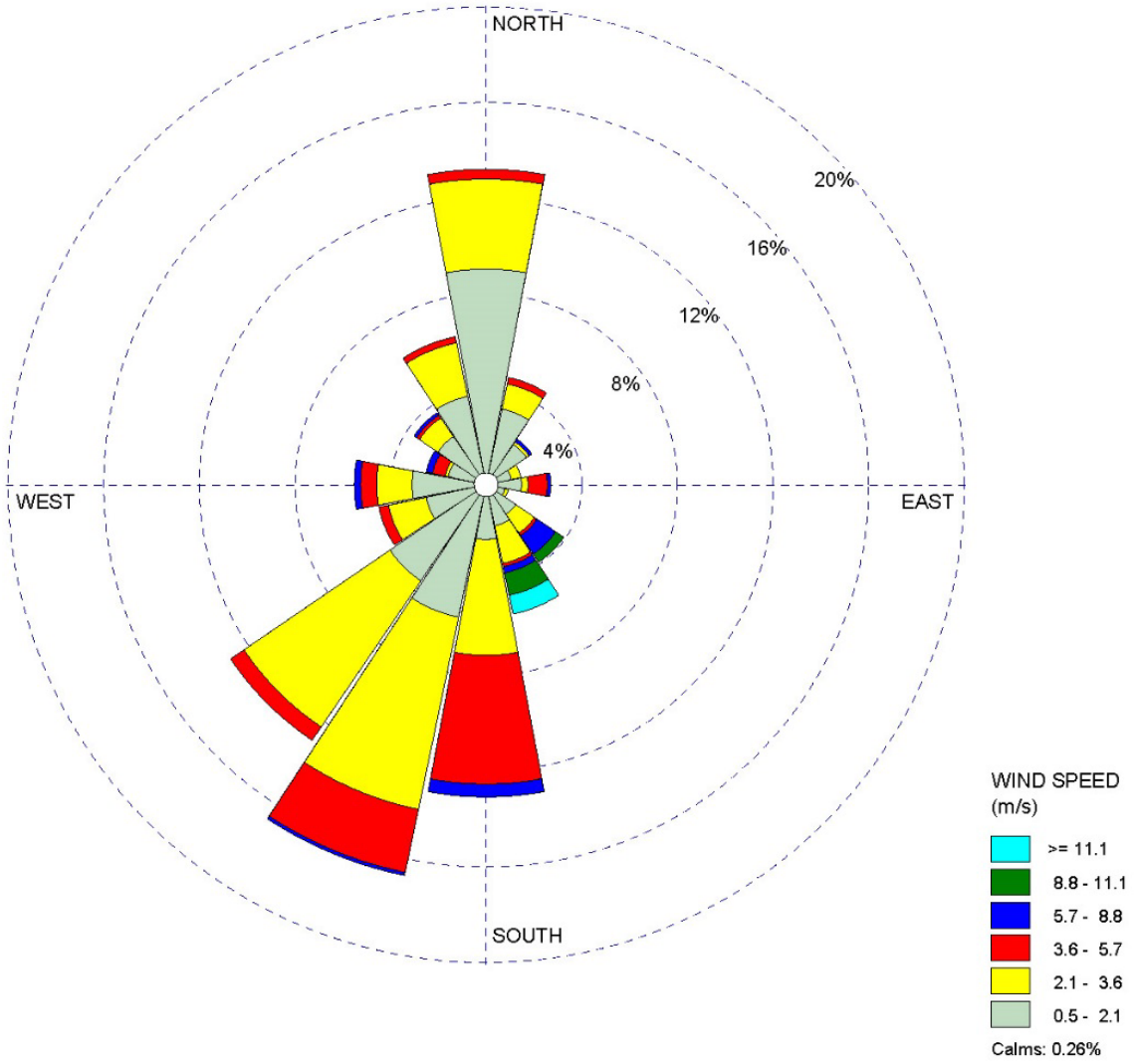
DRAFTED BY: KMY | DATE: 10/23/2015

$PM_{2.5}$ Data Summary

Tejon Ranch Company Air Quality and Meteorological Monitoring Project
Grapevine, California

Figure
5

PROJECT: 03-24287K1



2013 Tejon Ranch Wind Rose

12/01/2013- 12/31/2013 (00:00-23:00)

Tejon Ranch Company Air Quality and Meteorological Monitoring Project

Grapevine, California

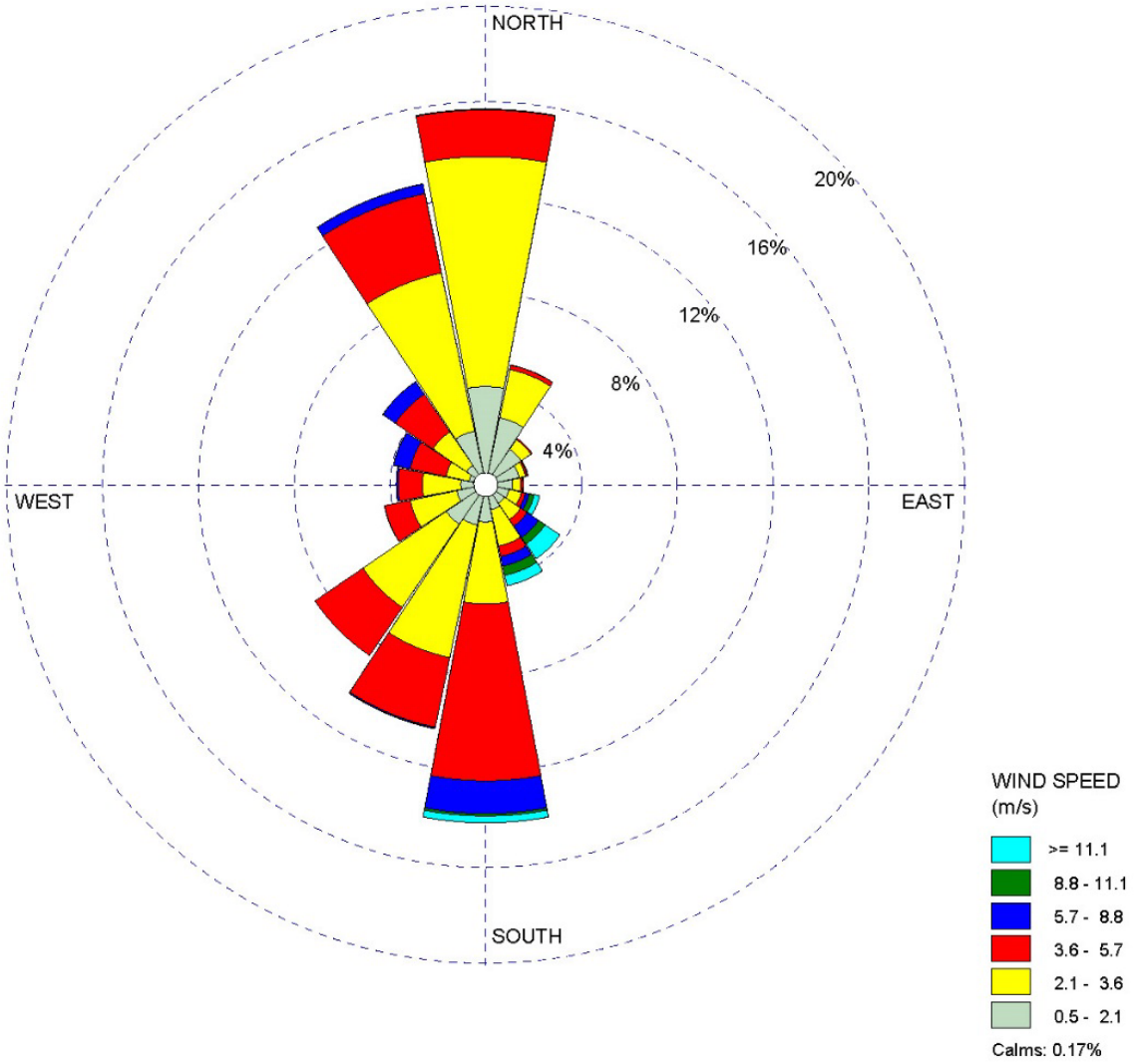
Figure 6

RAMBOLL ENVIRON

DRAFTED BY: KMY | DATE: 10/23/2015

PROJECT: 03-24287K1

FILE: \\ \\wcirvfps1\projects\DDMBPV GrapevineMonitoringreport\figures



2014 Tejon Ranch Wind Rose

1/01/2014- 12/31/2014 (00:00-23:00)

Tejon Ranch Company Air Quality and Meteorological Monitoring Project

Grapevine, California

Figure 7

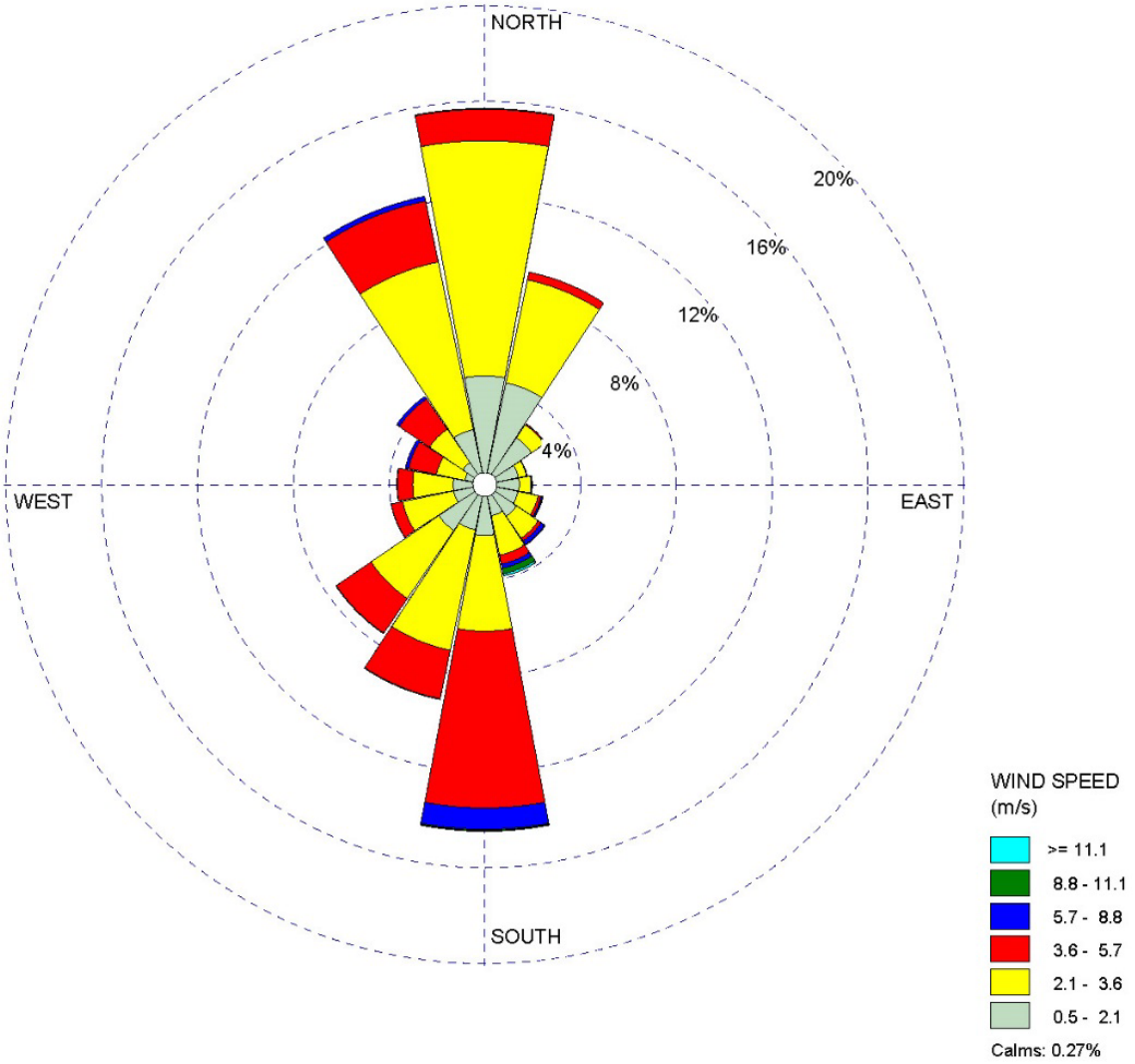
RAMBOLL ENVIRON

DRAFTED BY: KMY

DATE: 10/23/2015

PROJECT: 03-24287K1

FILE: \\ \\wcirvfps1\projects\DDMBPV GrapevineMonitoringreport\figures



2015 Tejon Ranch Wind Rose

1/01/2015- 9/30/2015 (00:00-23:00)

Tejon Ranch Company Air Quality and Meteorological Monitoring Project

Grapevine, California

Figure 8

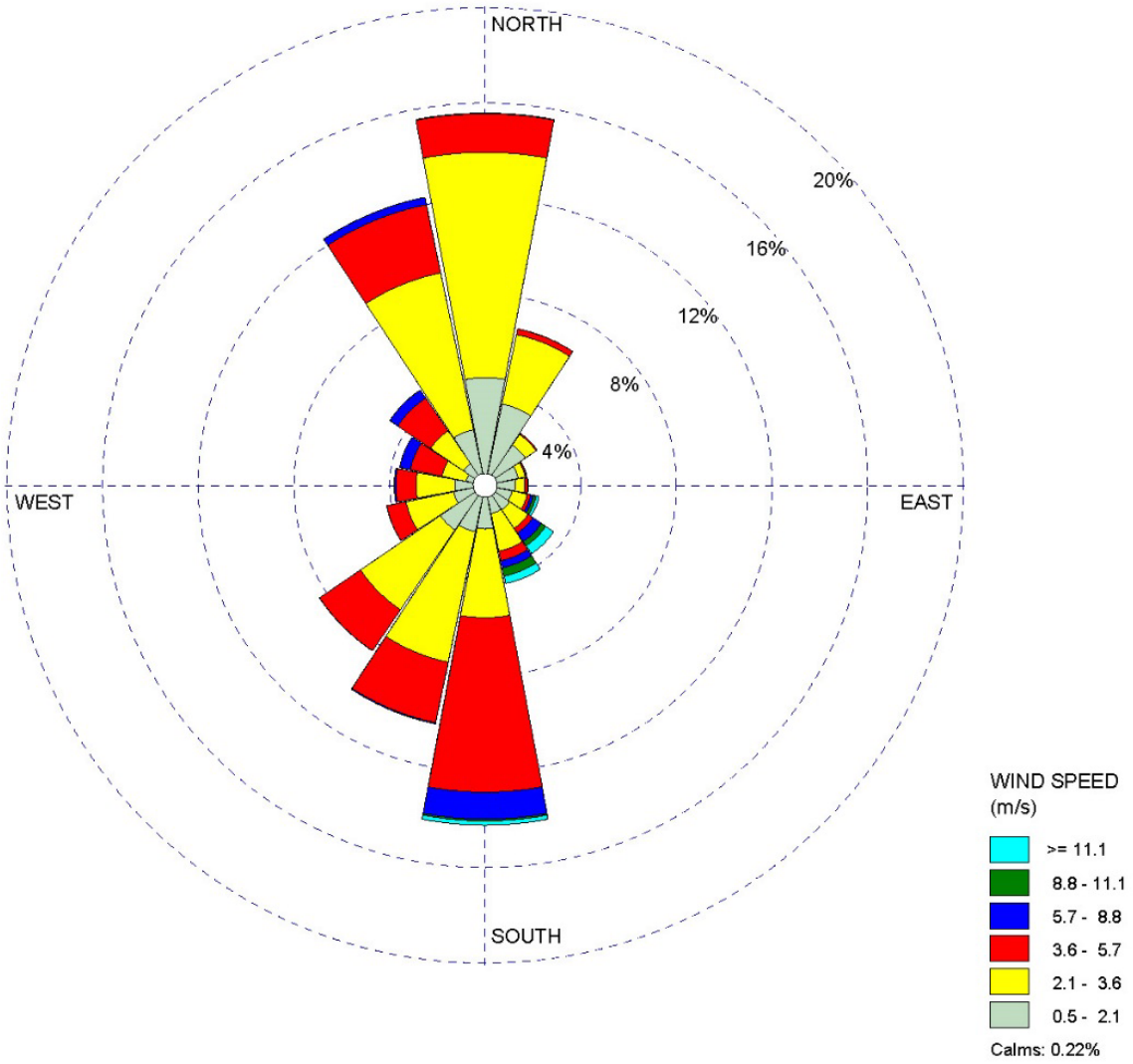
RAMBOLL ENVIRON

DRAFTED BY: KMY

DATE: 10/23/2015

PROJECT: 03-24287K1

FILE: \\ \\wcirvfps1\projects\DDMBPV GrapevineMonitoringreport\figures



FILE: \\ \\wcirvfps1\projects\DIDMBPV GrapevineMonitoringreport\figures

RAMBOLL ENVIRON

DRAFTED BY: KMY | DATE: 10/23/2015

22-Month Tejon Ranch Wind Rose

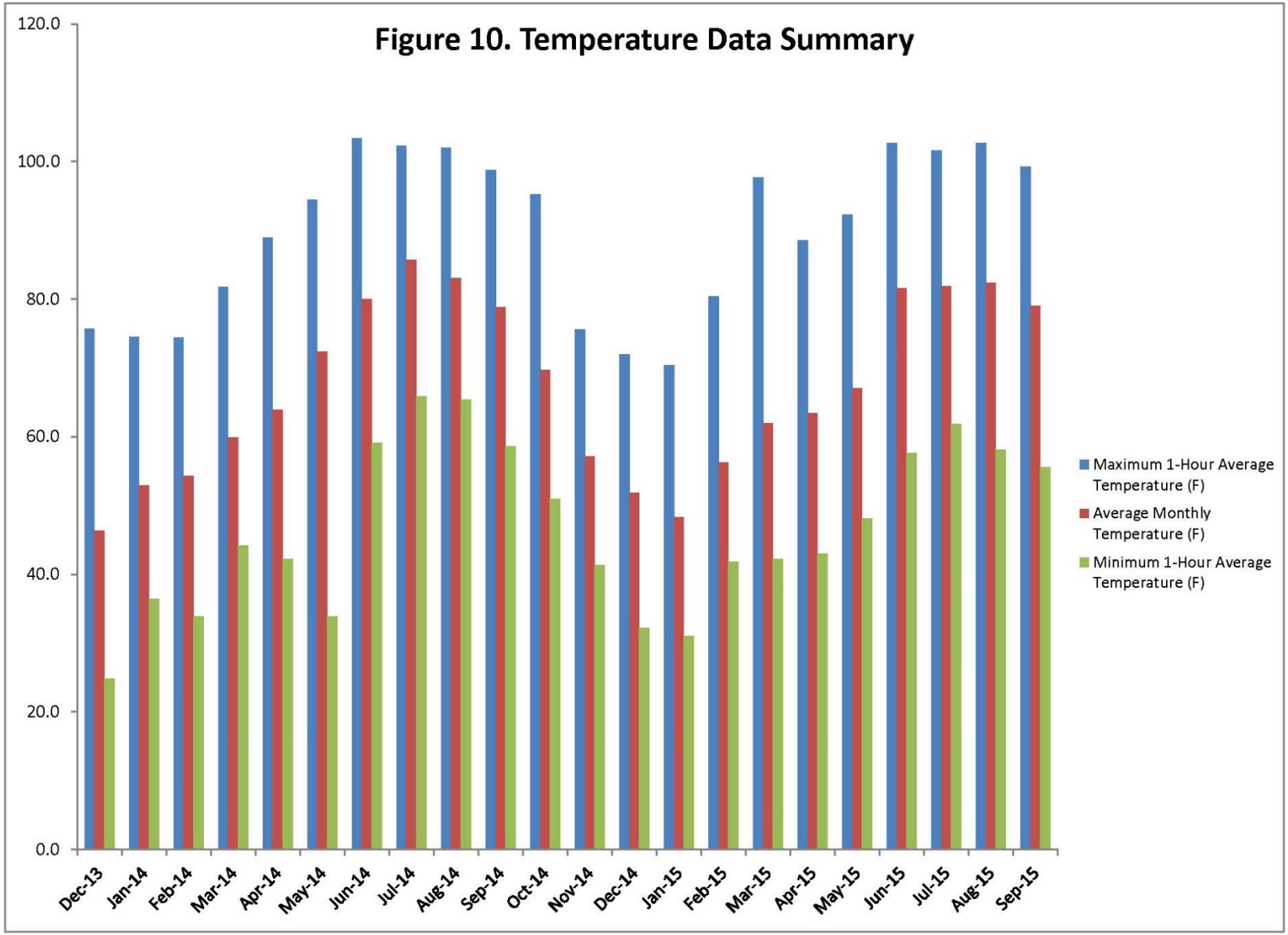
12/01/2013- 9/30/2015 (00:00-23:00)

Tejon Ranch Company Air Quality and Meteorological Monitoring Project

Grapevine, California

Figure 9

PROJECT: 03-24287K1



FILE: \\ \\wcirvfps1\projects\DDMBPV GrapevineMonitoringreport\figures

RAMBOLL ENVIRON

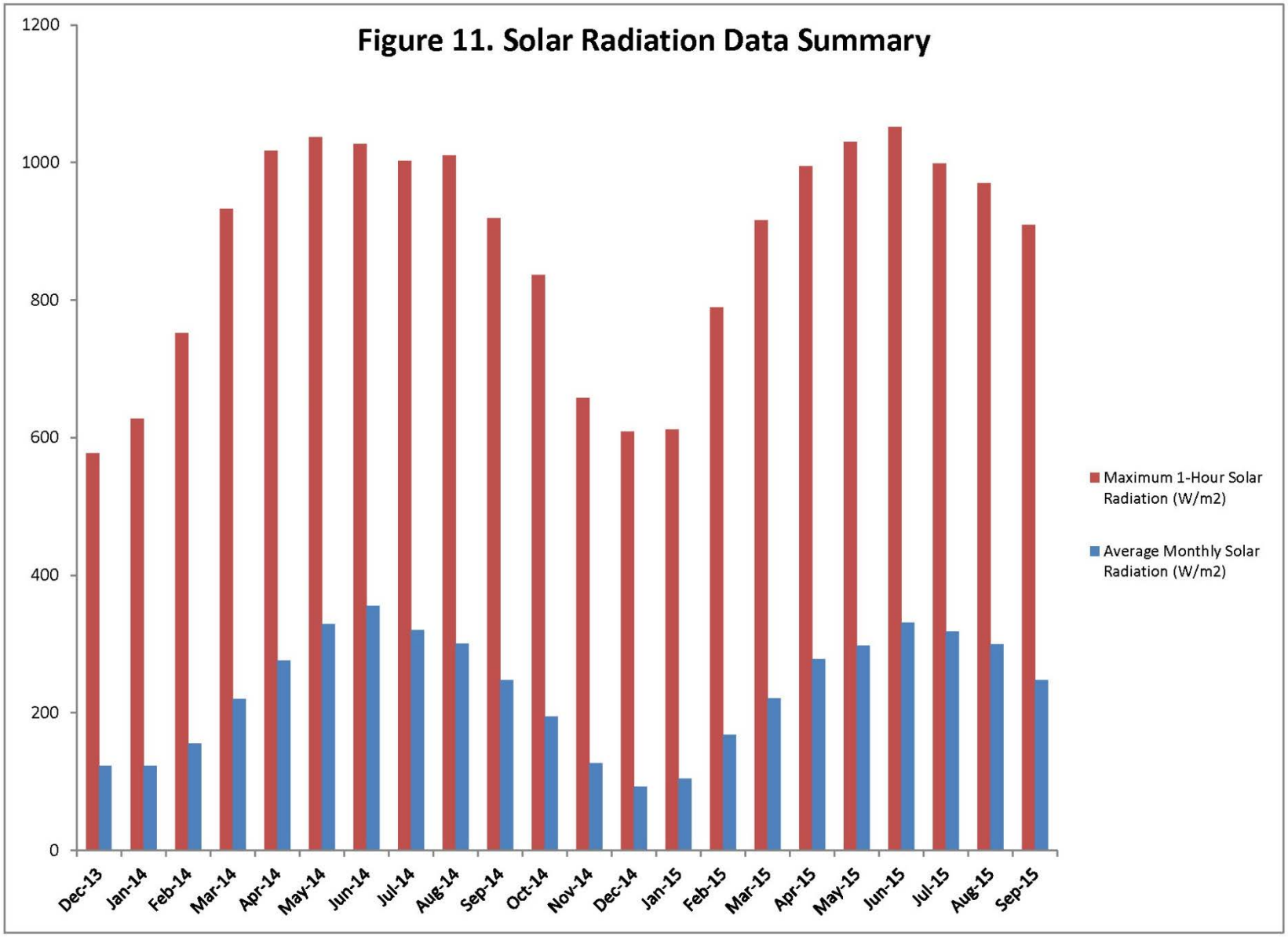
DRAFTED BY: KMY | DATE: 10/23/2015

Temperature Data Summary

Tejon Ranch Company Air Quality and Meteorological Monitoring Project
Grapevine, California

Figure
10

PROJECT: 03-24287K1



FILE: \\ \\wcirvfps1\projects\DIDMBPV GrapevineMonitoringreport\figures

RAMBOLL ENVIRON

Solar Radiation Data Summary

Tejon Ranch Company Air Quality and Meteorological Monitoring Project
Grapevine, California

Figure
11

DRAFTED BY: KMY | DATE: 10/23/2015 | PROJECT: 03-24287K1

APPENDIX A
PHOTO-LOG

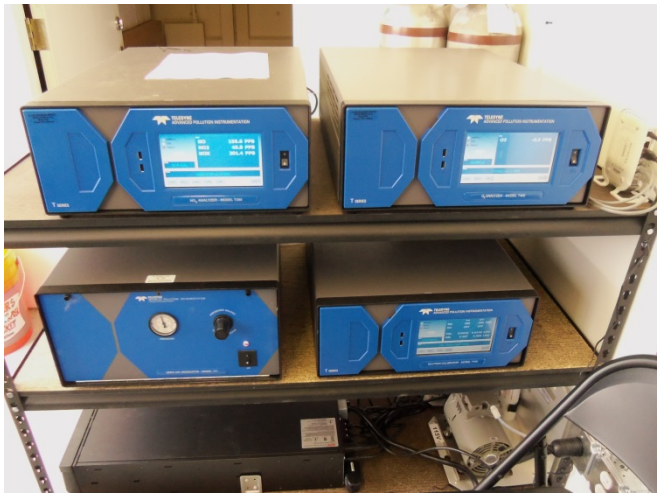


Photo 1: Gas Analyzers

Photo 2: Particulate Matter Samplers

Photo 3: Monitoring Station Exterior

Photo 4: Meteorological Tower

RAMBOLL ENVIRON

Site Photographs
Tejon Ranch Meteorological Station
Lebec, CA
December 2013 – September 2015

APPENDIX B
CERTIFICATIONS

APPENDIX B.1
SITE CERTIFICATIONS

TELEDYNE
ADVANCED POLLUTION INSTRUMENTATION
A Teledyne Technologies Company

T700 Final Calibrated Test and Validation Data

8/27/13

Model:	T700				
Firmware:	T700 1.1.0 bld 84	Serial Number:	871	Sales Order:	066204
Date:	8/27/2013	Technician:	DNG	SP#:	

Parameter	Displayed As	Observed Value	Units	Final Test Process Control Limits at Factory**	Acceptable Limits in Use
Act Cal Gas [3]	ACT CAL	0.0161	LPM	± 1% of TARG CAL	± 1% of TARG CAL
Target Cal Gas [3]	TARG CAL	0.0160	LPM		
Act Dilution [3]	ACT DIL	1.983	LPM	± 1% of TARG DIL	± 1% of TARG DIL
Target Dilution [3]	TARG DIL	1.984	LPM		
O3 Gen Ref [1,3]	O3 GEN REF	144	mVDC	25 - 600 mV	25 - 600 mV
O3 Flow [1,3]	O3 FLOW	0.111	LPM	0.100 - 0.200 LPM	0.100 - 0.200 LPM
O3 Gen Drive [1,3]	O3 GEN DRIVE	800	mVDC	800 mV	800 mV
Ozone Lamp Temp	O3 LAMP TEMP	48	°C	48 ± 0.5 °C	48 ± 0.5 °C
Cal Pressure	CAL PRESSURE	30	PSIG	25 - 35 PSIG	25 - 35 PSIG
Dilution Pressure	DIL PRESSURE	30	PSIG	25 - 35 PSIG	25 - 35 PSIG
Regulator Pressure	REG PRESSURE	20	PSIG	20 ± 1.0 PSIG	20 ± 1.0 PSIG
ACT NO Conc [3]	ACT=	802	PPB	± 1% of TARG=	± 1% of TARG=
Target NO Conc [3]	TARG=	800	PPB		
Box Temp	BOX TEMP	30.9	°C	20 - 35 °C	8 - 48 °C
Photo Measure [1,3]	PHOTO MEASURE	4470	mVDC	4400 - 4600 mV	2500 - 4800 mV
Photo Reference [1,3]	PHOTO REFERENCE	4470	mVDC	4400 - 4600 mV	
Photo Flow [2]	PHOTO FLOW	0.739	LPM	0.720 - 0.880 LPM	
Photo Lamp Temp	PHOTO LAMP TEMP	58	°C	58 ± 0.5 °C	58 ± 0.5 °C
Photo Sam Press [1,3]	PHOTO SPRESS	29.6	In-Hg-A	27 - 29.9 In-Hg-A	24 - 30 In-Hg-A
Photo Sample Temp	PHOTO STEMP	44.3	°C	28 - 45 °C	28 - 45 °C
Photo Slope	PHOTO SLOPE	1.006	-	1 ± 0.03	1 ± 0.03
Photo Offset	PHOTO OFFSET	2.7	PPB	0 ± 3 PPB	0 ± 3 PPB
Dark Offset	DARK OFFSET	-0.5	mVDC	0 ±20mV	0 ±20mV
Perm Tube Flow	PERM FLOW		LPM	0.100 - 0.200 LPM	0.100 - 0.200 LPM
Perm Tube Temp	PERM TEMP		°C	50 ± 0.3 °C	50 ± 0.3 °C

** For good instrument performance, the steadiness of this signal is more important than its absolute value (within the operating range)*

*** These are process control limits, and not specification limits. Items out of range do not imply the unit is out of specification.*

Statement of Calibration

The unit identified above has been tested with NIST measuring and test equipment using lot traceable materials. The testing is performed in accordance with ISO 9001-2008 and is traceable to NIST and industry recognized standards.

[1] Recorded in Standby Mode, [2] Recorded in Generate O3 mode. [3] Recorded in Generate NO mode

TELEDYNE
ADVANCED POLLUTION INSTRUMENTATION
A Teledyne Technologies Company

T700 Final Calibrated Test and Validation Data

5/10/13

Model:	T700				
Firmware:	T700 1.1.0 bld 84	Serial Number:	53	Sales Order:	065292
Date:	5/10/2013	Technician:	DNG	SP#:	

Parameter	Displayed As	Observed Value	Units	Final Test Process Control Limits at Factory**	Acceptable Limits in Use
Act Cal Gas [3]	ACT CAL	0.0330	LPM	± 1% of TARG CAL	± 1% of TARG CAL
Target Cal Gas [3]	TARG CAL	0.0333	LPM		
Act Dilution [3]	ACT DIL	4.00	LPM	± 1% of TARG DIL	± 1% of TARG DIL
Target Dilution [3]	TARG DIL	3.969	LPM		
O3 Gen Ref [1,3]	O3 GEN REF	163	mVDC	25 - 600 mV	25 - 600 mV
O3 Flow [1,3]	O3 FLOW	0.106	LPM	0.100 - 0.200 LPM	0.100 - 0.200 LPM
O3 Gen Drive [1,3]	O3 GEN DRIVE	800	mVDC	800 mV	800 mV
Ozone Lamp Temp	O3 LAMP TEMP	48	°C	48 ± 0.5 °C	48 ± 0.5 °C
Cal Pressure	CAL PRESSURE	30	PSIG	25 - 35 PSIG	25 - 35 PSIG
Dilution Pressure	DIL PRESSURE	30	PSIG	25 - 35 PSIG	25 - 35 PSIG
Regulator Pressure	REG PRESSURE	20	PSIG	20 ± 1.0 PSIG	20 ± 1.0 PSIG
ACT NO Conc [3]	ACT=	801	PPB	± 1% of TARG=	± 1% of TARG=
Target NO Conc [3]	TARG=	800	PPB		
Box Temp	BOX TEMP	31.2	°C	20 - 35 °C	8 - 48 °C
Photo Measure [1,3]	PHOTO MEASURE	4462	mVDC	4400 - 4600 mV	2500 - 4800 mV
Photo Reference [1,3]	PHOTO REFERENCE	4462	mVDC	4400 - 4600 mV	2500 - 4800 mV
Photo Flow [2]	PHOTO FLOW	0.82	LPM	0.720 - 0.880 LPM	0.720 - 0.880 LPM
Photo Lamp Temp	PHOTO LAMP TEMP	58	°C	58 ± 0.5 °C	58 ± 0.5 °C
Photo Sam Press [1,3]	PHOTO SPRESS	29.6	In-Hg-A	27 - 29.9 In-Hg-A	24 - 30 In-Hg-A
Photo Sample Temp	PHOTO STEMP	41	°C	28 - 45 °C	28 - 45 °C
Photo Slope	PHOTO SLOPE	1.013	-	1 ± 0.03	1 ± 0.03
Photo Offset	PHOTO OFFSET	0.5	PPB	0 ± 3 PPB	0 ± 3 PPB
Dark Offset	DARK OFFSET	0.7	mVDC	0 ±20mV	0 ±20mV
Perm Tube Flow	PERM FLOW		LPM	0.100 - 0.200 LPM	0.100 - 0.200 LPM
Perm Tube Temp	PERM TEMP		°C	50 ± 0.3 °C	50 ± 0.3 °C

* *For good instrument performance, the steadiness of this signal is more important than its absolute value (within the operating range)*

** *These are process control limits, and not specification limits. Items out of range do not imply the unit is out of specification.*

Statement of Calibration

The unit identified above has been tested with NIST measuring and test equipment using lot traceable materials. The testing is performed in accordance with ISO 9001-2000 and is traceable to NIST and industry recognized standards.

[1] *Recorded in Standby Mode,* [2] *Recorded in Generate O3 mode,* [3] *Recorded in Generate NO mode*

TELEDYNE
ADVANCED POLLUTION INSTRUMENTATION
A Teledyne Technologies Company

T700 Final Calibrated Test and Validation Data

Configuration and Options	
Power Configuration: Voltage:	100 - 240 V
Frequency:	60 Hz
Rack Mounts with Slides (20A - 26"; 20B - 24")	
Rack Mounts Ears Only (21)	
O3 Generator (1A)	Yes
Photometer (2A)	Yes
Source Gas MFC (7A - 0-50 cc/min; 7B - 0-200 cc/min)	0 - 200 SCCM
Diluent Gas Mass Flow Controller (8A - 0-5 SLPM;8B - 0-20 SLPM)	0 - 20 SLPM
Air Mass Flow Controller	
Third MFC (9)	0 - 20 SCCM
Strap Carrying Handle (29)	
Multi-drop (62)	
Ethernet W/ TCP-IP (63A)	
Multi-drop and Ethernet (63C)	
USB COMP PORT (64A)	Yes
External Valve Driver Capability - 12V (48A)	
External Valve Driver Capability - 24V (48B)	
Dual Gas Output Valve (73)	
Permeation Tube Oven (5)	
Calibration as a Primary Standard (95B)	
1 year warranty extension (92A)	
2 year warranty extension (92B)	
3 year warranty extension (92C)	
COM 1 Test Channel Configuration	RS-232
COM 2 Configuration	RS-232

Additional Information:

Photometer Correlation Certificate

TELEDYNE
INSTRUMENTS
Advanced Pollution Instrumentation
A Teledyne Technologies Company

This instrument has been calibrated using standards maintained at Teledyne API (9480 Carroll Park Drive, San Diego, CA 92121-5201, USA), which are traceable to the United States National Institute of Standards and Technology. This calibration was performed to Teledyne API specifications and to the requirements of ISO 9001:2008. Supporting documentation relative to traceability is on file at this office, and is available for examination at Teledyne API upon request.

Correlation of:
Date: 5/10/2013
Serial Number: 53

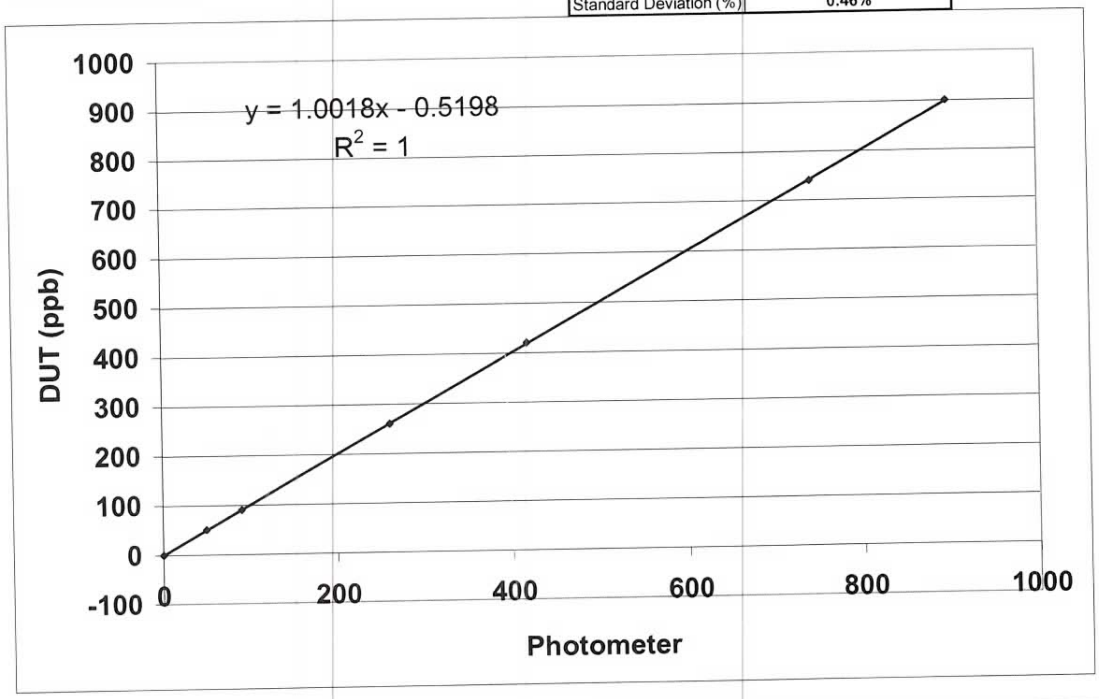
Model: T700
Operator: DNG

Reference Photometer Info:
Model: M400
Serial Number: 1751
Certification due date: 10/17/2013

Test Points (PPB)	Measurements		Difference (PPB)	Difference (%)
0	0.4	0	-0.4	0
50	50.3	50	-0.3	-0.596
90	90.6	90	-0.6	-0.662
260	261	260	-1	-0.383
420	418	420	2	0.478
740	741	740	-1	-0.135
900	898	900	2	0.223

DUT = Device under test

Average % Difference	**-0.18%**
Standard Deviation (%)	**0.46%**



Performed at the following environmental conditions: Temperature: 20C +/- 7C; RH: 20-80%; Pressure: 29.92 in-Hg-A +/- 1

Performed by: DNG 15 **Date:** 5/10/2013
Test technician

Approved by: D. Hunter **Date:** 5/10/13
Quality Representative

TELEDYNE HASTINGS INSTRUMENTS
Everywhereyoulook™

Teledyne Technologies- Hastings Instruments
804 Newcombe Ave. Hampton, Va. 23669-4593

HCS.xls
Revision 1.10 05/07/2012

Order Summary

Customer TELEDYNE ADVANCED POLLUTION INSTRUMENT
PO K74695
THI 75975
Range 0 - 20.00 SLM/Air @ 0.00°C

IUT Summary

Model HFC-212
S/N 6509300002
Accuracy Spec 1% of FS

FS Flow	FS Out	Zero Out	
20	5.000	0.000	Volts

Reference Std Documentation

Reference ID:		S/N#	Calibration Due:
Molbox	CDR 715	392	12/18/2012
Molbloc (A)	CDR 886	1897	04/25/2013
Molbloc (B)	N/A	N/A	N/A
DMM	CDR 971	US36036127	03/25/2013

Cal Routine HCS.exe
Rev Level 1.8.7
Procedure 560.G

IUT Condition

X	NEW
	In Tolerance - As Found
	Out Of Tolerance - As Found
	Calibrated - As Left

Environmental Conditions

Temp. °C 23.9
Humidity % 48.7

Flow Unit Correction Factors

Type	From	To	K
Gas	N2	Air	0.9980
Units	SLPM	SLM	1.000000
Temp	0°C	0.00°C	1.000000
Other			1.0000
Ktot=			0.998000

Std. Conditions

T	0°C	
P	760 mmHg	*********
V	181.2 µp	*********
		*********

Avg Cal. Temp. 23.2°C

The calculated system uncertainty is estimated to be: 3.5 : 1

Data contained herein is relevant only to the calibration and configuration for which this document was produced.

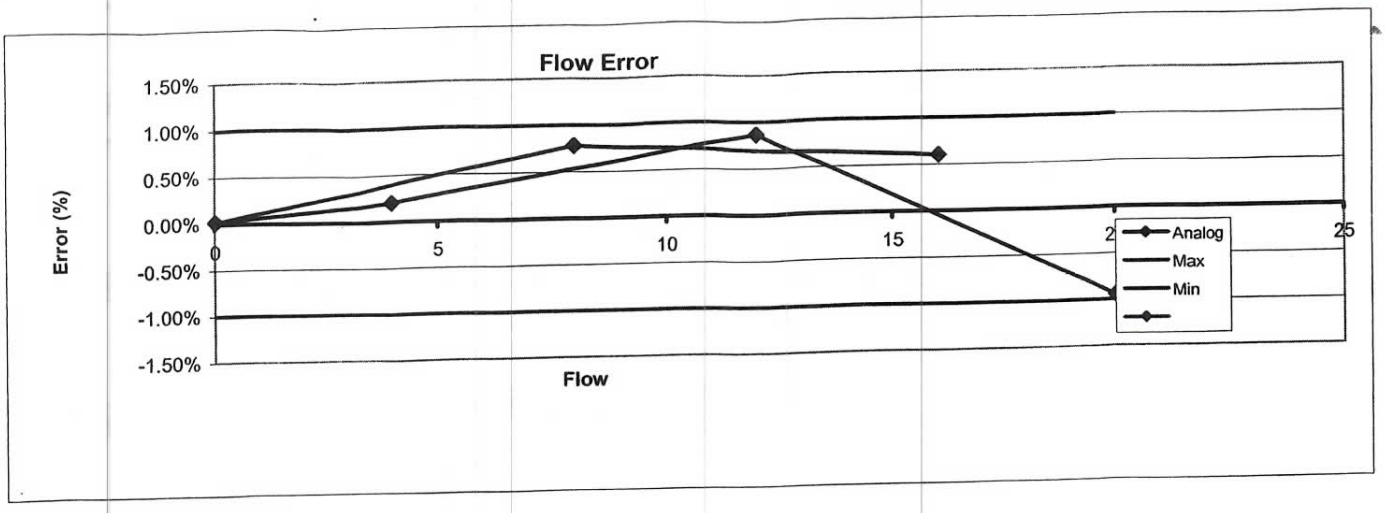
TEST DATA

Recorded Measurments			Indicated Flow		Estimated Uncertainty	
Ref. Flow SLPM N2	Temp. °C	Mass Flow SLM Air	Output VDC	Flow SLM Air	%FS	%PT
20.049	23.13	20.009	4.955	19.820	-0.95%	-0.95%
12.007	23.12	11.983	3.039	12.156	0.86%	1.44%
3.994	23.13	3.987	1.007	4.027	0.20%	1.02%
0.020	23.17	0.020	0.006	0.023	0.02%	
8.013	23.19	7.997	2.038	8.153	0.78%	1.96%
16.054	23.19	16.022	4.036	16.142	0.60%	0.75%

Calibration Performed By GTINSLEY Title TESTER II Calibration Date 05/22/2012 7:34 AM

This calibration complies with ANSI/NCSL Z540-1-1994 and ISO 17025-2005 and is traceable to the National Institute or Standards and Technology. This validation was accomplished by qualified personnel directed by controlled procedures. The accuracy of this calibration for any gas other than the actual gas used may be subject to theoretical corrections. Customer Service can be contacted weekdays 8AM-5PM EDT at 1-800-950-2468.

This report shall not be reproduced, except in full without the written permission of Hastings Instruments. 6509300002.xls



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Calibration Report

TELEDYNE INSTRUMENTS
A Teledyne Technologies Company

Teledyne Technologies- Hastings Instruments
804 Newcombe Ave. Hampton, Va. 23669-4593

HCS_UP.xls
Revision 1.04 06/07/2010

Order Summary

Customer: TELEDYNE API
TI-HI No.: CO 65428

Range: 0 - 20.00 SCCM/Air @ 0.0°C

IUT Summary

Model: HFC-212
S/N: 5503200002
Accuracy Spec: 1% FS

FS Flow	FS Out	Zero Out	
20	5.000	0.000	Volts

Reference Std Documentation

Reference ID:		S/N#	Calibration Due:
Molbox	CDR 747	431	08/23/2010
Molbloc (A)	N/A	N/A	N/A
Molbloc (B)	CDR 962	3036	07/26/2010
DMM	CDR 971	US36036127	12/17/2010

Cal Routine: HCS.exe
Rev Level: 1.6
Procedure: 560.D

IUT Condition

X	NEW
	In Tolerance - As Found
	Out Of Tolerance - As Found
	Calibrated - As Left

Environmental Conditions

Temp. °C: 24.5
Humidity %: 56.8
Pressure (mmHg): 760.8

Flow Unit Correction Factors

Type	From	To	K
Gas	N2	Air	0.9980
Units	SCCM	SCCM	1.0000
Temp	0°C	0.0°C	1.0000
Other			1.0000
Ktot=			0.9980

Std. Conditions

T	0°C	
P	760 mmHg	*********
V	181.2 µp	*********
		*********

Avg Cal. Temp: 26.0°C

The calculated system uncertainty is estimated to be: 5.0 : 1

Data contained herein is relevant only to the calibration and configuration for which this document was produced.

TEST DATA

Recorded Measurments			Indicated Flow		Estimated Uncertainty	
Ref. Flow SCCM N2	Temp. °C	Mass Flow SCCM Air	Output VDC	Flow SCCM Air	%FS	%PT
20.051	26.02	20.010	5.019	20.076	0.33%	0.33%
12.011	26.02	11.987	2.970	11.880	-0.54%	-0.90%
3.995	26.01	3.987	0.980	3.920	-0.34%	-1.70%
0.031	26.01	0.031	0.004	0.015	-0.08%	
8.021	26.00	8.005	1.970	7.881	-0.62%	-1.54%
14.039	26.00	14.011	3.478	13.911	-0.50%	-0.71%
18.026	26.00	17.990	4.493	17.974	-0.08%	-0.09%

Calibration Performed By: GTINSLEY Title: TESTER Calibration Date: 06/22/2010 6:18 AM

This calibration complies with ANSI/NCSL Z540-1-1994 and ISO 17025-2005 and is traceable to the National Institute or Standards and Technology. This validation was accomplished by qualified personnel directed by controlled procedures. The accuracy of this calibration for any gas other than the actual gas used may be subject to theoretical corrections. Customer Service can be contacted weekdays 8AM-5PM EDT at 1-800-950-2468.

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TELEDYNE HASTINGS INSTRUMENTS
Everywhereyoulook™

Teledyne Technologies- Hastings Instruments
804 Newcombe Ave. Hampton, Va. 23669-4593

HCS.xls
Revision 1.10 05/07/2012

Order Summary

Customer TELEDYNE ADVANCED POLLUTION INSTRUMENT
PO K74804
THI 76344
Range 0 - 200.00 SCCM/Air @ 0.00°C

IUT Summary

Model HFC-212
S/N 6539300007
Accuracy Spec 1% of FS

FS Flow	FS Out	Zero Out	
200	5.000	0.000	Volts

Reference Std Documentation

Reference ID:		S/N#	Calibration Due:
Molbox	CDR 745	435	07/31/2012
Molbloc (A)	N/A	N/A	N/A
Molbloc (B)	CDR 741	960	11/15/2012
DMM	CDR 869	835816	07/19/2012

Cal Routine HCS.exe
Rev Level 1.8.7
Procedure 560.G

IUT Condition

X	NEW
	In Tolerance - As Found
	Out Of Tolerance - As Found
	Calibrated - As Left

Environmental Conditions

Temp. °C 23.7
Humidity % 52.2

Flow Unit Correction Factors

Type	From	To	K
Gas	N2	Air	0.9980
Units	SCCM	SCCM	1.000000
Temp	0°C	0.00°C	1.000000
Other			1.0000
Ktot=			0.998000

Std. Conditions

T	0°C	
P	760 mmHg	*********
V	181.2 µp	*********
		*********

Avg Cal. Temp. 24.5°C

The calculated system uncertainty is estimated to be: 3.5 : 1

Data contained herein is relevant only to the calibration and configuration for which this document was produced.

TEST DATA

Recorded Measurments			Indicated Flow		Estimated Uncertainty	
Ref. Flow SCCM N2	Temp. °C	Mass Flow SCCM Air	Output VDC	Flow SCCM Air	%FS	%PT
200.596	24.50	200.195	4.987	199.499	-0.35%	-0.35%
120.430	24.51	120.189	3.017	120.699	0.26%	0.42%
39.970	24.52	39.890	0.958	38.327	-0.78%	-3.92%
-0.020	24.53	-0.020	-0.002	-0.077	-0.03%	
79.948	24.55	79.788	1.966	78.656	-0.57%	-1.42%
160.132	24.57	159.812	4.029	161.151	0.67%	0.84%

Calibration Performed By DFGRANT Title FLOW TEAM LEAD Calibration Date 05/24/2012 9:45 AM

This calibration complies with ANSI/NCSL Z540-1-1994 and ISO 17025-2005 and is traceable to the National Institute or Standards and Technology. This validation was accomplished by qualified personnel directed by controlled procedures. The accuracy of this calibration for any gas other than the actual gas used may be subject to theoretical corrections. Customer Service can be contacted weekdays 8AM-5PM EDT at 1-800-950-2468.

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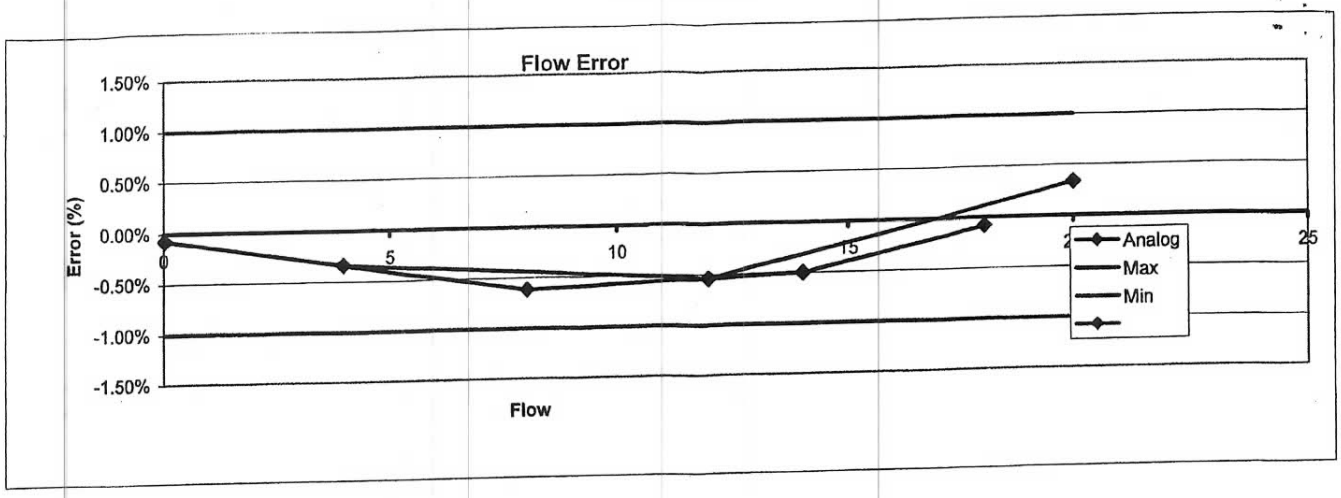
Calibration Report



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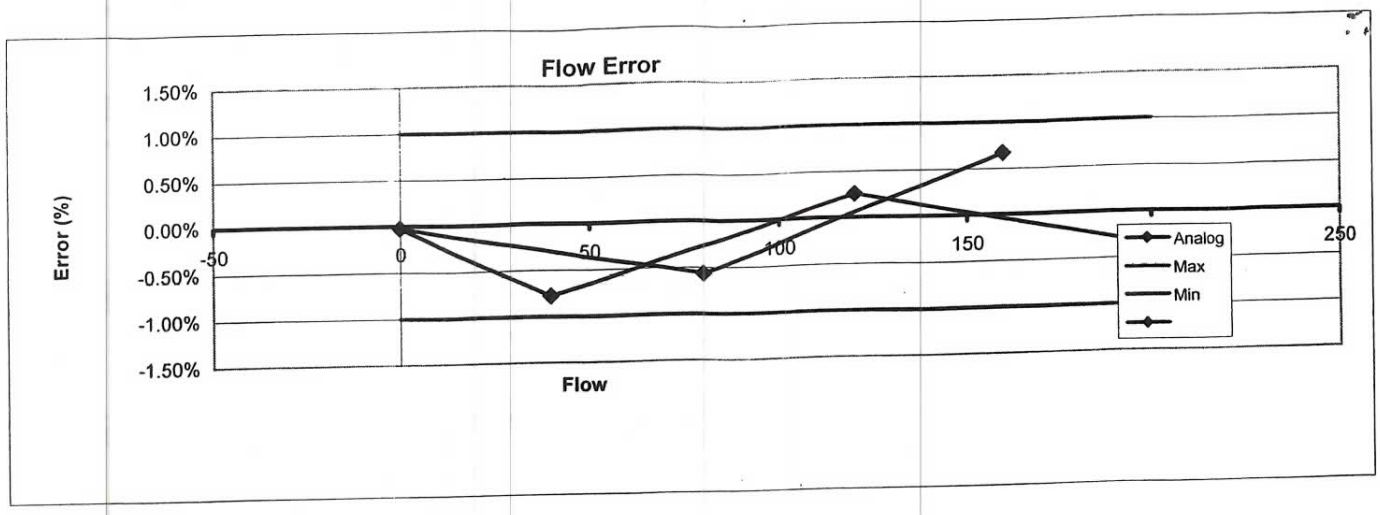

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SCOTT-MARRIN, INC. PGVP Vendor ID: H12012

6531 Box Springs Blvd • Riverside, CA 92507-0725
Phone: +1(951)653-6780 • Fax: +1(951)653-2430 • www.scottmarrin.com

Audit Gas

Report Of Analysis
EPA Protocol Gas Mixtures

ENIC01
TO: Environ International Corp
Attn: Kris Hansen
19020 - 33rd Avenue West, Ste 310
Lynnwood, WA 98036
(206) 794-6013

REPORT NO: 63653-01
REPORT DATE: September 6, 2013
CUSTOMER PO NO: 0324287K1

CYLINDER SIZE: 150A (141 std cu ft)
CYLINDER NUMBER: CC67204 **CYLINDER PRESSURE:** 2000 psig

COMPONENT	CONCENTRATION (v/v) ± EPA UNCERTAINTY	REFERENCE STANDARD		ANALYZER MAKE, MODEL, S/N, DETECTION	REPLICATE ANALYSIS DATA	
					3/11/2013	9/3/2013
Nitric oxide	10.71 ± 0.11 ppm	GMIS	SRM 2628a	TECO Model 42C	10.73 ppm	10.72 ppm
NOx	10.85 ppm		Samp#: 49-H-112	Serial # 57458-333	10.69 ppm	10.74 ppm
Nitrogen dioxide	0.14 ppm	Cyl#: CC37883	Cyl#: CAL016281	Continuous	10.72 ppm	10.76 ppm
		9.93 ± 0.1 ppm	10.08 ± 0.1 ppmv	Chemiluminescence	$\bar{x}$: 10.71 ppm	10.74 ppm
		Exp: 6/27/2016	Exp: 11/1/2013	**LAST CAL DATE:** 8/11/2013		
O2-free Nitrogen	Balance					

CERTIFICATION DATE: September 3, 2013 **EPA EXPIRATION DATE:** September 4, 2016

ppm = µmole/mole **% = mole-%** **$\bar{x}$ = EPA weighted mean**

The above analyses were performed in accordance with Procedure G1 of the EPA Traceability Protocol, Report Number EPA600/R-12/531, dated May 2012.

The above analyses should not be used if the cylinder pressure is less than 100 psig.

ANALYST: D.C. Marrin D.C.Marrin **APPROVED:** J. T. Marrin

The only liability of this company for gas which fails to comply with this analysis shall be replacement or reanalysis thereof by the company without extra cost.

IDAHO DEPARTMENT OF HEALTH & WELFARE

OZONE REVERIFICATION SUMMARY SHEET

Reference Standard:	API 400 Photometric Ozone Analyzer
Serial Number:	537
Verification Date:	2/22/13
Verification Entity:	CARB

Transfer Standard:	API 700 Dynamic Dilution Calibrator
Serial Number:	53
Organization:	Tetra Tech

RUN	DATE	SLOPE	INTERCEPT
1	06/03/13	1.02217	-0.93343
2	06/03/13	1.01837	-1.15545
3	06/04/13	1.02372	-1.26910
4	06/04/13	1.02229	-1.18270
5	06/04/13	1.02176	-1.31079
6	06/07/13	1.02308	-1.13701

RESULTS

RSD of Slopes (≤ 3.7%) = **. 19%**

Mean Slope = (Old 1-5) 1.02166 / (New) (1-6) = 1.0219

Mean Slope (Runs 1 – 5) vs. Run 6 Slope (≤ 5%) = **.14%**

Standard Deviation of Intercepts (≤ 1.5) = 0.13

Mean Intercept = (Old) -1.17029/ (New) -1.16475

XX = PASS

XX = FAIL

Verification performed by: T.Harris Date: 6/7/13

IDAHO DEPARTMENT OF HEALTH & WELFARE

Certification Date:6/3/13

API-400 Photometer Primary Standard	
S/N: 537	
Offset: -0.3	Slope: 1.026
CARB Certification Date: 2/22/13	
Log No.	

BP lab: 689.4
Temp. lab: 20.5

API-700U				
S/N:0053	Air Flow Setting: 3.5 L/min			
	Calibration Settings			
	Offset	0.5	Slope	1.004
As Found:				
Final:				

	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
	0.0	441.8	343.4	245.4	148.5	50.8	0.3	1	0.0	451.0	350.0	250.0	150.0	50.0	0.0
	0.1	441.6	343.3	245.7	148.3	50.6	0.3	2	0.0	451.0	350.0	250.0	150.0	50.0	0.0
	0.1	441.6	343.4	245.6	148.4	50.7	0.2	3	0.0	451.0	350.0	250.0	150.0	50.0	0.0
	0.2	441.5	343.5	245.7	148.4	50.8	0.3	4	0.0	451.0	350.0	250.0	150.0	50.0	0.0
	0.3	441.6	343.6	245.6	148.5	50.8	0.4	5	0.0	451.0	350.0	250.0	150.0	50.0	0.0
RESULTS															
Average	0.1	441.6	343.4	245.6	148.4	50.7	0.3		0.0	451.0	350.0	250.0	150.0	50.0	0.0

Slope= 1.02217 (Slope ≤ 5% of 1.00)

Offset= -0.93343 (-3 < Offset < 3 ppb)

RSQ= 1 (RSQ ≥ .9999)

PASS =

FAIL =

Comments:

400 vs 700 Regression Results (400 Photometer = X. 700 Calibrator = Y)

Certification performed by:

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.1	**PHOTO SPRESS(inch/hg):26.1**
SAMP FL(cc/min): 720	**PHOTO STEMP(c): 39.0**
SAMP TEMP(c):26	**PHOTO LAMP TEMP(c):58**
ALAMP TEMP(c):52	**PHOTO FLOW(LPM): .7000**
BOX TEMP(c): 29.1	**O3 FLOW(LPM): 3.5**
DCPS:2441	**OLAMP TEMP(c):48**
	REG PRESSURE:19.7
	BOX TEMP(c):28.1
	DIL PRESSURE(psig): 22.1

IDAHO DEPARTMENT OF HEALTH & WELFARE

Certification Date:6/3/13

API-400 Photometer Primary Standard	
S/N: 537	
Offset: -0.3	Slope: 1.026
CARB Certification Date: 2/22/13	
Log No.	

BP lab: 689.1
Temp. lab: 23.7

API-700U	
S/N:0053	Air Flow Setting: 3.5 L/min

Calibration Settings

	Offset	0.5 Slope	1.013	
As Found:				
Final:				

	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
	0.4	442.2	344.2	246.6	149.3	51.6	0.0	1	0.0	449.0	350.0	250.0	150.0	50.0	0.0
	0.3	442.3	344.3	246.8	149.4	51.7	0.1	2	0.0	449.0	350.0	250.0	150.0	50.0	0.0
	0.4	442.4	344.4	246.6	149.2	51.7	0.3	3	0.0	449.0	350.0	250.0	150.0	50.0	0.0
	0.4	442.3	344.2	246.6	149.2	51.7	0.3	4	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.4	442.7	344.3	246.7	149.2	51.6	0.2	5	0.0	450.0	350.0	250.0	150.0	50.0	0.0
RESULTS															
Average	0.4	442.4	344.3	246.7	149.3	51.7	0.2		0.0	449.4	350.0	250.0	150.0	50.0	0.0

Slope= 1.01837 (Slope ≤ 5% of 1.00)

Offset= -1.15545 (-3 < Offset < 3 ppb)

RSQ= 1 (RSQ ≥ .9999)

PASS =
FAIL =

Comments:

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.1	**PHOTO SPRESS(inch/hg):27.7**
SAMP FL(cc/min): 723	**PHOTO STEMP(c): 39.9**
SAMP TEMP(c):26.6	**PHOTO LAMP TEMP(c):58**
ALAMP TEMP(c):52.1	**PHOTO FLOW(LPM): .0031**
BOX TEMP(c): 30.1	**O3 FLOW(LPM):**
DCPS:2439	**OLAMP TEMP(c):48**
	REG PRESSURE:19.7
	BOX TEMP(c):28.7
	DIL PRESSURE(psig): 21.7

IDAHO DEPARTMENT OF HEALTH & WELFARE

Certification Date:6/4/13

API-400 Photometer Primary Standard	
S/N: 537	
Offset: -0.3	Slope: 1.026
CARB Certification Date: 2/22/13	
Log No.	

BP lab: 691
Temp. lab: 22.6

API-700U				
S/N:0053	Air Flow Setting: 3.5 L/min			
	Calibration Settings			
	Offset	0.5	Slope	1.013
As Found:				
Final:				

	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
	0.3	440.3	342.4	246.2	148.5	51.2	0.3	1	0.0	450.0	349.0	250.0	150.0	50.0	0.0
	0.3	440.3	342.5	245.9	148.7	51.2	0.3	2	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.4	440.1	342.6	246.0	148.8	51.2	0.3	3	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.3	440.1	342.7	246.1	148.8	51.2	0.4	4	0.0	450.0	349.0	250.0	150.0	50.0	0.0
	0.3	440.0	342.7	246.0	148.7	51.1	0.4	5	0.0	450.0	350.0	250.0	150.0	50.0	0.0
								RESULTS							
Average	0.3	440.2	342.6	246.0	148.7	51.2	0.3		0.0	450.0	349.6	250.0	150.0	50.0	0.0

Slope= 1.02372
(Slope ≤ 5% of 1.00)

Offset= -1.26910
(-3 < Offset < 3 ppb)

RSQ= 1
(RSQ ≥ .9999)

PASS =
FAIL =

Comments:

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.2	**PHOTO SPRESS(inch/hg):26.2**
SAMP FL(cc/min): 721	**PHOTO STEMP(c): 39.1**
SAMP TEMP(c):25.9	**PHOTO LAMP TEMP(c):58**
ALAMP TEMP(c):52	**PHOTO FLOW(LPM): .7080**
BOX TEMP(c): 29.2	**O3 FLOW(LPM): 3.5**
DCPS:2438	**OLAMP TEMP(c):48**
	REG PRESSURE:19.7
	BOX TEMP(c):28.1
	DIL PRESSURE(psig): 22.2

IDAHO DEPARTMENT OF HEALTH & WELFARE

Certification Date:6/4/13

API-400 Photometer Primary Standard	
S/N: 537	
Offset: -0.3	Slope: 1.026
CARB Certification Date: 2/22/13	
Log No.	

BP lab: 690.8
Temp. lab: 22.8

API-700U				
S/N:0053	Air Flow Setting: 3.5 L/min			
Calibration Settings	Offset	0.5	Slope	1.013
As Found:				
Final:				

Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
0.3	440.9	342.8	246.3	149.0	51.3	0.2	1	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.2	441.0	342.9	246.3	148.9	51.1	0.3	2	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.2	440.9	342.9	246.4	148.9	51.1	0.2	3	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.3	441.0	343.0	246.4	149.0	51.1	0.2	4	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.4	441.1	343.0	246.3	148.9	51.1	0.3	5	0.0	450.0	350.0	250.0	150.0	50.0	0.0
					RESULTS									
Average 0.3	441.0	342.9	246.3	148.9	51.1	0.2		0.0	450.0	350.0	250.0	150.0	50.0	0.0

Slope= 1.02229 (Slope ≤ 5% of 1.00)

Offset= -1.18270 (-3 < Offset < 3 ppb)

RSQ= 1 (RSQ ≥ .9999)

PASS =

FAIL =

Comments:

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.2	**PHOTO SPRESS(inch/hg):27.1**
SAMP FL(cc/min): 786	**PHOTO STEMP(c): 39.3**
SAMP TEMP(c):26.1	**PHOTO LAMP TEMP(c):58**
ALAMP TEMP(c):52	**PHOTO FLOW(LPM): .0033**
BOX TEMP(c): 29.7	**O3 FLOW(LPM): 3.5**
DCPS:2439	**OLAMP TEMP(c):48**
	REG PRESSURE:19.7
	BOX TEMP(c):28.4
	DIL PRESSURE(psig): 22.2

IDAHO DEPARTMENT OF HEALTH & WELFARE

Certification Date:6/4/13

API-400 Photometer Primary Standard							
S/N: 537							
Offset: -0.3		Slope: 1.026					
CARB Certification Date: 2/22/13			BP lab: 690.3				
Log No.			Temp. lab: 23.2				

API-700U				
S/N:0053	Air Flow Setting: 3.5 L/min			
	Calibration Settings			
	Offset	0.5	Slope	1.004
As Found:				
Final:				

	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
	0.2	441.1	343.4	246.9	149.4	51.4	0.3	1	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.3	441.0	343.3	246.8	149.3	51.3	0.3	2	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.4	441.0	343.3	246.9	149.3	51.2	0.3	3	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.4	441.1	343.3	246.8	149.1	51.3	0.2	4	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.3	441.2	343.4	246.8	149.0	51.3	0.2	5	0.0	450.0	350.0	250.0	150.0	50.0	0.0
RESULTS															
Average	0.3	441.1	343.3	246.8	149.2	51.3	0.3		0.0	450.0	350.0	250.0	150.0	50.0	0.0

Slope= 1.02176 (Slope ≤ 5% of 1.00)

Offset= -1.31079 (-3 < Offset < 3 ppb)

RSQ= 1 (RSQ ≥ .9999)

PASS =

FAIL =

Comments:

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.3	**PHOTO SPRESS(inch/hg):26.4**
SAMP FL(cc/min): 786	**PHOTO STEMP(c): 39.6**
SAMP TEMP(c):26.5	**PHOTO LAMP TEMP(c):58**
ALAMP TEMP(c): 52	**PHOTO FLOW(LPM): .7025**
BOX TEMP(c): 29.9	**O3 FLOW(LPM): .1060**
DCPS:2438	**OLAMP TEMP(c):48**
	REG PRESSURE:19.7
	BOX TEMP(c):28.5
	DIL PRESSURE(psig): 22.8

IDAHO DEPARTMENT OF HEALTH & WELFARE

Certification Date:6/7/13

API-400 Photometer Primary Standard				API-700U			
S/N: 537				S/N:0053	Air Flow Setting: 3.5 L/min		
Offset: -0.3	Slope: 1.026			Calibration Settings			
					Offset	0.5 Slope	1.004
CARB Certification Date: 2/22/13		BP lab: 688.2		As Found:			
Log No.		Temp. lab: 21.7		Final:			

	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
	0.4	440.9	342.5	245.9	148.3	51.3	0.3	1	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.4	441.0	342.5	246.0	148.2	51.3	0.4	2	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.2	441.1	342.2	246.0	148.2	51.3	0.3	3	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.3	441.1	342.2	246.1	148.3	51.2	0.3	4	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.4	441.0	342.2	246.1	148.3	51.3	0.4	5	0.0	450.0	350.0	250.0	150.0	50.0	0.0
RESULTS															
Average	0.3	441.0	342.3	246.0	148.3	51.3	0.3		0.0	450.0	350.0	250.0	150.0	50.0	0.0

Slope= 1.02308 (Slope ≤ 5% of 1.00)

Offset= -1.13701 (-3 < Offset < 3 ppb)

RSQ= 1 (RSQ ≥ .9999)

PASS =

FAIL =

Comments:

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.2	**PHOTO SPRESS(inch/hg):26.2**
SAMP FL(cc/min): 727	**PHOTO STEMP(c): 39.4**
SAMP TEMP(c):27.4	**PHOTO LAMP TEMP(c):58**
ALAMP TEMP(c):52.1	**PHOTO FLOW(LPM): 0.7060**
BOX TEMP(c): 30.2	**O3 FLOW(LPM): 3.5**
DCPS:2439	**OLAMP TEMP(c):48**
	REG PRESSURE:19.8
	BOX TEMP(c):28.9
	DIL PRESSURE(psig): 22.9

IDAHO DEPARTMENT OF HEALTH & WELFARE

OZONE REVERIFICATION SUMMARY SHEET

Reference Standard:	API 400 Photometric Ozone Analyzer
Serial Number:	537
Verification Date:	01/27/14
Verification Entity:	CARB

Transfer Standard:	API 700 Dynamic Dilution Calibrator
Serial Number:	53
Organization:	Tetra Tech

RUN	DATE	SLOPE	INTERCEPT
1	05/15/14	1.01840	-0.46490
2	05/15/14	1.02078	-0.73369
3	05/15/14	1.02151	-0.42209
4	05/16/14	1.01822	-0.43424
5	05/16/14	1.01945	-0.43196
6	05/16/14	1.01493	-0.38017

RESULTS

RSD of Slopes (≤ 3.7%) = 0.23 **%**

Mean Slope (Old/New) = 1.0219 (06/07/13) / 1.0189 (05/16/14)

Mean Slope Difference (Old 6x6 vs. New 6x6) (≤ 5%) = **0.29%**

Standard Deviation of Intercepts (≤ 1.5) = 0.13

Mean Intercept = (Old) -1.16475/ (New) -0.47784

XX = PASS

XX = FAIL

Verification performed by: T.Harris Date: 05/16/14

IDAHO DEPARTMENT OF HEALTH & WELFARE

Certification Date:5/15/14

API-400 Photometer Primary Standard	
S/N: 537	
Offset: -0.3	Slope: 1.026
CARB Certification Date: 01/27/2014	
Log No. 02014 030	

BP lab: 694
Temp. lab: 21.5

API-700EU				
S/N:0053	Air Flow Setting: 3.5 L/min			
	Calibration Settings			
	Offset	0.1	Slope	1.002
As Found:				
Final:				

	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
	0.3	442.8	342.6	244.8	147.6	49.8	0.3	1	0.0	452.0	350.0	250.0	150.0	50.0	0.0
	0.3	443.0	342.7	244.7	147.6	49.6	0.3	2	0.0	452.0	350.0	250.0	150.0	50.0	0.0
	0.2	442.8	342.8	244.8	147.7	49.5	0.2	3	0.0	452.0	350.0	250.0	150.0	50.0	0.0
	0.4	442.7	342.7	244.7	147.7	49.6	0.2	4	0.0	451.0	350.0	250.0	150.0	50.0	0.0
	0.3	442.8	342.7	244.8	147.7	49.7	0.3	5	0.0	451.0	350.0	250.0	150.0	50.0	0.0
						RESULTS									
Average	0.3	442.8	342.7	244.8	147.7	49.6	0.3		0.0	451.6	350.0	250.0	150.0	50.0	0.0

Slope= 1.02151 (Slope ≤ 5% of 1.00)

Offset= -0.42209 (-3 < Offset < 3 ppb)

RSQ= 1 (RSQ ≥ .9999)

PASS =
FAIL =

Comments:

1 of 6

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.3	**PHOTO SPRESS(inch/hg):27.3**
SAMP FL(cc/min): 732	**PHOTO STEMP(c): 37.3**
SAMP TEMP(c):25.8	**PHOTO LAMP TEMP(c):58**
ALAMP TEMP(c):52.1	**PHOTO FLOW(LPM): 0.6969**
BOX TEMP(c): 28.4	**O3 FLOW(LPM): 0.1060**
DCPS:2448	**OLAMP TEMP(c): 48.0**
	REG PRESSURE:19
	BOX TEMP(c):27.9
	DIL PRESSURE(psig): 20.6

IDAHO DEPARTMENT OF HEALTH & WELFARE

Certification Date:5/15/14

API-400 Photometer Primary Standard	
S/N: 537	
Offset: -0.3	Slope: 1.026
CARB Certification Date: 01/27/2014	BP lab: 694
Log No. 02014 030	Temp. lab: 21.5

API-700EU	
S/N:0053	Air Flow Setting: 3.5 L/min

Calibration Settings

	Offset	0.1 Slope		1.002
As Found:				
Final:				

Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
0.3	441.3	343.5	245.3	148.8	50.0	0.2	1	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.1	441.5	343.4	245.3	148.9	50.1	0.3	2	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.2	441.3	343.4	245.2	149.1	50.1	0.3	3	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.2	441.4	343.5	245..1	149.0	50.0	0.2	4	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.1	441.4	343.4	245.4	149.0	50.1	0.3	5	0.0	450.0	350.0	250.0	150.0	50.0	0.0
					RESULTS									
Average 0.2	441.4	343.4	245.3	149.0	50.1	0.3		0.0	450.0	350.0	250.0	150.0	50.0	0.0

Slope= 1.02078 (Slope ≤ 5% of 1.00)

Offset= -0.73369 (-3 < Offset < 3 ppb)

RSQ= 1 (RSQ ≥ .9999)

PASS =

FAIL =

Comments:

2 of 6

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.3	**PHOTO SPRESS(inch/hg):27.3**
SAMP FL(cc/min): 732	**PHOTO STEMP(c): 37.3**
SAMP TEMP(c):25.8	**PHOTO LAMP TEMP(c):58**
ALAMP TEMP(c):52.1	**PHOTO FLOW(LPM): 0.6969**
BOX TEMP(c): 28.4	**O3 FLOW(LPM): 0.1060**
DCPS:2441	**OLAMP TEMP(c): 48.0**
	REG PRESSURE:19
	BOX TEMP(c):27.9
	DIL PRESSURE(psig): 20.6

IDAHO DEPARTMENT OF HEALTH & WELFARE

Certification Date:5/15/14

API-400 Photometer Primary Standard	
S/N: 537	
Offset: -0.3	Slope: 1.026
CARB Certification Date: 01/27/2014	
Log No. 02014 030	

BP lab: 692.9
Temp. lab: 22.2

API-700EU				
S/N:0053	Air Flow Setting: 3.5 L/min			
	Calibration Settings			
	Offset	0.1	Slope	1.002
As Found:				
Final:				

	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
	0.3	442.1	344.1	246.1	147.9	49.7	0.4	1	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.4	442.2	344.2	246.0	148.0	49.8	0.3	2	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.3	442.1	344.2	245.9	147.9	49.7	0.3	3	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.3	442.2	344.2	246.0	147.7	49.6	0.4	4	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.2	442.2	344.3	246.1	147.9	49.7	0.3	5	0.0	450.0	350.0	250.0	150.0	50.0	0.0
RESULTS															
Average	0.3	442.2	344.2	246.0	147.9	49.7	0.3		0.0	450.0	350.0	250.0	150.0	50.0	0.0

Slope= 1.01841 (Slope ≤ 5% of 1.00)

Offset= -0.46490 (-3 < Offset < 3 ppb)

RSQ= 1 (RSQ ≥ .9999)

PASS =
FAIL =

Comments:

3 of 6

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.3	**PHOTO SPRESS(inch/hg):27.9**
SAMP FL(cc/min): 732	**PHOTO STEMP(c): 38.4**
SAMP TEMP(c):25.6	**PHOTO LAMP TEMP(c):58**
ALAMP TEMP(c):52.1	**PHOTO FLOW(LPM): 0.6986**
BOX TEMP(c): 28.9	**O3 FLOW(LPM): 0.1060**
DCPS:2447	**OLAMP TEMP(c): 48.0**
	REG PRESSURE:19
	BOX TEMP(c):27.9
	DIL PRESSURE(psig): 20.6

IDAHO DEPARTMENT OF HEALTH & WELFARE

Certification Date:5/16/14

API-400 Photometer Primary Standard	
S/N: 537	
Offset: -0.3	Slope: 1.026
CARB Certification Date: 01/27/2014	BP lab: 689
Log No. 02014 030	Temp. lab: 20.5

API-700EU	
S/N:0053	Air Flow Setting: 3.5 L/min

Calibration Settings

	Offset	0.1 Slope	1.002	
As Found:				
Final:				

Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
0.2	441.9	343.3	245.9	148.0	49.6	0.1	1	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.3	441.6	343.4	245.9	147.9	49.7	0.1	2	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.2	441.7	343.5	245.9	147.9	49.7	0.2	3	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.2	441.9	343.6	245.8	148.0	49.7	0.2	4	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.2	441.9	343.5	245.7	148.0	49.8	0.1	5	0.0	450.0	350.0	250.0	150.0	50.0	0.0
RESULTS														
Average 0.2	441.8	343.5	245.8	148.0	49.7	0.1		0.0	450.0	350.0	250.0	150.0	50.0	0.0

Slope= 1.01945 (Slope ≤ 5% of 1.00)

Offset= -0.43196 (-3 < Offset < 3 ppb)

RSQ= 1 (RSQ ≥ .9999)

PASS =

FAIL =

Comments:

4 of 6

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.2	**PHOTO SPRESS(inch/hg):26.3**
SAMP FL(cc/min): 726	**PHOTO STEMP(c): 33.1**
SAMP TEMP(c):25.1	**PHOTO LAMP TEMP(c):58**
ALAMP TEMP(c):52.1	**PHOTO FLOW(LPM): 0.6931**
BOX TEMP(c): 28.1	**O3 FLOW(LPM): 0.1060**
DCPS:2447	**OLAMP TEMP(c): 48.0**
	REG PRESSURE:19
	BOX TEMP(c):25.5
	DIL PRESSURE(psig): 21

IDAHO DEPARTMENT OF HEALTH & WELFARE

Certification Date:5/16/14

API-400 Photometer Primary Standard	
S/N: 537	
Offset: -0.3	Slope: 1.026
CARB Certification Date: 01/27/2014	BP lab: 688.9
Log No. 02014 030	Temp. lab: 21

API-700EU				
S/N:0053	Air Flow Setting: 3.5 L/min			
Calibration Settings	Offset	0.1	Slope	1.002
As Found:				
Final:				

	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
	0.1	442.1	344.2	246.2	147.9	49.9	0.3	1	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.1	442.1	344.3	246.2	147.7	49.9	0.3	2	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.0	442.0	344.4	246.3	147.9	50.0	0.2	3	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.0	442.1	344.2	246.3	147.8	50.0	0.2	4	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.1	442.0	344.3	246.2	147.7	49.9	0.2	5	0.0	450.0	350.0	250.0	150.0	50.0	0.0
RESULTS															
Average	0.1	442.1	344.3	246.2	147.8	49.9	0.2		0.0	450.0	350.0	250.0	150.0	50.0	0.0

Slope= 1.01822 (Slope ≤ 5% of 1.00)

Offset= -0.43424 (-3 < Offset < 3 ppb)

RSQ= 1 (RSQ ≥ .9999)

PASS =

FAIL =

Comments:

5 of 6

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.2	**PHOTO SPRESS(inch/hg):26.3**
SAMP FL(cc/min): 726	**PHOTO STEMP(c): 33.1**
SAMP TEMP(c):25.1	**PHOTO LAMP TEMP(c):58**
ALAMP TEMP(c):52.1	**PHOTO FLOW(LPM): 0.6931**
BOX TEMP(c): 28.1	**O3 FLOW(LPM): 0.1060**
DCPS:2447	**OLAMP TEMP(c): 48.0**
	REG PRESSURE:19
	BOX TEMP(c):25.5
	DIL PRESSURE(psig): 21

IDAHO DEPARTMENT OF HEALTH & WELFARE

Certification Date:5/16/14

API-400 Photometer Primary Standard	
S/N: 537	
Offset: -0.3	Slope: 1.026
CARB Certification Date: 01/27/2014	
Log No. 02014 030	

BP lab: 688.9
Temp. lab: 21.7

API-700EU				
S/N:0053	Air Flow Setting: 3.5 L/min			
	Calibration Settings			
	Offset	0.1	Slope	1.002
As Found:				
Final:				

	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
	0.3	443.6	345.2	246.8	148.4	49.8	0.2	1	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.2	443.6	345.2	246.7	148.4	49.9	0.1	2	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.4	443.7	345.2	246.8	148.4	49.9	0.1	3	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.3	443.7	345.1	246.8	148.3	49.7	0.2	4	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.2	443.8	345.1	246.8	148.3	49.8	0.2	5	0.0	450.0	350.0	250.0	150.0	50.0	0.0
RESULTS															
Average	0.3	443.7	345.2	246.8	148.4	49.8	0.2		0.0	450.0	350.0	250.0	150.0	50.0	0.0

Slope= 1.01493 (Slope ≤ 5% of 1.00)

Offset= -0.38017 (-3 < Offset < 3 ppb)

RSQ= 1 (RSQ ≥ .9999)

PASS =
FAIL =

Comments:

6 of 6

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.2	**PHOTO SPRESS(inch/hg):26.3**
SAMP FL(cc/min): 725	**PHOTO STEMP(c): 38.0**
SAMP TEMP(c):25.4	**PHOTO LAMP TEMP(c):58**
ALAMP TEMP(c):52.1	**PHOTO FLOW(LPM): 0.6931**
BOX TEMP(c): 29.1	**O3 FLOW(LPM): 0.1060**
DCPS:2447	**OLAMP TEMP(c): 48.0**
	REG PRESSURE:19
	BOX TEMP(c):28.5
	DIL PRESSURE(psig): 21

IDAHO DEPARTMENT OF
HEALTH & WELFARE

OZONE VERIFICATION SUMMARY SHEET

Reference Standard:	API 400 Photometric Ozone Analyzer
Serial Number:	537
Verification Date:	03/27/15
Verification Entity:	CARB

Transfer Standard:	API T700 Dynamic Dilution Calibrator
Serial Number:	53
Organization:	Tetra Tech

RUN	DATE	SLOPE	INTERCEPT
1	04/29/2015	1.02854	-0.01664
2	04/29/2015	1.02958	0.01291
3	04/29/2015	1.03040	0.10561
4	04/30/2015	1.03305	0.13721
5	04/30/2015	1.03142	-0.32405
6	05/01/2015	1.03006	0.04929

RESULTS

RSD of Slopes (≤ 3.7%) = **0.16%**

Mean Slope = (Old 5/16/14) 1.0189 / (New -5/1/15) 1.03051

Mean Slope (Old (1.0189)) vs. (New (1.03051) Slope (≤ 5%) = **0.01%**

Mean Intercept =(Old 5/16/14) -0.47784/ (New – 5/1/15) -0.00595

Standard Deviation of Intercepts (≤ 1.5) =**0.17**

XX = PASS

XX = FAIL

Verification performed by: T. Harris

Date: 05/01/15

IDAHO DEPARTMENT OF
HEALTH & WELFARE

Certification Date:5/1/15

API-400 Photometer Primary Standard	
S/N: 537	
Offset: -0.3	Slope: 1.026
CARB Certification Date: 03/27/15	BP lab: 695.5
Log No. 2015 089	Temp. lab: 21.0

API-T700				
S/N:0053	Air Flow Setting: 3.5 L/min			
	Calibration Settings			
	Offset		0.1 Slope	1.002
As Found:				
Final:				

Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
0.0	437.5	339,4	242.1	145.7	48.2	0.2	1	0.0	450.0	350.0	250.0	150.0	50.0	0.0
-0.1	437.2	339.7	242.3	145.6	48.3	0.2	2	0.0	450.0	350.0	250.0	150.0	50.0	0.0
-0.1	437.1	339.7	242.4	145.5	48.3	0.1	3	0.0	451.0	350.0	250.0	150.0	50.0	0.0
0.0	437.2	339.6	242.4	145.7	48.4	0.1	4	0.0	450.0	350.0	250.0	150.0	50.0	0.0
1.0	437.4	339.8	242.1	145.5	48.1	0.0	5	0.0	450.0	350.0	250.0	150.0	50.0	0.0
							RESULTS							
Average	0.2	437.3	339.7	242.3	145.6	48.3	0.1		0.0	450.2	350.0	250.0	150.0	50.0	0.0

Slope= 1.03006
(Slope ≤ 5% of 1.00)

Offset= 0.04929
(-3 < Offset < 3 ppb)

RSQ= 1.000
(RSQ ≥ .9999)

Comments:

Run 6/6

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.2	PHOTO SPRESS(inch/hg):26.3
SAMP FL(cc/min): 724	PHOTO STEMP(c): 34.3
SAMP TEMP(c):28.1	PHOTO LAMP TEMP(c):58
ALAMP TEMP(c):52	PHOTO FLOW(LPM): 0.6847
BOX TEMP(c): 30.1	O3 FLOW(LPM): 0.1060
DCPS:2450	OLAMP TEMP(c):48
	REG PRESSURE:19.9
	BOX TEMP(c):28.2

IDAHO DEPARTMENT OF
HEALTH & WELFARE

Certification Date:4/29/15

API-400 Photometer Primary Standard	
S/N: 537	
Offset: -0.3	Slope: 1.026
CARB Certification Date: 03/27/15	BP lab: 690.4
Log No. 2015 089	Temp. lab: 22.7

API-T700	
S/N:0053	Air Flow Setting: 3.5 L/min

Calibration Settings

	Offset	0.1 Slope	1.002	
As Found:				
Final:				

Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
0.2	438.0	339.8	243.8	145.8	48.0	0.1	1	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.3	438.0	339.9	243.6	145.7	48.0	0.2	2	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.3	438.2	339.8	243.5	145.9	48.1	0.1	3	0.0	451.0	350.0	250.0	150.0	50.0	0.0
0.4	438.2	339.7	243.7	146.0	48.1	0.1	4	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.2	438.1	339.7	243.4	145.9	48.0	0.3	5	0.0	451.0	350.0	250.0	150.0	50.0	0.0
							RESULTS							
Average	0.3	438.1	339.8	243.6	145.9	48.0	0.2		0.0	450.4	350.0	250.0	150.0	50.0	0.0

Slope= 1.02854
(Slope ≤ 5% of 1.00)

Offset= -0.01664
(-3 < Offset < 3 ppb)

RSQ= 1.000
(RSQ ≥ .9999)

Comments:
Run 1/6

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.2	PHOTO SPRESS(inch/hg):26.6
SAMP FL(cc/min): 724	PHOTO STEMP(c): 33.9
SAMP TEMP(c):26.4	PHOTO LAMP TEMP(c):58
ALAMP TEMP(c):52	PHOTO FLOW(LPM): 0.4678
BOX TEMP(c): 28.6	O3 FLOW(LPM): 0.1060
DCPS:2450	OLAMP TEMP(c):48
	REG PRESSURE:19.9
	BOX TEMP(c):25.7

IDAHO DEPARTMENT OF
HEALTH & WELFARE

Certification Date:4/29/15

API-400 Photometer Primary Standard	
S/N: 537	Slope: 1.026
Offset: -0.3	
CARB Certification Date: 03/27/15	BP lab: 690.4
Log No. 2015 089	Temp. lab: 22.7

API-T700	
S/N:0053	Air Flow Setting: 3.5 L/min

Calibration Settings

	Offset	0.1 Slope		1.002
As Found:				
Final:				

Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
0.1	438.4	339.5	242.2	144.9	49.2	0.1	1	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.1	438.6	339.5	242.3	144.8	49.1	0.1	2	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.3	438.5	339.4	242.4	144.9	49.2	0.0	3	0.0	451.0	350.0	250.0	150.0	50.0	0.0
0.2	438.4	339.4	242.5	145.0	49.2	0.2	4	0.0	451.0	350.0	250.0	150.0	50.0	0.0
0.2	438.3	339.5	242.4	144.9	49.1	0.0	5	0.0	451.0	350.0	250.0	150.0	50.0	0.0
							RESULTS							
Average	0.2	438.4	339.5	242.4	144.9	49.2	0.1		0.0	450.6	350.0	250.0	150.0	50.0	0.0

Slope= 1.02958 (Slope ≤ 5% of 1.00)

Offset= 0.01291 (-3 < Offset < 3 ppb)

RSQ= 1.000 (RSQ ≥ .9999)

400 Settings	700 Settings
PRES (inch/hg): 27.2	PHOTO SPRESS(inch/hg):26.6
SAMP FL(cc/min): 724	PHOTO STEMP(c): 33.9
SAMP TEMP(c):26.4	PHOTO LAMP TEMP(c):58
ALAMP TEMP(c):52	PHOTO FLOW(LPM): 0.4678
BOX TEMP(c): 28.6	O3 FLOW(LPM): 0.1060
DCPS:2450	OLAMP TEMP(c):48
	REG PRESSURE:19.9
	BOX TEMP(c):25.7

Comments:

Run 2/6

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

IDAHO DEPARTMENT OF
HEALTH & WELFARE

Certification Date:4/29/15

API-400 Photometer Primary Standard	
S/N: 537	Slope: 1.026
Offset: -0.3	
CARB Certification Date: 03/27/15	BP lab: 690.2
Log No. 2015 089	Temp. lab: 22.3

API-T700	
S/N:0053	Air Flow Setting: 3.5 L/min

Calibration Settings

	Offset	0.1 Slope		1.002
As Found:				
Final:				

Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
0.0	436.1	340.2	243.2	144.4	48.3	0.2	1	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.2	436.0	340.2	243.1	144.4	48.3	0.1	2	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.2	436.0	340.4	243.2	144.3	48.3	0.2	3	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.1	436.1	340.5	243.0	144.5	48.3	0.0	4	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.1	436.0	340.5	243.1	144.4	48.2	-0.1	5	0.0	450.0	350.0	250.0	150.0	50.0	0.0
							RESULTS							
Average	0.1	436.0	340.4	243.1	144.4	48.3	0.1		0.0	450.0	350.0	250.0	150.0	50.0	0.0

Slope= 1.0304 (Slope ≤ 5% of 1.00)

Offset= 0.10561 (-3 < Offset < 3 ppb)

RSQ= 1.000 (RSQ ≥ .9999)

400 Settings	700 Settings
PRES (inch/hg): 27.2	PHOTO SPRESS(inch/hg):26.6
SAMP FL(cc/min): 724	PHOTO STEMP(c): 33.9
SAMP TEMP(c):26.4	PHOTO LAMP TEMP(c):58
ALAMP TEMP(c):52	PHOTO FLOW(LPM): 0.4678
BOX TEMP(c): 28.6	O3 FLOW(LPM): 0.1060
DCPS:2450	OLAMP TEMP(c):48
	REG PRESSURE:19.9
	BOX TEMP(c):25.7

Comments:

Run 3/6

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

IDAHO DEPARTMENT OF
HEALTH & WELFARE

Certification Date:4/30/15

API-400 Photometer Primary Standard		
S/N: 537	Slope: 1.026	
Offset: -0.3		
CARB Certification Date: 03/27/15	BP lab: 695.5	
Log No. 2015 089	Temp. lab: 21.0	

API-T700				
S/N:0053	Air Flow Setting: 3.5 L/min			
	Calibration Settings			
	Offset	0.1	Slope	1.002
As Found:				
Final:				

Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
1	0.0	436.4	338.4	241.2	144.6	48.8	0.2
2	0.0	436.3	338.3	241.2	144.4	48.7	0.1
3	0.0	436.3	338.3	241.1	144.5	48.8	0.2
4	0.0	436.4	338.1	241.2	144.4	48.8	0.1
5	0.0	436.2	338.3	241.0	144.4	48.8	0.1

RESULTS

	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
Average	0.0	436.3	338.3	241.1	144.5	48.8	0.1
	0.0	450.0	350.0	250.0	150.0	50.0	0.0

Slope= 1.03305 (Slope ≤ 5% of 1.00)

Offset= 0.13721 (-3 < Offset < 3 ppb)

RSQ= 1.000 (RSQ ≥ .9999)

Comments:

Run 4/6

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.2	PHOTO SPRESS(inch/hg):26.3
SAMP FL(cc/min): 724	PHOTO STEMP(c): 34.3
SAMP TEMP(c):28.1	PHOTO LAMP TEMP(c):58
ALAMP TEMP(c):52	PHOTO FLOW(LPM): 0.6847
BOX TEMP(c): 30.1	O3 FLOW(LPM): 0.1060
DCPS:2450	OLAMP TEMP(c):48
	REG PRESSURE:19.9
	BOX TEMP(c):28.1

IDAHO DEPARTMENT OF
HEALTH & WELFARE

Certification Date:4/30/15

API-400 Photometer Primary Standard	
S/N: 537	Slope: 1.026
Offset: -0.3	
CARB Certification Date: 03/27/15	BP lab: 695.5
Log No. 2015 089	Temp. lab: 21.0

API-T700	
S/N:0053	Air Flow Setting: 3.5 L/min

Calibration Settings

	Offset	0.1 Slope		1.002
As Found:				
Final:				

Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
1	0.3	436.7	339.4	243.4	144.9	49.7	-0.1
2	0.2	436.7	339.5	243.4	145.0	49.5	0.0
3	0.2	436.6	339.4	243.3	145.2	49.5	0.1
4	0.1	436.5	339.3	243.2	145.2	49.4	0.1
5	0.1	436.5	339.3	243.4	145.1	49.4	0.1

RESULTS

	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
Average	0.2	436.6	339.4	243.3	145.1	49.5	0.0

	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.0	450.0	350.0	250.0	150.0	50.0	0.0

Slope= 1.03142 (Slope ≤ 5% of 1.00)

Offset= -0.32405 (-3 < Offset < 3 ppb)

RSQ= 1.000 (RSQ ≥ .9999)

Comments:

Run 5/6

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.2	PHOTO SPRESS(inch/hg):26.3
SAMP FL(cc/min): 724	PHOTO STEMP(c): 34.3
SAMP TEMP(c):28.1	PHOTO LAMP TEMP(c):58
ALAMP TEMP(c):52	PHOTO FLOW(LPM): 0.6847
BOX TEMP(c): 30.1	O3 FLOW(LPM): 0.1060
DCPS:2450	OLAMP TEMP(c):48
	REG PRESSURE:19.9
	BOX TEMP(c):28.2

Pre-Cal Gas (200 sccm) S/N 5642700001					Post-Cal Gas (200 sccm) S/N 5642700001				
% Full Scale	Set Point (STP)	Target (Volumetric)	Actual (Volumetric)	% Difference	% Full Scale	Set Point (STP)	Target (Volumetric)	Actual (Volumetric)	% Difference
10.0%	20	23.92	25.44	-6.34%	10.0%	20	23.92	23.87	0.23%
20.0%	40	47.85	50.12	-4.75%	20.0%	40	47.85	47.84	0.02%
35.0%	60	71.77	74.98	-4.47%	30.0%	60	71.77	72.12	-0.48%
50.0%	100	119.62	124.91	-4.42%	50.0%	100	119.62	119.91	-0.24%
65.0%	130	155.51	161.37	-3.77%	65.0%	130	155.51	156.88	-0.88%
80.0%	160	191.39	201.12	-5.08%	80.0%	160	191.39	193.83	-1.27%
90.0%	180	215.32	226.78	-5.32%	90.0%	180	215.32	216.91	-0.74%

RSQ	0.999876724
Intercept	0.285547198
Slope	0.952191365
Mean % Diff.	4.88%

RSQ	0.999967466
Intercept	0.52164091
Slope	0.988412073
Mean % Diff.	0.55%

STD TEMP (K)	273
STD BP (mmHg)	760
ACTUAL TEMP (K)	297
ACTUAL BP (mmHg)	691.2

Multiplication Factor (Convert to Volumetric)	1.196199634

Pre-Cal Zero (20 LPM) S/N 6603500002					Post-Cal Zero (20 LPM) S/N 6603500002				
% Full Scale	Set Point (STP)	Target (Volumetric)	Actual (Volumetric)	% Difference	% Full Scale	Set Point (STP)	Target (Volumetric)	Actual (Volumetric)	% Difference
10.0%	2000	2372.47	2583.50	-8.89%	10.0%	2000	2372.47	2354.70	0.75%
20.0%	4000	4744.94	4996.10	-5.29%	20.0%	4000	4744.94	4692.10	1.11%
35.0%	7000	8303.65	8914.20	-7.35%	30.0%	7000	8303.65	8251.60	0.63%
50.0%	10000	11862.36	12756.00	-7.53%	50.0%	10000	11862.36	11832.00	0.26%
65.0%	13000	15421.06	16321.00	-5.84%	65.0%	13000	15421.06	15410.00	0.07%
80.0%	16000	18979.77	19997.00	-5.36%	80.0%	16000	18979.77	18931.00	0.26%
90.0%	18000	21352.24	23428.00	-9.72%	90.0%	18000	21352.24	21220.00	0.62%

RSQ	0.998731761
Intercept	92.47946487
Slope	0.925764446
Mean % Diff.	7.14%

RSQ	0.999977024
Intercept	14.36705484
Slope	1.002957192
Mean % Diff.	0.53%

STD TEMP (K)	273
STD BP (mmHg)	760
ACTUAL TEMP (K)	294.1
ACTUAL BP (mmHg)	690.2

Multiplication Factor (Convert to Volumetric)	1.186235768

Pre - Cal (20 ccm) S/N 5503200002					Post - Cal Gas (20 sccm) S/N 5503200002				
% Full Scale	Set Point (STP)	Target (Volumetric)	Actual (Volumetric)	% Difference	% Full Scale	Set Point (STP)	Target (Volumetric)	Actual (Volumetric)	% Difference
10.0%	2	2.39	2.59	-8.36%	10.0%	2	2.39	2.42	-1.25%
20.0%	4	4.78	5.21	-8.99%	20.0%	4	4.78	4.79	-0.21%
35.0%	7	8.37	8.90	-6.39%	30.0%	7	8.37	8.40	-0.41%
50.0%	10	11.95	12.46	-4.26%	50.0%	10	11.95	12.01	-0.50%
65.0%	13	15.54	16.06	-3.38%	65.0%	13	15.54	15.52	0.10%
80.0%	16	19.12	19.51	-2.04%	80.0%	16	19.12	19.06	0.32%
90.0%	18	21.51	21.91	-1.86%	90.0%	18	21.51	21.67	-0.74%

RSQ	0.99976578
Intercept	-0.361403693
Slope	0.994726108
Mean % Diff.	5.04%

RSQ	0.999912557
Intercept	-0.008805706
Slope	0.998150519
Mean % Diff.	0.50%

STD TEMP (K)	273
STD BP (mmHg)	760
ACTUAL TEMP (K)	297.1
ACTUAL BP (mmHg)	692.1

Multiplication Factor (Convert to Volumetric)	1.195046345

BGI INCORPORATED 58 GUINAN STREET WALTHAM, MA 02451

NIST Traceable Calibration Facility, ISO 9001:2008 Registered

tetraCal

CERTIFICATE OF CALIBRATION - NIST TRACEABILITY

(Refer to instruction manual for further details of calibration)

tetraCal Serial Number: **939** DATE: 17-Jan-14

Calibration Operator: Sean Crossman

Critical Venturi Flow Meter: Max Uncertainity = 0.346%
Serial Number: 1 *CEESI NVLAP NIST Data File 04BGI151*
Serial Number: 2 *CEESI NVLAP NIST Data File 04BGI152*
Serial Number: 3 *CEESI NVLAP NIST Data File 04BGI153*

Room Temperature: Uncertainity=0.071% Room Temperature: 21.7 C
Brand: Ever-Safe Serial Number: 016076
NIST Traceability No. 516837
tetraCal:
Ambient Temperature (set): 21.7 C
Aux (filter) Temperature (set): C

Barometric Pressure and Absolute Pressure
Vaisala Model PTB330(50-1100) Digital Accuracy: 0.03371%
S/N D4310002
NIST Traceable (Princo Primary Standard Model 453 S/N W12537) Certificate No. P-7485
tetraCal:
Barometric pressure (set): 759.5 mm of Hg

Results of Venturi Calibration
Flow Rate (Q) vs. Pressure Drop (ΔP). Where: Q=Lpm, ΔP= Cm of H2O

No. 1 Q = 5.46840 ΔP ^ 0.51575
No. 2 Q = 1.15688 ΔP ^ 0.52283
No. 3 Q = 0.21498 ΔP ^ 0.53967

Overall Uncertainty: 0.35%

Date Placed In Service_____
(To be filled in by operator upon receipt)

Recommended Recalibration Date _____
(12 months from date placed in service)

Revised: July 2012

To Check a Tetra Cal Date 17-Jan-14 Sean Crossman
6 - 30.00 Lpm BP= 759.5 mm of Hg
VER. 3.41P

Maximum allowable error at any flow rate is .75%.
Serial No. 939

Reading Abs. P Crit. Vent. mm of Hg	Room TEMP	Crit. Vent. TEMP	CV Qa Flow Lpm	Qa 760/20 Flow Lpm	Qa TriCal Indicated	%Error	
184.02	21.7	20.9	7.09	7.13	7.17	**0.54**	
421.12	21.7	20.9	16.47	16.57	16.5	**-0.45**	**Average %**
723.54	21.7	20.9	28.44	28.62	28.7	**0.28**	**0.12**

To Check a Tetra Cal BP= 759.5 mm of Hg
1.20 - 6.00 Lpm

Reading Abs. P Crit. Vent. mm of Hg	Room TEMP	Crit. Vent. TEMP	CV Qa Flow Lpm	Qa 760/20 Flow Lpm	QA TriCal Indicated	% Error	
163.1	21.7	20.9	1.79	1.80	1.814	**0.52**	
331.7	21.7	20.9	3.70	3.72	3.7	**-0.54**	**Average %**
483.6	21.7	20.9	5.41	5.44	5.45	**0.09**	**0.02**

To Check a Tetra Cal BP= 759.5 mm of Hg
0.10 - 1.20 Lpm

Reading Abs. P Crit. Vent. mm of Hg	Room TEMP	Crit. Vent. TEMP	CV Qa Flow Lpm	Qa 760/20 Flow Lpm	QA TriCal Indicated	% Error	
168.42	21.7	21.0	0.293	0.295	0.294	**-0.29**	
385.15	21.7	21.0	0.708	0.712	0.711	**-0.19**	**Average %**
568.87	21.7	21.0	1.059	1.066	1.070	**0.34**	**-0.05**

Mesa Labs 10 Park Place Butler, NJ 07405
NIST Traceable Calibration Facility, ISO 9001:2008 Registered

MesaLabs

CERTIFICATE OF CALIBRATION - NIST TRACEABILITY

(Refer to instruction manual for further details of calibration)

tetraCal Serial Number: **939** DATE: 21-Jan-2015

Calibration OperatorE. Albujar

Critical Venturi Flow Meter: Max Uncertainity = 0.346%
Serial Number: 1A *CEESI NVLAP NIST Data File 07BGI-0001*
Serial Number: 2A *CEESI NVLAP NIST Data File 07BGI-0003*
Serial Number: 3A *CEESI NVLAP NIST Data File 07BGI-0004*
Serial Number: 4A *CEESI NVLAP NIST Data File 07BGI-0002*

Room Temperature: Uncertainity=0.071% Room Temperature: 23.3 °C
Brand: Accu-Safe Serial Number: 254881
NIST Traceability No. 516837
tetraCal:
Ambient Temperature (set): 23.3 °C
Aux (filter) Temperature (set): °C

Barometric Pressure ans Absolute Pressure
Vaisala Model PTB330(50-1100) Digital Accuracy: 0.03371%
S/N DH085001
NIST Traceable (Princo Primary Standard Model 453 S/N W12537) Certificate No. P-7485
tetraCal:
Barometric pressure (set): 754 mm of Hg

Results of Venturi Calibration
Flow Rate (Q) vs. Pressure Drop (ΔP). Where: Q=Lpm, ΔP= Cm of H2O

No. 1 C 5.48607 ΔP ^ 0.51700
No. 2 C 1.16032 ΔP ^ 0.52378
No. 3 C 0.21553 ΔP ^ 0.53109

Overall Uncertainty: 0.35%

Date Placed In Service_____
(To be filled in by operator upon receipt)

Recommended Recalibration Date _____
(12 months from date placed in service)

Revised: October 2014
Cal102-03T2 Rev A

To Check a Tetra Cal 21-Jan-2015 E. Albujar
6 - 30.00 Lpm BP= 754 mm of Hg
VER. 3.41P

Maximum allowable error at any flow rate is .75%.
Serial No. 939

Reading Abs. P Crit. Vent. mm of Hg	Room TEMP	CV Qa Flow Lpm	Qa TriCal Indicated	% Error	
238.81	23.3	9.50	9.52	**0.19**	
414.66	23.3	16.61	16.56	**-0.31**	**Average %**
691.97	23.3	27.82	27.90	**0.28**	**0.05**

To Check a Tetra Cal BP= 754 mm of Hg
1.20 - 6.00 Lpm

Reading Abs. P Crit. Vent. mm of Hg	Room TEMP	CV Qa Flow Lpm	Qa Tri Cal Indicated	% Error	
163.9	23.3	1.85	1.86	**0.33**	
309.0	23.3	3.53	3.51	**-0.52**	**Average %**
518.7	23.3	5.96	5.97	**0.22**	**0.01**

To Check a Tetra Cal BP= 755 mm of Hg
0.10 - 1.20 Lpm

Reading Abs. P Crit. Vent. mm of Hg	Room TEMP	CV Qa Flow Lpm	Qa TriCal Indicated	% Error	
211.49	23.8	0.378	0.38	**0.62**	
346.7	23.8	0.635	0.632	**-0.51**	**Average %**
617.43	23.8	1.151	1.154	**0.26**	**0.12**

Mesa Labs 10 Park Place Butler, NJ 07405
NIST Traceable Calibration Facility, ISO 9001:2008 Registered

MesaLabs

CERTIFICATE OF CALIBRATION - NIST TRACEABILITY

(Refer to instruction manual for further details of calibration)

deltaCal Serial Number: **926** DATE: 6-Jan-2015

Calibration Operator: P.Pitty

Critical Venturi Flow Meter: Max Uncertainity = 0.346%
Serial Number: 1A *CEESI NVLAP NIST Data File 07BGI-0001*
Serial Number: 2A *CEESI NVLAP NIST Data File 07BGI-0003*
Serial Number: 5C COX Nist Data File CCAL33222 - 5 C
Serial Number: 4A *CEESI NVLAP NIST Data File 07BGI-0002*
Serial Number: 3A *CEESI NVLAP NIST Data File 07BGI-0004*

Room Temperature: Uncertainity=0.071% Room Temperature: 23.7 °C
Brand: Accu-Safe Serial Number: 254881
NIST Traceability No. 516837
deltaCal:
Ambient Temperature (set): 23.7 °C
Aux (filter) Temperature (set): 23.7 °C

Barometric Pressure ans Absolute Pressure
Vaisala Model PTB330(50-1100) Digital Accuracy: 0.03371%
S/N DH0850001
NIST Traceable (Princo Primary Standard Model 453 S/N W12537) Certificate No. P-7485
deltaCal:
Barometric pressure (set): 756 mm of Hg

Results of Venturi Calibration
Flow Rate (Q) vs. Pressure Drop (ΔP). Where: Q=Lpm, ΔP= Cm of H2O

Q= 3.91907 ΔP ^ 0.52068 Overall Uncertainty: 0.35%

Date Placed In Service_____
(To be filled in by operator upon receipt)

Recommended Recalibration Date _____
(12 months from date placed in service)

Revised: October 2014
Cal102-01T2 Rev A

To Check a deltaCal

6-Jan-15 P.Pitty

1.5-19.5

VER 3.41P

BP= 756 mm of Hg

Maximum allowable error at any flow rate is .75%.

Serial No. 926

	Reading Abs. P Crit. Vent. mm of Hg	Room Temp	CV Qa Flow Lpm	Qa deltaCal Indicated	% Error
# 5	190.2	23.7	6.22	6.24	**0.40**
	277.3	23.7	9.16	9.16	**-0.01**
	373.5	23.7	12.42	12.42	**0.03**
	467.3	23.7	15.59	15.60	**0.05**
	577.9	23.7	19.33	19.36	**0.14**
				Average %	**0.12**

TELEDYNE
ADVANCED POLLUTION INSTRUMENTATION
A Teledyne Technologies Company

T700 Final Calibrated Test and Validation Data

Configuration and Options	
Power Configuration: Voltage:	115 - 240 V
Frequency:	60 Hz
Rack Mounts with Slides (20A - 26"; 20B - 24")	
Rack Mounts Ears Only (21)	
O3 Generator (1A)	Yes
Photometer (2A)	Yes
Source Gas MFC (7A - 0-50 cc/min; 7B - 0-200 cc/min)	
Diluent Gas Mass Flow Controller (8A - 0-5 SLPM;8B - 0-20 SLPM)	
Air Mass Flow Controller	
Third MFC (9)	
Strap Carrying Handle (29)	
Multi-drop (62)	
Ethernet W/ TCP-IP (63A)	
Multi-drop and Ethernet (63C)	
USB COMP PORT (64A)	
External Valve Driver Capability - 12V (48A)	
External Valve Driver Capability - 24V (48B)	
Dual Gas Output Valve (73)	
Permeation Tube Oven (5)	
Calibration as a Primary Standard (95B)	
1 year warranty extension (92A)	
2 year warranty extension (92B)	
3 year warranty extension (92C)	
COM 1 Test Channel Configuration	RS-232
COM 2 Configuration	RS-232

Additional Information:

Photometer Correlation Certificate

TELEDYNE
INSTRUMENTS
Advanced Pollution Instrumentation
A Teledyne Technologies Company

This instrument has been calibrated using standards maintained at Teledyne API (9480 Carroll Park Drive, San Diego, CA 92121-5201, USA), which are traceable to the United States National Institute of Standards and Technology. This calibration was performed to Teledyne API specifications and to the requirements of ISO 9001:2008. Supporting documentation relative to traceability is on file at this office, and is available for examination at Teledyne API upon request.

Correlation of:
Date: 8/27/2013
Serial Number: 871

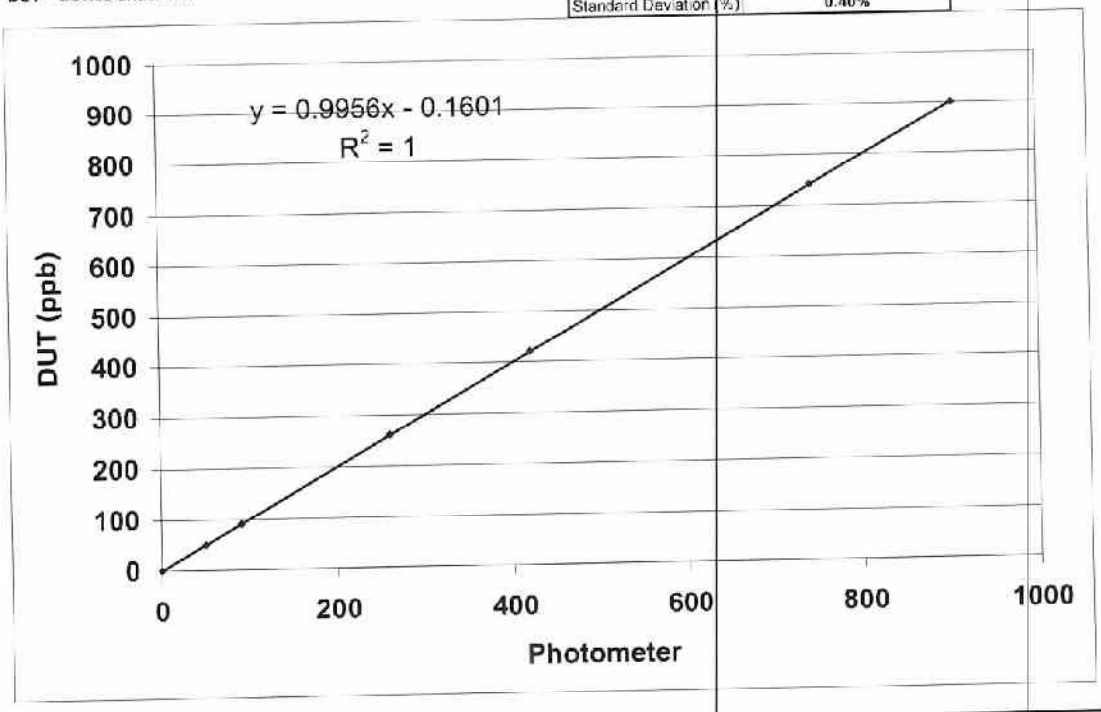
Model: T700
Operator: DNG

Reference Photometer Info:
Model: M400
Serial Number: 1751
Certification due date: 10/17/2013

Test Points (PPB)	Measurements		Difference (PPB)	Difference (%)
0	0.4	0	-0.4	0
50	50.6	50	-0.6	-1.186
90	91	90	-1	-1.099
260	261	260	-1	-0.383
420	421	420	-1	-0.238
740	743	740	-3	-0.404
900	905	900	-5	-0.552

DUT = Device under test

Average % Difference	-0.64%
Standard Deviation (%)	0.40%



Performed at the following environmental conditions: Temperature: 20C +/- 7C; RH: 20-80%; Pressure: 29.92 in-Hg-A +/- 1

Performed by: DNG
Test technician
15
Date: 8/27/2013

Approved by: D Hunter
Quality Representative
Date: 8/27/13

Calibration Report

TELEDYNE HASTINGS INSTRUMENTS
Everywhereyoulook™

Teledyne Technologies- Hastings Instruments
804 Newcombe Ave. Hampton, Va. 23669-4593

HCS.xls
Revision 1.21 09/05/2012

Order Summary

Customer TELEDYNE ADVANCED POLLUTION INSTRUMENT
PO K76302
THI 82414
Range 0 - 10.00 SLM/Air @ 0.00°C

IUT Summary

Model HFC-212-10SLM
S/N 7032000004
Accuracy Spec 1% of FS

FS Flow	FS Out	Zero Out	
10	5.000	0.000	Volts

Reference Std Documentation

Reference ID:		S/N#	Calibration Due:
Molbox	CDR 746	429	01/13/2014
Molbloc (A)	N/A	N/A	N/A
Molbloc (B)	CDR 733	930	10/22/2013
DMM	CDR 971	US36036127	10/16/2014

Cal Routine HCS.exe
Rev Level 1.8.8
Procedure 560.I

IUT Condition

X	NEW
	In Tolerance - As Found
	Out Of Tolerance - As Found
	Calibrated - As Left

Flow Unit Correction Factors

Type	From	To	K
Gas	N2	Air	0.9980
Units	SLPM	SLM	1.000000
Temp	0°C	0.00°C	1.000000
Other			1.0000
Ktot=			0.998000

Environmental Conditions

Temp. °C 24.2
Humidity % 59.8

Std. Conditions

T 0°C
P 760 mmHg *********
V 181.2 µp *********
****

Avg Cal. Temp. 22.6°C

The calculated system uncertainty is estimated to be: 5.0 : 1

Data contained herein is relevant only to the calibration and configuration for which this document was produced.

TEST DATA

Recorded Measurments			Indicated Flow		Estimated Uncertainty	
Ref. Flow SLPM N2	Temp. °C	Mass Flow SLM Air	Output VDC	Flow SLM Air	%FS	%PT
10.007	22.56	9.987	5.022	10.044	0.58%	0.58%
5.995	22.56	5.983	2.971	5.942	-0.41%	-0.68%
1.997	22.57	1.993	0.976	1.952	-0.42%	-2.08%
0.001	22.58	0.001	0.001	0.001	0.00%	
4.017	22.59	4.009	1.970	3.940	-0.69%	-1.72%
8.040	22.60	8.024	4.002	8.005	-0.19%	-0.24%

Calibration Performed By RJACKSON Title TECHNICIAN Calibration Date 08/13/2013 1:37 PM

This calibration complies with ANSI/NCSL Z540-1-1994 and ISO 17025-2005 and is traceable to the National Institute or Standards and Technology. This validation was accomplished by qualified personnel directed by controlled procedures. The accuracy of this calibration for any gas other than the actual gas used may be subject to theoretical corrections. Customer Service can be contacted weekdays 8AM-5PM EDT at 1-800-950-2468.

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TELEDYNE HASTINGS INSTRUMENTS
Everywhereyoulook™

Teledyne Technologies- Hastings Instruments
804 Newcombe Ave. Hampton, Va. 23669-4593

HCS.xls
Revision 1.21 09/05/2012

Order Summary

Customer TELEDYNE ADVANCED POLLUTION INSTRUMENT
PO K76301
THI 82409
Range 0 - 100.00 SCCM/Air @ 0.00°C

IUT Summary

Model HFC-212-100SCCM
S/N 7031700005
Accuracy Spec 1% of FS

FS Flow	FS Out	Zero Out	
100	5.000	0.000	Volts

Reference Std Documentation

Reference ID:		S/N#	Calibration Due:
Molbox	CDR 745	435	02/19/2014
Molbloc (A)	N/A	N/A	N/A
Molbloc (B)	CDR 798	1327	11/13/2013
DMM	CDR 1024	1253076	10/16/2014

Cal Routine HCS.exe
Rev Level 1.8.8
Procedure 560.I

IUT Condition

X	NEW
	In Tolerance - As Found
	Out Of Tolerance - As Found
	Calibrated - As Left

Environmental Conditions

Temp. °C 24.5
Humidity % 46.1

Flow Unit Correction Factors

Type	From	To	K
Gas	N2	Air	0.9980
Units	SCCM	SCCM	1.000000
Temp	0°C	0.00°C	1.000000
Other			1.0000
Ktot=			0.998000

Std. Conditions

T 0°C
P 760 mmHg
V 181.2 µp

Avg Cal. Temp. 24.6°C

The calculated system uncertainty is estimated to be: 5.0 : 1

Data contained herein is relevant only to the calibration and configuration for which this document was produced.

TEST DATA

Recorded Measurments			Indicated Flow		Estimated Uncertainty	
Ref. Flow SCCM N2	Temp. °C	Mass Flow SCCM Air	Output VDC	Flow SCCM Air	%FS	%PT
100.261	24.56	100.060	4.980	99.591	-0.47%	-0.47%
60.018	24.56	59.898	3.035	60.709	0.81%	1.35%
20.112	24.56	20.072	1.010	20.204	0.13%	0.66%
-0.003	24.55	-0.003	-0.001	-0.022	-0.02%	
39.901	24.55	39.821	2.011	40.221	0.40%	1.01%
80.050	24.53	79.890	4.029	80.584	0.69%	0.87%

Calibration Performed By DFGRANT Title FLOW TEAM LEAD Calibration Date 08/16/2013 8:47 AM

This calibration complies with ANSI/NCSL Z540-1-1994 and ISO 17025-2005 and is traceable to the National Institute of Standards and Technology. This validation was accomplished by qualified personnel directed by controlled procedures. The accuracy of this calibration for any gas other than the actual gas used may be subject to theoretical corrections. Customer Service can be contacted weekdays 8AM-5PM EDT at 1-800-950-2468.

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IDAHO DEPARTMENT OF
HEALTH & WELFARE

OZONE REVERIFICATION SUMMARY SHEET

Reference Standard:	API 400 Photometric Ozone Analyzer
Serial Number:	537
Verification Date:	2/22/13
Verification Entity:	CARB

Transfer Standard:	API 700 Dynamic Dilution Calibrator
Serial Number:	871
Organization:	Tetra Tech

RUN	DATE	SLOPE	INTERCEPT
1	9/3/13	1.03019	-0.36677
2	9/3/13	1.02809	-0.13148
3	9/3/13	1.03108	-0.05474
4	9/4/13	1.02867	-0.00605
5	9/4/13	1.03052	-0.05521
6	9/4/13	1.03158	-.019252

RESULTS

RSD of Slopes (≤ 3.7%) = .14%

Mean Slope = (Old 1-5) 1.02971 / (New 1-6) = 1.03002

Mean Slope (Runs 1 – 5) vs. Run 6 Slope (≤ 5%) = .18%

Standard Deviation of Intercepts (< 1.5) = 0.14

Mean Intercept = (Old 1-5) -0.12285/ (New 1-6) -0.10558

XX = PASS

XX = FAIL

Verification performed by: T.Harris

Date: 9/6/13

IDAHO DEPARTMENT OF
HEALTH & WELFARE

Certification Date:9/03/13

API-400 Photometer Primary Standard	
S/N: 537	
Offset: -0.3	Slope: 1.026
CARB Certification Date: 2/22/13	BP lab:
Log No.	Temp. lab:

API-700EU	
S/N:871	Air Flow Setting: 3.5 L/min

Calibration Settings

	Offset		Slope	
As Found:	2.7		1.006	
Final:				

	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
	0.3	436.8	341.1	242.3	145.4	49.9	0.1	1	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.3	437.0	341.0	242.2	145.6	50.0	0.0	2	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.2	437.1	340.8	242.5	145.3	49.8	0.1	3	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.1	437.0	340.9	242.6	145.3	49.8	0.2	4	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.3	436.9	340.7	242.5	145.4	49.7	0.1	5	0.0	450.0	350.0	250.0	150.0	50.0	0.0
								RESULTS							
Average	0.2	437.0	340.9	242.4	145.4	49.8	0.1		0.0	450.0	350.0	250.0	150.0	50.0	0.0

Slope= 1.03019 (Slope ≤ 5% of 1.00)

Offset= -0.36677 (-3 < Offset < 3 ppb)

RSQ= 1 (RSQ ≥ .9999)

PASS =

FAIL =

Comments:

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by:

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.1	PHOTO SPRESS(inch/hg):26.5
SAMP FL(cc/min): 732	PHOTO STEMP(c): 39.3
SAMP TEMP(c):26.7	PHOTO LAMP TEMP(c):58
ALAMP TEMP(c):52.1	PHOTO FLOW(LPM): .6303
BOX TEMP(c): 30.3	O3 FLOW(LPM): 3.5
DCPS:2440	OLAMP TEMP(c):48
	REG PRESSURE:22.2
	BOX TEMP(c):29.5

IDAHO DEPARTMENT OF
HEALTH & WELFARE

Certification Date:9/03/13

API-400 Photometer Primary Standard	
S/N: 537	
Offset: -0.3	Slope: 1.026
CARB Certification Date: 2/22/13	BP lab: 690.3
Log No.	Temp. lab: 23

API-700EU	
S/N:871	Air Flow Setting: 3.5 L/min

Calibration Settings

	Offset		Slope	
As Found:	2.7		1.006	
Final:				

	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
	0.3	438.7	339.2	243.9	145.2	49.1	0.1	1	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.4	438.8	339.1	244.0	145.1	49.3	0.0	2	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.2	438.8	339.0	244.0	145.1	49.5	0.2	3	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.3	438.9	339.2	243.9	145.2	49.3	0.1	4	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.2	438.9	339.1	243.8	145.3	49.4	0.1	5	0.0	450.0	350.0	250.0	150.0	50.0	0.0
								RESULTS							
Average	0.3	438.8	339.1	243.9	145.2	49.3	0.1		0.0	450.0	350.0	250.0	150.0	50.0	0.0

Slope= 1.02809 (Slope ≤ 5% of 1.00)

Offset= -0.13148 (-3 < Offset < 3 ppb)

RSQ= 1 (RSQ ≥ .9999)

PASS =

FAIL =

Comments:

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by:

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.1	PHOTO SPRESS(inch/hg):26.5
SAMP FL(cc/min): 732	PHOTO STEMP(c): 39.5
SAMP TEMP(c):26.7	PHOTO LAMP TEMP(c):58
ALAMP TEMP(c):52.1	PHOTO FLOW(LPM): .6305
BOX TEMP(c): 30.3	O3 FLOW(LPM): 3.5
DCPS:2440	OLAMP TEMP(c):48
	REG PRESSURE:22.2
	BOX TEMP(c):29.7

IDAHO DEPARTMENT OF
HEALTH & WELFARE

Certification Date:9/3/13

API-400 Photometer Primary Standard	
S/N: 537	
Offset: -0.3	Slope: 1.026
CARE Certification Date: 2/22/13	BP lab: 691
Log No.	Temp. lab: 22.6

API-700EU				
S/N:0053	Air Flow Setting: 3.5 L/min			
	Calibration Settings			
	Offset	0.5	Slope	1.013
As Found:				
Final:				

	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
	0.1	437.3	338.4	242.0	145.0	49.0	0.1	1	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.0	437.4	338.6	242.1	144.9	49.0	0.3	2	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.1	437.3	338.8	242.2	145.2	48.9	0.3	3	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.2	437.3	338.7	242.1	145.1	49.1	0.2	4	0.0	450.0	349.0	250.0	150.0	50.0	0.0
	0.1	437.2	338.8	242.3	145.2	49.0	0.2	5	0.0	450.0	350.0	250.0	150.0	50.0	0.0
								RESULTS							
Average	0.1	437.3	338.7	242.1	145.1	49.0	0.2		0.0	450.0	349.8	250.0	150.0	50.0	0.0

Slope= 1.03108 (Slope ≤ 5% of 1.00)

Offset= -0.05474 (-3 < Offset < 3 ppb)

RSQ= 1 (RSQ ≥ .9999)

PASS =

FAIL =

Comments:

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by:

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.2	PHOTO SPRESS(inch/hg):26.6
SAMP FL(cc/min): 721	PHOTO STEMP(c): 38.5
SAMP TEMP(c):25.9	PHOTO LAMP TEMP(c):58
ALAMP TEMP(c):52	PHOTO FLOW(LPM): .0.6300
BOX TEMP(c): 29.2	O3 FLOW(LPM): 3.5
DCPS:2438	OLAMP TEMP(c):48
	REG PRESSURE:19.7
	BOX TEMP(c):28.6
	DIL PRESSURE(psig): 22.2

IDAHO DEPARTMENT OF
HEALTH & WELFARE

Certification Date:9/4/13

API-400 Photometer Primary Standard	
S/N: 537	
Offset: -0.3	Slope: 1.026
CARB Certification Date: 2/22/13	BP lab: 691
Log No.	Temp. lab: 23.4

API-700EU				
S/N:0053	Air Flow Setting: 3.5 L/min			
	Calibration Settings			
	Offset	0.5 Slope		1.013
As Found:				
Final:				

	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
	0.2	438.0	339.8	242.7	145.4	48.5	0.2	1	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.3	438.1	339.6	242.7	145.3	48.6	0.3	2	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.3	438.1	339.9	242.9	145.6	48.7	0.1	3	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.3	437.9	339.9	242.9	145.6	48.6	0.1	4	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.2	438.0	339.9	243.0	145.5	48.7	0.1	5	0.0	450.0	350.0	250.0	150.0	50.0	0.0
								RESULTS							
Average	0.3	438.0	339.8	242.8	145.5	48.6	0.2		0.0	450.0	350.0	250.0	150.0	50.0	0.0

Slope= 1.02867 (Slope ≤ 5% of 1.00)

Offset= -0.00605 (-3 < Offset < 3 ppb)

RSQ= 1 (RSQ ≥ .9999)

PASS =

FAIL =

400 Settings	700 Settings
PRES (inch/hg): 27.1	PHOTO SPRESS(inch/hg):26.6
SAMP FL(cc/min): 722	PHOTO STEMP(c): 39.1
SAMP TEMP(c):25.8	PHOTO LAMP TEMP(c):58
ALAMP TEMP(c):52	PHOTO FLOW(LPM): .0.6300
BOX TEMP(c): 29.2	O3 FLOW(LPM): 3.5
DCPS:2438	OLAMP TEMP(c):48
	REG PRESSURE:19.7
	BOX TEMP(c):29.3

Comments:

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by:

Tyson Harris, Idaho Bureau of Labortories

IDAHO DEPARTMENT OF
HEALTH & WELFARE

Certification Date:9/4/13

API-400 Photometer Primary Standard	API-700EU
S/N: 537	S/N:0053
Offset: -0.3	Slope: 1.026
CARB Certification Date: 2/22/13	BP lab: 691
Log No.	Temp. lab: 23.4

Air Flow Setting: 3.5 L/min

Calibration Settings

	Offset	0.5 Slope		1.013
As Found:				
Final:				

	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
	0.1	437.3	338.9	242.5	145.7	48.4	0.3	1	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.2	437.5	339.1	242.4	145.7	48.5	0.4	2	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.2	437.4	339.0	242.2	145.6	48.6	0.3	3	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.1	437.3	339.1	242.4	145.4	48.6	0.2	4	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.1	437.4	339.0	242.7	145.5	48.5	0.2	5	0.0	450.0	350.0	250.0	150.0	50.0	0.0
								RESULTS							
Average	0.1	437.4	339.0	242.4	145.6	48.5	0.3		0.0	450.0	350.0	250.0	150.0	50.0	0.0

Slope= 1.03052 (Slope ≤ 5% of 1.00)

Offset= -0.05521 (-3 < Offset < 3 ppb)

RSQ= 1 (RSQ ≥ .9999)

PASS =

FAIL =

Comments:

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by:

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.1	PHOTO SPRESS(inch/hg):26.6
SAMP FL(cc/min): 722	PHOTO STEMP(c): 39.1
SAMP TEMP(c):25.8	PHOTO LAMP TEMP(c):58
ALAMP TEMP(c):52	PHOTO FLOW(LPM): .0.6300
BOX TEMP(c): 29.2	O3 FLOW(LPM): 3.5
DCPS:2438	OLAMP TEMP(c):48
	REG PRESSURE:19.7
	BOX TEMP(c):29.3

IDAHO DEPARTMENT OF
HEALTH & WELFARE

Certification Date:9/4/13

API-400 Photometer Primary Standard	
S/N: 537	
Offset: -0.3	Slope: 1.026
CARB Certification Date: 2/22/13	BP lab: 690
Log No.	Temp. lab: 21.8

API-700EU				
S/N:0053	Air Flow Setting: 3.5 L/min			
	Calibration Settings			
	Offset		0.5 Slope	1.013
As Found:				
Final:				

	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
	0.3	436.4	339.2	242.7	145.3	48.5	0.2	1	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.2	436.7	339.0	242.9	145.3	48.7	0.3	2	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.2	436.7	339.1	242.9	145.5	48.6	0.2	3	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.3	436.5	339.1	243.0	145.5	48.6	0.3	4	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.1	436.6	339.0	243.0	145.4	48.7	0.2	5	0.0	450.0	350.0	250.0	150.0	50.0	0.0
								RESULTS							
Average	0.2	436.6	339.1	242.9	145.4	48.6	0.2		0.0	450.0	350.0	250.0	150.0	50.0	0.0

Slope= 1.03158 (Slope ≤ 5% of 1.00)

Offset= -0.19252 (-3 < Offset < 3 ppb)

RSQ= 1 (RSQ ≥ .9999)

PASS =

FAIL =

400 Settings	700 Settings
PRES (inch/hg): 27.1	PHOTO SPRESS(inch/hg):26.6
SAMP FL(cc/min): 722	PHOTO STEMP(c): 39.1
SAMP TEMP(c):25.8	PHOTO LAMP TEMP(c):58
ALAMP TEMP(c):52	PHOTO FLOW(LPM): .0.6300
BOX TEMP(c): 29.2	O3 FLOW(LPM): 3.5
DCPS:2438	OLAMP TEMP(c):48
	REG PRESSURE:19.7
	BOX TEMP(c):29.3

Comments:

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by:

Tyson Harris, Idaho Bureau of Labortories

SCOTT-MARRIN, INC. PGVP Vendor ID: H12012

6531 Box Springs Blvd • Riverside, CA 92507-0725
Phone: +1(951)653-6780 • Fax: +1(951)653-2430 • www.scottmarrin.com

Report Of Analysis
EPA Protocol Gas Mixtures

Cal Gas

ENIC01
TO: Environ International Corp
Attn: Kris Hansen
19020 - 33rd Avenue West, Ste 310
Lynnwood, WA 98036
(206) 794-6013

REPORT NO: 63744-03
REPORT DATE: September 23, 2013
CUSTOMER PO NO: 0324287K1

CYLINDER SIZE: 150A (141 std cu ft)
CYLINDER PRESSURE: 2000 psig

CYLINDER NUMBER: **CB10180**

COMPONENT	CONCENTRATION (v/v) ± EPA UNCERTAINTY	REFERENCE STANDARD		ANALYZER MAKE, MODEL, S/N, DETECTION	REPLICATE ANALYSIS DATA	
Nitric oxide	20.66 ± 0.22 ppm	GMIS	SRM 1683b	TECO Model 42C	9/12/2013	9/23/2013
NOx	20.66 ppm		Samp#: 45-V-106	Serial # 57458-333	20.58 ppm	20.66 ppm
Nitrogen dioxide	< 0.10 ppm	Cyl#: CC65129	Cyl#: CAL017973	Continuous	20.50 ppm	20.66 ppm
		20.09 ± 0.21 ppm	48.79 ± 0.34 ppm	Chemiluminescence	20.60 ppm	20.66 ppm
		Exp: 6/27/2021	Exp: 3/25/2019	**LAST CAL DATE:** 9/12/2013	$\bar{x}$: 20.56 ppm	20.66 ppm
O2-free Nitrogen	Balance					

CERTIFICATION DATE: September 23, 2013 **EPA EXPIRATION DATE:** September 24, 2021

ppm = µmole/mole **% = mole-%** **$\bar{x}$ = EPA weighted mean**

The above analyses were performed in accordance with Procedure G1 of the EPA Traceability Protocol, Report Number EPA600/R-12/531, dated May 2012.

The above analyses should not be used if the cylinder pressure is less than 100 psig.

ANALYST: D.C. M
D.C.Marrin

APPROVED: [signature]
J. T. Marrin

The only liability of this company for gas which fails to comply with this analysis shall be replacement or reanalysis thereof by the company without extra cost.

IDAHO DEPARTMENT OF
HEALTH & WELFARE

OZONE CERTIFICATION SUMMARY SHEET

Reference Standard:	API 400 Photometric Ozone Analyzer
Serial Number:	537
Verification Date:	01/27/14
Verification Entity:	CARB

Transfer Standard:	API T700 Dynamic Dilution Calibrator
Serial Number:	871
Organization:	Tetra Tech

RUN	DATE	SLOPE	INTERCEPT
1	11/25/14	1.04734	1.02383
2	12/01/14	1.04684	1.15617
3	12/01/14	1.04386	0.94816
4	12/02/14	1.04550	1.20837
5	12/02/14	1.04412	1.41020
6	12/02/14	1.04309	1.19425

RESULTS

RSD of Slopes (≤ 3.7%) = **0.172 %**

Mean Slope =1.03002 (Old 9/6/13) /= 1.04513 (New 12/03/14)

Mean Slope (Old) vs. Run (New) Slope (≤ 5%) = **-1.45%**

Mean Intercept = 0.10558 (Old 9/6/13) /1.15683 (New 12/03/14)

Standard Deviation of Intercepts (≤ 1.5) = **0.0259**

XX = PASS

XX = FAIL

Certification performed by: T.Harris

Date: 12/03/2014

IDAHO DEPARTMENT OF
HEALTH & WELFARE

Certification Date:11/25/14

API-400 Photometer Primary Standard	
S/N: 537	
Offset: -0.3	Slope: 1.026
CARB Certification Date: 1/27/14	BP lab: 696.1
Log No. 02014 030	Temp. lab: 21.0

API-T700				
S/N:871	Air Flow Setting: 3.5 L/min			
	Calibration Settings			
	Offset		Slope	
As Found:	2.7		1.006	
Final:				

	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
	-0.2	428.9	331.1	239.2	142.6	45.1	0.0	1	0.0	450.0	349.0	251.0	150.0	51.0	0.0
	-0.3	428.8	331.2	239.1	142.4	45.1	-0.1	2	0.0	450.0	349.0	250.0	150.0	51.0	0.0
	-0.2	428.7	331.4	239.2	142.2	45.0	-0.1	3	0.0	449.0	349.0	251.0	150.0	51.0	0.0
	-0.2	428.5	331.6	239.0	142.4	45.0	-0.2	4	0.0	449.0	350.0	251.0	149.0	50.0	0.0
	-0.3	428.6	331.6	238.9	142.4	45.2	-0.2	5	0.0	449.0	350.0	250.0	149.0	50.0	0.0
						RESULTS									
Average	-0.2	428.7	331.4	239.1	142.4	45.1	-0.1		0.0	449.4	349.4	250.6	149.6	50.6	0.0

Slope= 1.04734 (Slope ≤ 5% of 1.00)

Offset= 1.02383 (-3 < Offset < 3 ppb)

RSQ= 0.9999 (RSQ ≥ .9999)

400 Settings	700 Settings
PRES (inch'hg): 27.3	PHOTO SPRESS(inch/hg):26.8
SAMP FL(cc/min): 736	PHOTO STEMP(c): 35.6
SAMP TEMP(c):24.7	PHOTO LAMP TEMP(c):58
ALAMP TEMP(c):52.1	PHOTO FLOW(LPM): .6256
BOX TEMP(c): 27.6	O3 FLOW(LPM): 0.1110
DCPS:2444	OLAMP TEMP(c):48
	REG PRESSURE:22.2
	BOX TEMP(c):25.5

Comments:

Run 1/6

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

IDAHO DEPARTMENT OF
HEALTH & WELFARE

Certification Date:12/01/14

API-400 Photometer Primary Standard	
S/N: 537	
Offset: -0.3	Slope: 1.026
CARB Certification Date: 1/27/14	BP lab: 694.1
Log No. 02014 030	Temp. lab: 20.7

API-700E	
S/N:871	Air Flow Setting: 3.5 L/min

Calibration Settings

	Offset		Slope	
As Found:	2.7		1.006	
Final:				

Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
0.0	429.3	333.0	237.0	140.7	46.1	-0.2	1	0.0	450.0	349.0	251.0	150.0	50.0	0.0
-0.1	429.4	332.9	236.9	140.7	46.1	-0.1	2	0.0	450.0	350.0	251.0	150.0	50.0	0.0
-0.1	429.2	332.8	236.8	140.7	46.2	0.0	3	0.0	449.0	349.0	250.0	150.0	51.0	0.0
-0.1	429.5	332.7	236.7	140.6	46.1	-0.1	4	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.0	429.2	332.7	236.8	140.6	46.0	-0.1	5	0.0	449.0	348.0	250.0	149.0	50.0	0.0
							RESULTS							
Average -0.1	429.3	332.8	236.8	140.7	46.1	-0.1		0.0	449.6	349.2	250.4	149.8	50.2	0.0

Slope= 1.04684 (Slope ≤ 5% of 1.00)

Offset= 1.15617 (-3 < Offset < 3 ppb)

RSQ= 1 (RSQ ≥ .9999)

400 Settings	700 Settings
PRES (inch/hg): 27.4	PHOTO SPRESS(inch/hg):26.6
~~SAMP FL(cc/min): 735~~	~~PHOTO STEMP(c): 36~~
SAMP TEMP(c):24.4	PHOTO LAMP TEMP(c):58
ALAMP TEMP(c):52.1	PHOTO FLOW(LPM): .6264
BOX TEMP(c): 27.1	O3 FLOW(LPM): 0.1110
DCPS:2445	OLAMP TEMP(c):48
	REG PRESSURE:19.8
	BOX TEMP(c):26.1

Comments:

Run 2/6

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

IDAHO DEPARTMENT OF
HEALTH & WELFARE

Certification Date:12/01/14

API-400 Photometer Primary Standard	
S/N: 537	
Offset: -0.3	Slope: 1.026
CARB Certification Date: 1/27/14	BP lab: 694.1
Log No. 02014 030	Temp. lab: 20.7

API-T700	
S/N:871	Air Flow Setting: 3.5 L/min

Calibration Settings

	Offset		Slope	
As Found:	2.7		1.006	
Final:				

Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
0.0	430.2	334.4	238.4	142.0	46.3	-0.2	1	0.0	450.0	350.0	250.0	151.0	51`	0.0
-0.1	430.5	334.2	238.5	141.8	46.2	-0.1	2	0.0	450.0	350.0	250.0	151.0	50.0	0.0
-0.1	430.3	333.9	238.6	141.6	46.3	-0.1	3	0.0	450.0	349.0	251.0	150.0	50.0	0.0
0.0	430.5	334.2	238.8	142.0	46.2	-0.2	4	0.0	450.0	349.0	251.0	150.0	50.0	0.0
0.0	430.6	334.3	238.6	141.9	46.2	-0.1	5	0.0	449.0	349.0	250.0	150.0	50.0	0.0
							RESULTS							
Average	0.0	430.4	334.2	238.6	141.9	46.2	-0.1	0.0	449.8	349.4	250.4	150.4	50.0	0.0

Slope= 1.04386 (Slope ≤ 5% of 1.00)

Offset= 0.94816 (-3 < Offset < 3 ppb)

RSQ= 1 (RSQ ≥ .9999)

Comments:

Run 3/6

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.1	PHOTO SPRESS(inch/hg):26.4
SAMP FL(cc/min): 736	PHOTO STEMP(c): 36
SAMP TEMP(c):24.7	PHOTO LAMP TEMP(c):58
ALAMP TEMP(c):52.1	PHOTO FLOW(LPM): .6264
BOX TEMP(c): 28.2	O3 FLOW(LPM): 0.1110
DCPS:2445	OLAMP TEMP(c):48
	REG PRESSURE:19.9
	BOX TEMP(c):26.0

IDAHO DEPARTMENT OF
HEALTH & WELFARE

Certification Date:12/02/14

API-400 Photometer Primary Standard	
S/N: 537	
Offset: -0.3	Slope: 1.026
CARB Certification Date: 1/27/14	BP lab: 693.1
Log No. 02014 030	Temp. lab: 20.9

API-700EU	
S/N:871	Air Flow Setting: 3.5 L/min

Calibration Settings

	Offset		Slope	
As Found:	2.7		1.006	
Final:				

	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
	-0.1	428.1	335.6	237.8	140.9	45.8	-0.3	1	0.0	450.0	351.0	248.0	151.0	51.0	0.0
	-0.1	428.1	336.3	237.9	140.7	45.7	-0.3	2	0.0	450.0	352.0	248.0	151.0	51.0	0.0
	-0.1	427.9	336.3	238.2	140.6	45.5	-0.2	3	0.0	449.0	352.0	248.0	151.0	50.0	0.0
	0.0	427.9	336.0	238.2	139.9	45.4	-0.1	4	0.0	449.0	351.0	249.0	150.0	50.0	0.0
	-0.1	428.0	335.8	238.0	139.8	45.6	-0.2	5	0.0	450.0	350.0	249.0	150.0	50.0	0.0
								RESULTS							
Average	-0.1	428.0	336.0	238.0	140.4	45.6	-0.2		0.0	449.6	351.2	248.4	150.6	50.4	0.0

Slope= 1.0455 (Slope ≤ 5% of 1.00)

Offset= 1.20837 (-3 < Offset < 3 ppb)

RSQ= 0.9999 (RSQ ≥ .9999)

PASS =

FAIL =

400 Settings	700 Settings
PRES (inch/hg): 27.3	PHOTO SPRESS(inch/hg):26.6
SAMP FL(cc/min): 722	PHOTO STEMP(c): 36
SAMP TEMP(c):24.8	PHOTO LAMP TEMP(c):58
ALAMP TEMP(c):52.0	PHOTO FLOW(LPM): .6264
BOX TEMP(c): 28.0	O3 FLOW(LPM): 0.1110
DCPS:2444	OLAMP TEMP(c):48
	REG PRESSURE:20.0
	BOX TEMP(c):25.9

Comments:

Run 4/6

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

IDAHO DEPARTMENT OF
HEALTH & WELFARE

Certification Date:12/02/14

API-400 Photometer Primary Standard	
S/N: 537	
Offset: -0.3	Slope: 1.026
CARB Certification Date: 1/27/14	
Log No. 02014 030	

BP lab: 692.8
Temp. lab: 20.5

API-T700	
S/N:871	Air Flow Setting: 3.5 L/min

Calibration Settings

	Offset		Slope	
As Found:	2.7		1.006	
Final:				

Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
-0.2	429.5	334.5	237.8	141.2	45.2	-0.3	1	0.0	449.0	350.0	250.0	152.0	50.0	0.0
-0.2	429.8	334.4	237.7	141.2	45.2	-0.2	2	0.0	449.0	350.0	250.0	152.0	50.0	0.0
-0.1	429.9	334.5	237.2	141.0	45.2	-0.3	3	0.0	450.0	350.0	249.0	151.0	50.0	0.0
-0.1	430.0	334.5	237.4	140.8	45.1	-0.2	4	0.0	450.0	351.0	249.0	150.0	49.0	0.0
-0.1	430.0	334.6	237.2	140.6	45.1	-0.2	5	0.0	450.0	351.0	248.0	150.0	49.0	0.0
							RESULTS							
Average	-0.1	429.8	334.5	237.5	141.0	45.2	-0.2		0.0	449.6	350.4	249.2	151.0	49.6	0.0

Slope= 1.04412 (Slope ≤ 5% of 1.00)

Offset= 1.41020 (-3 < Offset < 3 ppb)

RSQ= 0.9999 (RSQ ≥ .9999)

PASS =
FAIL =

Comments:

Run 5/6

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.3	PHOTO SPRESS(inch/hg):26.6
SAMP FL(cc/min): 722	PHOTO STEMP(c): 36
SAMP TEMP(c):24.8	PHOTO LAMP TEMP(c):58
ALAMP TEMP(c):52.0	PHOTO FLOW(LPM): .6264
BOX TEMP(c): 28.0	O3 FLOW(LPM): 0.1110
DCPS:2444	OLAMP TEMP(c):48
	REG PRESSURE:20.0
	BOX TEMP(c):25.9

IDAHO DEPARTMENT OF
HEALTH & WELFARE

Certification Date:12/02/14

API-400 Photometer Primary Standard			
S/N: 537			
Offset: -0.3	Slope: 1.026		
CARB Certification Date: 1/27/14		BP lab: 690.8	
Log No. 02014 030		Temp. lab: 20.3	

API-T700				
S/N:871		Air Flow Setting: 3.5 L/min		
	Calibration Settings			
	Offset		Slope	
As Found:	2.7		1.006	
Final:				

	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
	-0.1	429.2	334.9	238.7	141.6	45.5	-0.2	1	0.0	450.0	348.0	250.0	152.0	49.0	0.0
	-0.2	429.6	335.1	238.6	141.4	45.6	-0.2	2	0.0	450.0	348.0	251.0	152.0	50.0	0.0
	-0.2	430.0	335.2	238.5	140.9	45.4	-0.3	3	0.0	451.0	349.0	250.0	151.0	50.0	0.0
	-0.1	430.4	335.5	238.6	140.8	45.6	-0.2	4	0.0	451.0	349.0	250.0	150.0	49.0	0.0
	0.0	430.1	335.6	238.6	140.6	45.6	-0.3	5	0.0	450.0	348.0	251.0	150.0	49.0	0.0
								RESULTS							
Average	-0.1	429.9	335.3	238.6	141.1	45.5	-0.2		0.0	450.4	348.4	250.4	151.0	49.4	0.0

Slope= 1.04309 (Slope ≤ 5% of 1.00)

Offset= 1.19425 (-3 < Offset < 3 ppb)

RSQ= 0.9999 (RSQ ≥ .9999)

400 Settings	700 Settings
PRES (inch/hg): 27.3	PHOTO SPRESS(inch/hg):26.6
SAMP FL(cc/min): 722	PHOTO STEMP(c): 36
SAMP TEMP(c):24.8	PHOTO LAMP TEMP(c):58
ALAMP TEMP(c):52.0	PHOTO FLOW(LPM): .6264
BOX TEMP(c): 28.0	O3 FLOW(LPM): 0.1110
DCPS:2444	OLAMP TEMP(c):48
	REG PRESSURE:20.0
	BOX TEMP(c):25.9

Comments:

Run 6/6

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

IDAHO DEPARTMENT OF HEALTH & WELFARE

OZONE CERTIFICATION SUMMARY SHEET

Reference Standard:	API 400 Photometric Ozone Analyzer
Serial Number:	537
Verification Date:	01/27/14
Verification Entity:	CARB

Transfer Standard:	API T700 Dynamic Dilution Calibrator
Serial Number:	871
Organization:	Tetra Tech

RUN	DATE	SLOPE	INTERCEPT
1	11/25/14	1.04734	1.02383
2	12/01/14	1.04684	1.15617
3	12/01/14	1.04386	0.94816
4	12/02/14	1.04550	1.20837
5	12/02/14	1.04412	1.41020
6	12/02/14	1.04309	1.19425

RESULTS

RSD of Slopes (≤ 3.7%) = **0.172 %**

Mean Slope =1.03002 (Old 9/6/13) /= 1.04513 (New 12/03/14)

Mean Slope (Old) vs. Run (New) Slope (≤ 5%) = **-1.45%**

Mean Intercept = 0.10558 (Old 9/6/13) /1.15683 (New 12/03/14)

Standard Deviation of Intercepts (≤ 1.5) = **0.0259**

XX = PASS

XX = FAIL

Certification performed by: T.Harris Date: 12/03/2014

Gas (100 ccm) S/N 7031700005					Zero Air (10 LPM) S/N 7032000004				
% Full Scale	Set Point (STP)	Target (Volumetric)	Actual (Volumetric)	% Difference	% Full Scale	Set Point (STP)	Target (Volumetric)	Actual (Volumetric)	% Difference
10.0%	10	11.93	12.29	-2.97%	10.0%	1000	1193	1189	0.38%
20.0%	20	23.87	24.31	-1.84%	20.0%	2000	2387	2368	0.80%
35.0%	35	41.77	42.00	-0.54%	30.0%	3000	3580	3593	-0.35%
50.0%	50	59.67	59.63	0.08%	50.0%	5000	5967	5977	-0.16%
65.0%	65	77.58	77.41	0.22%	65.0%	6500	7758	6993	9.86%
80.0%	80	95.48	95.50	-0.02%	80.0%	8000	9548	9322	2.37%
95.0%	95	113.38	114.34	-0.84%	90.0%	9000	10741	10511	2.15%

RSQ	0.999898861
Intercept	-0.170510563
Slope	0.998601765
Mean % Diff.	0.93%

RSQ	0.995424235
Intercept	-45.20817854
Slope	1.038523028
Mean % Diff.	2.29%

STD TEMP (K)	273
STD BP (mmHg)	760
ACTUAL TEMP (K)	295
ACTUAL BP (mmHg)	688.1

Multiplication Factor (Convert to Volumetric)	1.193497197

Gas (100 ccm) S/N 7031700005					Zero Air (10 LPM) S/N 7032000004				
% Full Scale	Set Point (STP)	Target (Volumetric)	Actual (Volumetric)	% Difference	% Full Scale	Set Point (STP)	Target (Volumetric)	Actual (Volumetric)	% Difference
10.0%	10	11.93	12.29	-2.97%	10.0%	1000	1193	1189	0.38%
20.0%	20	23.87	24.31	-1.84%	20.0%	2000	2387	2368	0.80%
35.0%	35	41.77	42.00	-0.54%	30.0%	3000	3580	3593	-0.35%
50.0%	50	59.67	59.63	0.08%	50.0%	5000	5967	5977	-0.16%
65.0%	65	77.58	77.41	0.22%	65.0%	6500	7758	7784	-0.34%
80.0%	80	95.48	95.50	-0.02%	80.0%	8000	9548	9585	-0.39%
95.0%	95	113.38	114.34	-0.84%	90.0%	9000	10741	10750	-0.08%

RSQ	0.999898861
Intercept	-0.170510563
Slope	0.998601765
Mean % Diff.	0.93%

RSQ	0.999987184
Intercept	10.98926459
Slope	0.996429434
Mean % Diff.	0.36%

STD TEMP (K)	273
STD BP (mmHg)	760
ACTUAL TEMP (K)	295
ACTUAL BP (mmHg)	688.1

Multiplication Factor (Convert to Volumetric)	1.193497197

APPENDIX B.2
AUDIT EQUIPMENT CERTIFICATIONS

TELEDYNE
ADVANCED POLLUTION INSTRUMENTATION
A Teledyne Technologies Company

T700 Final Calibrated Test and Validation Data

5/10/13

Model:	T700				
Firmware:	T700 1.1.0 bld 84	Serial Number:	53	Sales Order:	065292
Date:	5/10/2013	Technician:	DNG	SP#:	

Parameter	Displayed As	Observed Value	Units	Final Test Process Control Limits at Factory**	Acceptable Limits in Use
Act Cal Gas [3]	ACT CAL	0.0330	LPM	± 1% of TARG CAL	± 1% of TARG CAL
Target Cal Gas [3]	TARG CAL	0.0333	LPM		
Act Dilution [3]	ACT DIL	4.00	LPM	± 1% of TARG DIL	± 1% of TARG DIL
Target Dilution [3]	TARG DIL	3.969	LPM		
O3 Gen Ref [1,3]	O3 GEN REF	163	mVDC	25 - 600 mV	25 - 600 mV
O3 Flow [1,3]	O3 FLOW	0.106	LPM	0.100 - 0.200 LPM	0.100 - 0.200 LPM
O3 Gen Drive [1,3]	O3 GEN DRIVE	800	mVDC	800 mV	800 mV
Ozone Lamp Temp	O3 LAMP TEMP	48	°C	48 ± 0.5 °C	48 ± 0.5 °C
Cal Pressure	CAL PRESSURE	30	PSIG	25 - 35 PSIG	25 - 35 PSIG
Dilution Pressure	DIL PRESSURE	30	PSIG	25 - 35 PSIG	25 - 35 PSIG
Regulator Pressure	REG PRESSURE	20	PSIG	20 ± 1.0 PSIG	20 ± 1.0 PSIG
ACT NO Conc [3]	ACT=	801	PPB	± 1% of TARG=	± 1% of TARG=
Target NO Conc [3]	TARG=	800	PPB		
Box Temp	BOX TEMP	31.2	°C	20 - 35 °C	8 - 48 °C
Photo Measure [1,3]	PHOTO MEASURE	4462	mVDC	4400 - 4600 mV	2500 - 4800 mV
Photo Reference [1,3]	PHOTO REFERENCE	4462	mVDC	4400 - 4600 mV	2500 - 4800 mV
Photo Flow [2]	PHOTO FLOW	0.82	LPM	0.720 - 0.880 LPM	0.720 - 0.880 LPM
Photo Lamp Temp	PHOTO LAMP TEMP	58	°C	58 ± 0.5 °C	58 ± 0.5 °C
Photo Sam Press [1,3]	PHOTO SPRESS	29.6	In-Hg-A	27 - 29.9 In-Hg-A	24 - 30 In-Hg-A
Photo Sample Temp	PHOTO STEMP	41	°C	28 - 45 °C	28 - 45 °C
Photo Slope	PHOTO SLOPE	1.013	-	1 ± 0.03	1 ± 0.03
Photo Offset	PHOTO OFFSET	0.5	PPB	0 ± 3 PPB	0 ± 3 PPB
Dark Offset	DARK OFFSET	0.7	mVDC	0 ±20mV	0 ±20mV
Perm Tube Flow	PERM FLOW		LPM	0.100 - 0.200 LPM	0.100 - 0.200 LPM
Perm Tube Temp	PERM TEMP		°C	50 ± 0.3 °C	50 ± 0.3 °C

* *For good instrument performance, the steadiness of this signal is more important than its absolute value (within the operating range)*

** *These are process control limits, and not specification limits. Items out of range do not imply the unit is out of specification.*

Statement of Calibration

The unit identified above has been tested with NIST measuring and test equipment using lot traceable materials. The testing is performed in accordance with ISO 9001-2000 and is traceable to NIST and industry recognized standards.

[1] *Recorded in Standby Mode,* [2] *Recorded in Generate O3 mode,* [3] *Recorded in Generate NO mode*

TELEDYNE
ADVANCED POLLUTION INSTRUMENTATION
A Teledyne Technologies Company

T700 Final Calibrated Test and Validation Data

Configuration and Options	
Power Configuration: Voltage:	100 - 240 V
Frequency:	60 Hz
Rack Mounts with Slides (20A - 26"; 20B - 24")	
Rack Mounts Ears Only (21)	
O3 Generator (1A)	Yes
Photometer (2A)	Yes
Source Gas MFC (7A - 0-50 cc/min; 7B - 0-200 cc/min)	0 - 200 SCCM
Diluent Gas Mass Flow Controller (8A - 0-5 SLPM;8B - 0-20 SLPM)	0 - 20 SLPM
Air Mass Flow Controller	
Third MFC (9)	0 - 20 SCCM
Strap Carrying Handle (29)	
Multi-drop (62)	
Ethernet W/ TCP-IP (63A)	
Multi-drop and Ethernet (63C)	
USB COMP PORT (64A)	Yes
External Valve Driver Capability - 12V (48A)	
External Valve Driver Capability - 24V (48B)	
Dual Gas Output Valve (73)	
Permeation Tube Oven (5)	
Calibration as a Primary Standard (95B)	
1 year warranty extension (92A)	
2 year warranty extension (92B)	
3 year warranty extension (92C)	
COM 1 Test Channel Configuration	RS-232
COM 2 Configuration	RS-232

Additional Information:

Photometer Correlation Certificate

TELEDYNE
INSTRUMENTS
Advanced Pollution Instrumentation
A Teledyne Technologies Company

This instrument has been calibrated using standards maintained at Teledyne API (9480 Carroll Park Drive, San Diego, CA 92121-5201, USA), which are traceable to the United States National Institute of Standards and Technology. This calibration was performed to Teledyne API specifications and to the requirements of ISO 9001:2008. Supporting documentation relative to traceability is on file at this office, and is available for examination at Teledyne API upon request.

Correlation of:
Date: 5/10/2013
Serial Number: 53

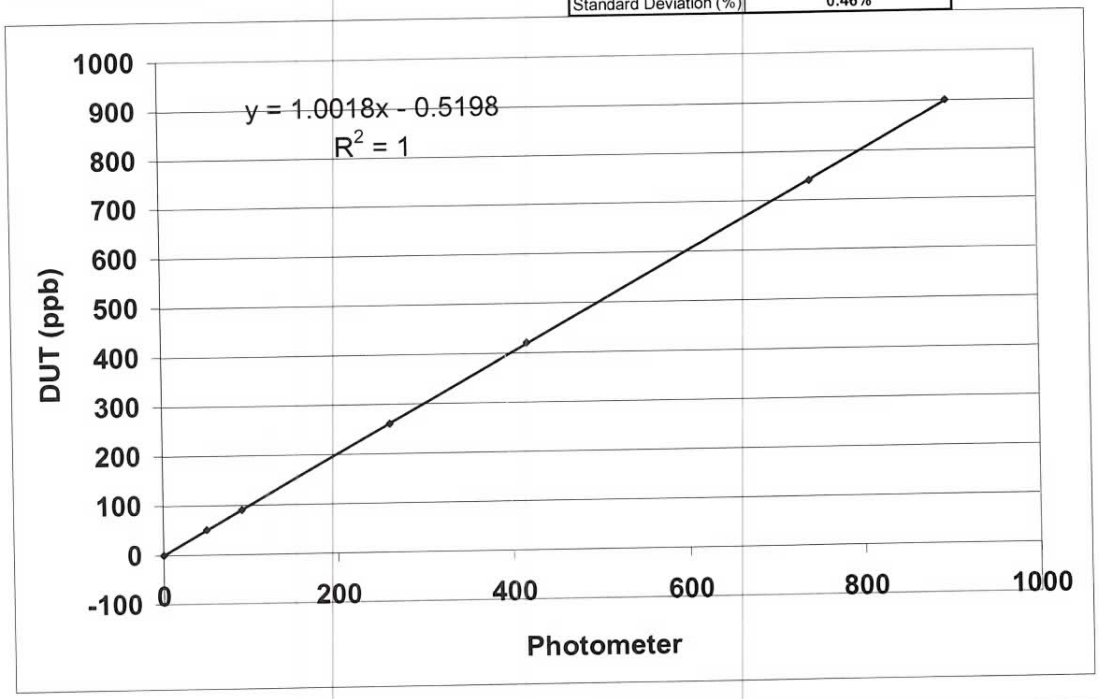
Model: T700
Operator: DNG

Reference Photometer Info:
Model: M400
Serial Number: 1751
Certification due date: 10/17/2013

Test Points (PPB)	Measurements		Difference (PPB)	Difference (%)
0	0.4	0	-0.4	0
50	50.3	50	-0.3	-0.596
90	90.6	90	-0.6	-0.662
260	261	260	-1	-0.383
420	418	420	2	0.478
740	741	740	-1	-0.135
900	898	900	2	0.223

DUT = Device under test

Average % Difference	**-0.18%**
Standard Deviation (%)	**0.46%**



Performed at the following environmental conditions: Temperature: 20C +/- 7C; RH: 20-80%; Pressure: 29.92 in-Hg-A +/- 1

Performed by: DNG 15 **Date:** 5/10/2013
Test technician

Approved by: D. Hunter **Date:** 5/10/13
Quality Representative

TELEDYNE HASTINGS INSTRUMENTS
Everywhereyoulook™

Teledyne Technologies- Hastings Instruments
804 Newcombe Ave. Hampton, Va. 23669-4593

HCS.xls
Revision 1.10 05/07/2012

Order Summary

Customer TELEDYNE ADVANCED POLLUTION INSTRUMENT
PO K74695
THI 75975
Range 0 - 20.00 SLM/Air @ 0.00°C

IUT Summary

Model HFC-212
S/N 6509300002
Accuracy Spec 1% of FS

FS Flow	FS Out	Zero Out	
20	5.000	0.000	Volts

Reference Std Documentation

Reference ID:		S/N#	Calibration Due:
Molbox	CDR 715	392	12/18/2012
Molbloc (A)	CDR 886	1897	04/25/2013
Molbloc (B)	N/A	N/A	N/A
DMM	CDR 971	US36036127	03/25/2013

Cal Routine HCS.exe
Rev Level 1.8.7
Procedure 560.G

IUT Condition

X	NEW
	In Tolerance - As Found
	Out Of Tolerance - As Found
	Calibrated - As Left

Environmental Conditions

Temp. °C 23.9
Humidity % 48.7

Flow Unit Correction Factors

Type	From	To	K
Gas	N2	Air	0.9980
Units	SLPM	SLM	1.000000
Temp	0°C	0.00°C	1.000000
Other			1.0000
Ktot=			0.998000

Std. Conditions

T	0°C	
P	760 mmHg	*********
V	181.2 µp	*********
		*********

Avg Cal. Temp. 23.2°C

The calculated system uncertainty is estimated to be: 3.5 : 1

Data contained herein is relevant only to the calibration and configuration for which this document was produced.

TEST DATA

Recorded Measurments			Indicated Flow		Estimated Uncertainty	
Ref. Flow SLPM N2	Temp. °C	Mass Flow SLM Air	Output VDC	Flow SLM Air	%FS	%PT
20.049	23.13	20.009	4.955	19.820	-0.95%	-0.95%
12.007	23.12	11.983	3.039	12.156	0.86%	1.44%
3.994	23.13	3.987	1.007	4.027	0.20%	1.02%
0.020	23.17	0.020	0.006	0.023	0.02%	
8.013	23.19	7.997	2.038	8.153	0.78%	1.96%
16.054	23.19	16.022	4.036	16.142	0.60%	0.75%

Calibration Performed By GTINSLEY Title TESTER II Calibration Date 05/22/2012 7:34 AM

This calibration complies with ANSI/NCSL Z540-1-1994 and ISO 17025-2005 and is traceable to the National Institute or Standards and Technology. This validation was accomplished by qualified personnel directed by controlled procedures. The accuracy of this calibration for any gas other than the actual gas used may be subject to theoretical corrections. Customer Service can be contacted weekdays 8AM-5PM EDT at 1-800-950-2468.

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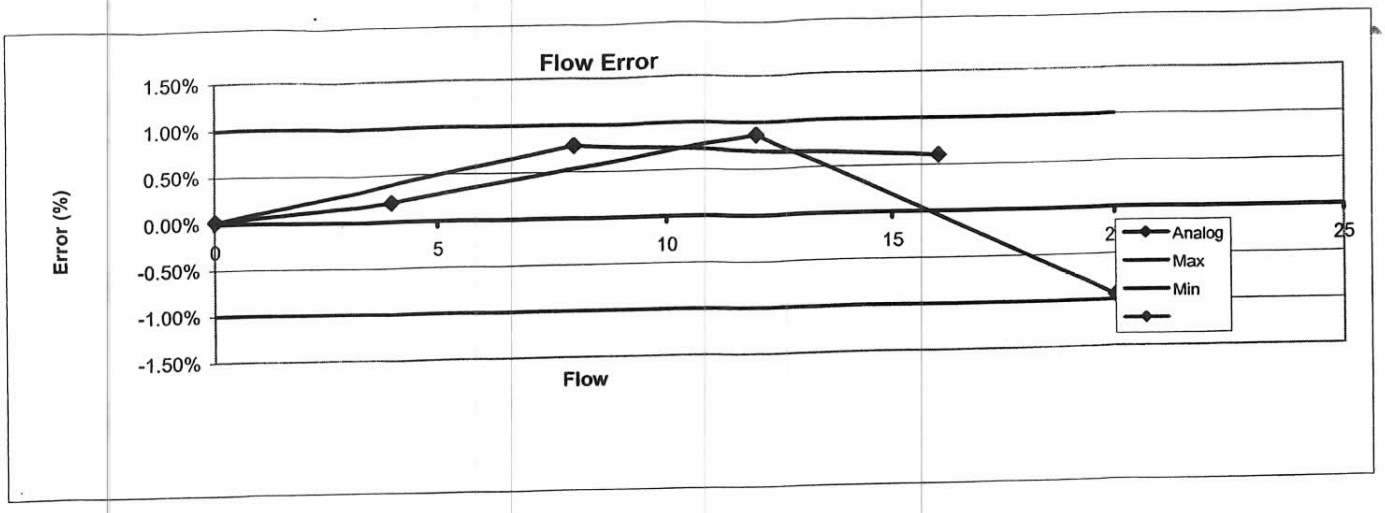

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Calibration Report

TELEDYNE INSTRUMENTS
A Teledyne Technologies Company

Teledyne Technologies- Hastings Instruments
804 Newcombe Ave. Hampton, Va. 23669-4593

HCS_UP.xls
Revision 1.04 06/07/2010

Order Summary

Customer: TELEDYNE API
TI-HI No.: CO 65428

Range: 0 - 20.00 SCCM/Air @ 0.0°C

IUT Summary

Model: HFC-212
S/N: 5503200002
Accuracy Spec: 1% FS

FS Flow	FS Out	Zero Out	
20	5.000	0.000	Volts

Reference Std Documentation

Reference ID:		S/N#	Calibration Due:
Molbox	CDR 747	431	08/23/2010
Molbloc (A)	N/A	N/A	N/A
Molbloc (B)	CDR 962	3036	07/26/2010
DMM	CDR 971	US36036127	12/17/2010

Cal Routine: HCS.exe
Rev Level: 1.6
Procedure: 560.D

IUT Condition

X	NEW
	In Tolerance - As Found
	Out Of Tolerance - As Found
	Calibrated - As Left

Environmental Conditions

Temp. °C: 24.5
Humidity %: 56.8
Pressure (mmHg): 760.8

Flow Unit Correction Factors

Type	From	To	K
Gas	N2	Air	0.9980
Units	SCCM	SCCM	1.0000
Temp	0°C	0.0°C	1.0000
Other			1.0000
Ktot=			0.9980

Std. Conditions

T	0°C	
P	760 mmHg	*********
V	181.2 µp	*********
		*********

Avg Cal. Temp: 26.0°C

The calculated system uncertainty is estimated to be: 5.0 : 1

Data contained herein is relevant only to the calibration and configuration for which this document was produced.

TEST DATA

Recorded Measurments			Indicated Flow		Estimated Uncertainty	
Ref. Flow SCCM N2	Temp. °C	Mass Flow SCCM Air	Output VDC	Flow SCCM Air	%FS	%PT
20.051	26.02	20.010	5.019	20.076	0.33%	0.33%
12.011	26.02	11.987	2.970	11.880	-0.54%	-0.90%
3.995	26.01	3.987	0.980	3.920	-0.34%	-1.70%
0.031	26.01	0.031	0.004	0.015	-0.08%	
8.021	26.00	8.005	1.970	7.881	-0.62%	-1.54%
14.039	26.00	14.011	3.478	13.911	-0.50%	-0.71%
18.026	26.00	17.990	4.493	17.974	-0.08%	-0.09%

Calibration Performed By: GTINSLEY Title: TESTER Calibration Date: 06/22/2010 6:18 AM

This calibration complies with ANSI/NCSL Z540-1-1994 and ISO 17025-2005 and is traceable to the National Institute or Standards and Technology. This validation was accomplished by qualified personnel directed by controlled procedures. The accuracy of this calibration for any gas other than the actual gas used may be subject to theoretical corrections. Customer Service can be contacted weekdays 8AM-5PM EDT at 1-800-950-2468.

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TELEDYNE HASTINGS INSTRUMENTS
Everywhereyoulook™

Teledyne Technologies- Hastings Instruments
804 Newcombe Ave. Hampton, Va. 23669-4593

HCS.xls
Revision 1.10 05/07/2012

Order Summary

Customer TELEDYNE ADVANCED POLLUTION INSTRUMENT
PO K74804
THI 76344
Range 0 - 200.00 SCCM/Air @ 0.00°C

IUT Summary

Model HFC-212
S/N 6539300007
Accuracy Spec 1% of FS

FS Flow	FS Out	Zero Out	
200	5.000	0.000	Volts

Reference Std Documentation

Reference ID:		S/N#	Calibration Due:
Molbox	CDR 745	435	07/31/2012
Molbloc (A)	N/A	N/A	N/A
Molbloc (B)	CDR 741	960	11/15/2012
DMM	CDR 869	835816	07/19/2012

Cal Routine HCS.exe
Rev Level 1.8.7
Procedure 560.G

IUT Condition

X	NEW
	In Tolerance - As Found
	Out Of Tolerance - As Found
	Calibrated - As Left

Environmental Conditions

Temp. °C 23.7
Humidity % 52.2

Flow Unit Correction Factors

Type	From	To	K
Gas	N2	Air	0.9980
Units	SCCM	SCCM	1.000000
Temp	0°C	0.00°C	1.000000
Other			1.0000
Ktot=			0.998000

Std. Conditions

T	0°C	
P	760 mmHg	*********
V	181.2 µp	*********
		*********

Avg Cal. Temp. 24.5°C

The calculated system uncertainty is estimated to be: 3.5 : 1

Data contained herein is relevant only to the calibration and configuration for which this document was produced.

TEST DATA

Recorded Measurments			Indicated Flow		Estimated Uncertainty	
Ref. Flow SCCM N2	Temp. °C	Mass Flow SCCM Air	Output VDC	Flow SCCM Air	%FS	%PT
200.596	24.50	200.195	4.987	199.499	-0.35%	-0.35%
120.430	24.51	120.189	3.017	120.699	0.26%	0.42%
39.970	24.52	39.890	0.958	38.327	-0.78%	-3.92%
-0.020	24.53	-0.020	-0.002	-0.077	-0.03%	
79.948	24.55	79.788	1.966	78.656	-0.57%	-1.42%
160.132	24.57	159.812	4.029	161.151	0.67%	0.84%

Calibration Performed By DFGRANT Title FLOW TEAM LEAD Calibration Date 05/24/2012 9:45 AM

This calibration complies with ANSI/NCSL Z540-1-1994 and ISO 17025-2005 and is traceable to the National Institute or Standards and Technology. This validation was accomplished by qualified personnel directed by controlled procedures. The accuracy of this calibration for any gas other than the actual gas used may be subject to theoretical corrections. Customer Service can be contacted weekdays 8AM-5PM EDT at 1-800-950-2468.

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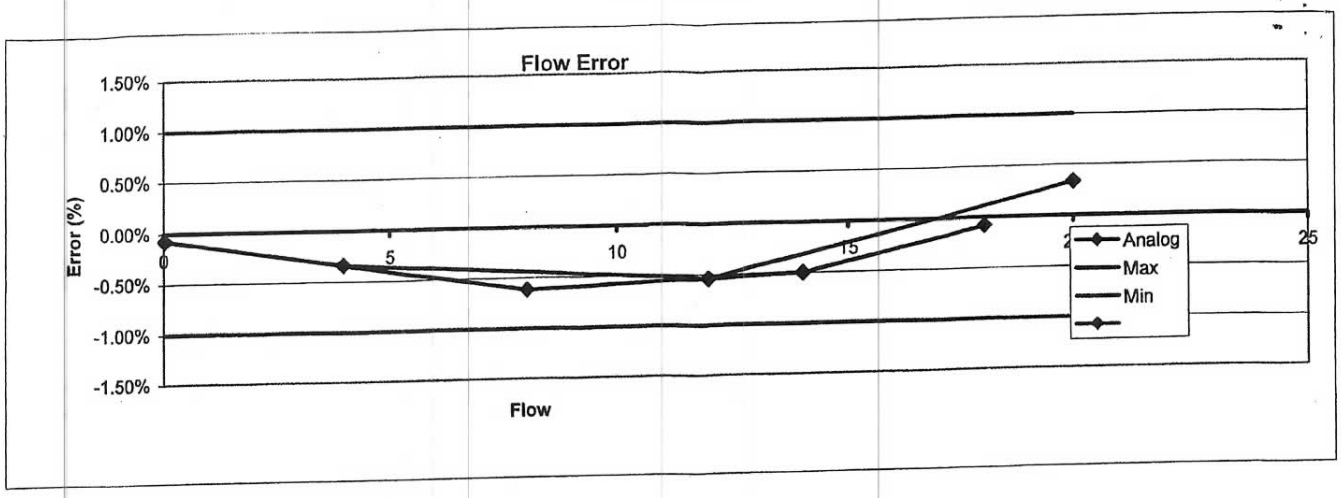
Calibration Report



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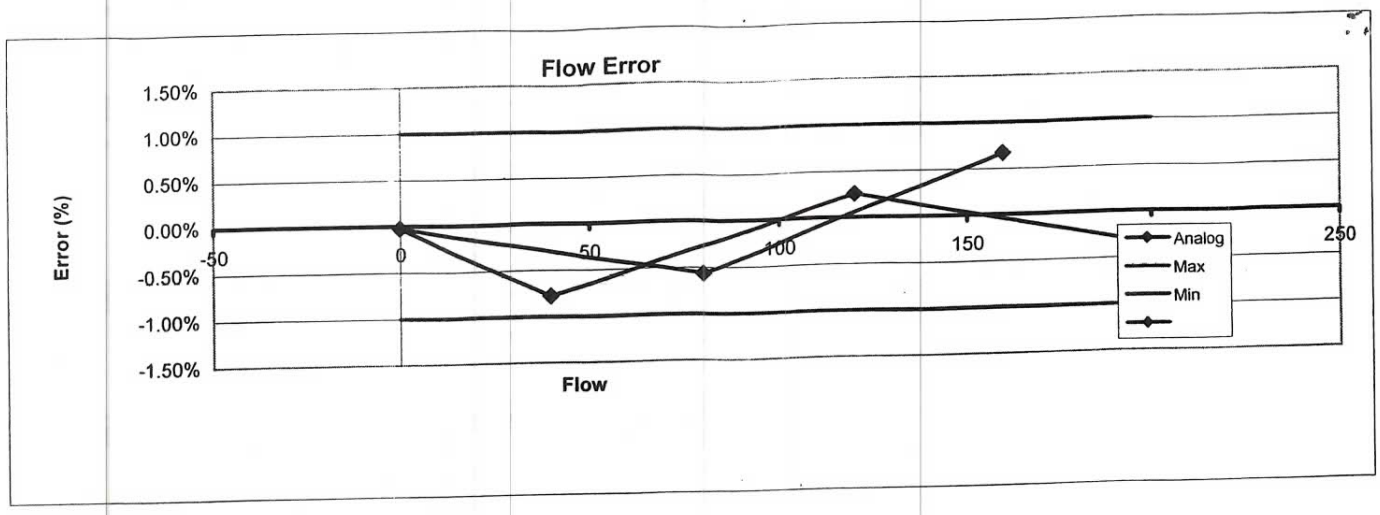

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SCOTT-MARRIN, INC. PGVP Vendor ID: H12012

6531 Box Springs Blvd • Riverside, CA 92507-0725
Phone: +1(951)653-6780 • Fax: +1(951)653-2430 • www.scottmarrin.com

Audit Gas

Report Of Analysis
EPA Protocol Gas Mixtures

ENIC01
TO: Environ International Corp
Attn: Kris Hansen
19020 - 33rd Avenue West, Ste 310
Lynnwood, WA 98036
(206) 794-6013

REPORT NO: 63653-01
REPORT DATE: September 6, 2013
CUSTOMER PO NO: 0324287K1

CYLINDER SIZE: 150A (141 std cu ft)
CYLINDER NUMBER: CC67204 **CYLINDER PRESSURE:** 2000 psig

COMPONENT	CONCENTRATION (v/v) ± EPA UNCERTAINTY	REFERENCE STANDARD		ANALYZER MAKE, MODEL, S/N, DETECTION	REPLICATE ANALYSIS DATA	
					3/11/2013	9/3/2013
Nitric oxide	10.71 ± 0.11 ppm	GMIS	SRM 2628a	TECO Model 42C	10.73 ppm	10.72 ppm
NOx	10.85 ppm		Samp#: 49-H-112	Serial # 57458-333	10.69 ppm	10.74 ppm
Nitrogen dioxide	0.14 ppm	Cyl#: CC37883	Cyl#: CAL016281	Continuous	10.72 ppm	10.76 ppm
		9.93 ± 0.1 ppm	10.08 ± 0.1 ppmv	Chemiluminescence	$\bar{x}$: 10.71 ppm	10.74 ppm
		Exp: 6/27/2016	Exp: 11/1/2013	**LAST CAL DATE:** 8/11/2013		
O2-free Nitrogen	Balance					

CERTIFICATION DATE: September 3, 2013 **EPA EXPIRATION DATE:** September 4, 2016

ppm = µmole/mole **% = mole-%** **$\bar{x}$ = EPA weighted mean**

The above analyses were performed in accordance with Procedure G1 of the EPA Traceability Protocol, Report Number EPA600/R-12/531, dated May 2012.

The above analyses should not be used if the cylinder pressure is less than 100 psig.

ANALYST: D.C. Marrin D.C.Marrin **APPROVED:** J. T. Marrin

The only liability of this company for gas which fails to comply with this analysis shall be replacement or reanalysis thereof by the company without extra cost.

IDAHO DEPARTMENT OF HEALTH & WELFARE

OZONE REVERIFICATION SUMMARY SHEET

Reference Standard:	API 400 Photometric Ozone Analyzer
Serial Number:	537
Verification Date:	2/22/13
Verification Entity:	CARB

Transfer Standard:	API 700 Dynamic Dilution Calibrator
Serial Number:	53
Organization:	Tetra Tech

RUN	DATE	SLOPE	INTERCEPT
1	06/03/13	1.02217	-0.93343
2	06/03/13	1.01837	-1.15545
3	06/04/13	1.02372	-1.26910
4	06/04/13	1.02229	-1.18270
5	06/04/13	1.02176	-1.31079
6	06/07/13	1.02308	-1.13701

RESULTS

RSD of Slopes (≤ 3.7%) = **. 19%**

Mean Slope = (Old 1-5) 1.02166 / (New) (1-6) = 1.0219

Mean Slope (Runs 1 – 5) vs. Run 6 Slope (≤ 5%) = **.14%**

Standard Deviation of Intercepts (≤ 1.5) = 0.13

Mean Intercept = (Old) -1.17029/ (New) -1.16475

XX = PASS

XX = FAIL

Verification performed by: T.Harris Date: 6/7/13

IDAHO DEPARTMENT OF HEALTH & WELFARE

Certification Date:6/3/13

API-400 Photometer Primary Standard	
S/N: 537	
Offset: -0.3	Slope: 1.026
CARB Certification Date: 2/22/13	
Log No.	

BP lab: 689.4
Temp. lab: 20.5

API-700U				
S/N:0053	Air Flow Setting: 3.5 L/min			
	Calibration Settings			
	Offset	0.5	Slope	1.004
As Found:				
Final:				

	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
	0.0	441.8	343.4	245.4	148.5	50.8	0.3	1	0.0	451.0	350.0	250.0	150.0	50.0	0.0
	0.1	441.6	343.3	245.7	148.3	50.6	0.3	2	0.0	451.0	350.0	250.0	150.0	50.0	0.0
	0.1	441.6	343.4	245.6	148.4	50.7	0.2	3	0.0	451.0	350.0	250.0	150.0	50.0	0.0
	0.2	441.5	343.5	245.7	148.4	50.8	0.3	4	0.0	451.0	350.0	250.0	150.0	50.0	0.0
	0.3	441.6	343.6	245.6	148.5	50.8	0.4	5	0.0	451.0	350.0	250.0	150.0	50.0	0.0
RESULTS															
Average	0.1	441.6	343.4	245.6	148.4	50.7	0.3		0.0	451.0	350.0	250.0	150.0	50.0	0.0

Slope= 1.02217 (Slope ≤ 5% of 1.00)

Offset= -0.93343 (-3 < Offset < 3 ppb)

RSQ= 1 (RSQ ≥ .9999)

PASS =

FAIL =

Comments:

400 vs 700 Regression Results (400 Photometer = X. 700 Calibrator = Y)

Certification performed by:

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.1	**PHOTO SPRESS(inch/hg):26.1**
SAMP FL(cc/min): 720	**PHOTO STEMP(c): 39.0**
SAMP TEMP(c):26	**PHOTO LAMP TEMP(c):58**
ALAMP TEMP(c):52	**PHOTO FLOW(LPM): .7000**
BOX TEMP(c): 29.1	**O3 FLOW(LPM): 3.5**
DCPS:2441	**OLAMP TEMP(c):48**
	REG PRESSURE:19.7
	BOX TEMP(c):28.1
	DIL PRESSURE(psig): 22.1

IDAHO DEPARTMENT OF HEALTH & WELFARE

Certification Date:6/3/13

API-400 Photometer Primary Standard	
S/N: 537	
Offset: -0.3	Slope: 1.026
CARB Certification Date: 2/22/13	
Log No.	

BP lab: 689.1
Temp. lab: 23.7

API-700U	
S/N:0053	Air Flow Setting: 3.5 L/min

Calibration Settings

	Offset	0.5 Slope	1.013	
As Found:				
Final:				

	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
	0.4	442.2	344.2	246.6	149.3	51.6	0.0	1	0.0	449.0	350.0	250.0	150.0	50.0	0.0
	0.3	442.3	344.3	246.8	149.4	51.7	0.1	2	0.0	449.0	350.0	250.0	150.0	50.0	0.0
	0.4	442.4	344.4	246.6	149.2	51.7	0.3	3	0.0	449.0	350.0	250.0	150.0	50.0	0.0
	0.4	442.3	344.2	246.6	149.2	51.7	0.3	4	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.4	442.7	344.3	246.7	149.2	51.6	0.2	5	0.0	450.0	350.0	250.0	150.0	50.0	0.0
RESULTS															
Average	0.4	442.4	344.3	246.7	149.3	51.7	0.2		0.0	449.4	350.0	250.0	150.0	50.0	0.0

Slope= 1.01837 (Slope ≤ 5% of 1.00)

Offset= -1.15545 (-3 < Offset < 3 ppb)

RSQ= 1 (RSQ ≥ .9999)

PASS =
FAIL =

Comments:

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.1	**PHOTO SPRESS(inch/hg):27.7**
SAMP FL(cc/min): 723	**PHOTO STEMP(c): 39.9**
SAMP TEMP(c):26.6	**PHOTO LAMP TEMP(c):58**
ALAMP TEMP(c):52.1	**PHOTO FLOW(LPM): .0031**
BOX TEMP(c): 30.1	**O3 FLOW(LPM):**
DCPS:2439	**OLAMP TEMP(c):48**
	REG PRESSURE:19.7
	BOX TEMP(c):28.7
	DIL PRESSURE(psig): 21.7

IDAHO DEPARTMENT OF HEALTH & WELFARE

Certification Date:6/4/13

API-400 Photometer Primary Standard	
S/N: 537	
Offset: -0.3	Slope: 1.026
CARB Certification Date: 2/22/13	
Log No.	

BP lab: 691
Temp. lab: 22.6

API-700U				
S/N:0053	Air Flow Setting: 3.5 L/min			
	Calibration Settings			
	Offset	0.5	Slope	1.013
As Found:				
Final:				

	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
	0.3	440.3	342.4	246.2	148.5	51.2	0.3	1	0.0	450.0	349.0	250.0	150.0	50.0	0.0
	0.3	440.3	342.5	245.9	148.7	51.2	0.3	2	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.4	440.1	342.6	246.0	148.8	51.2	0.3	3	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.3	440.1	342.7	246.1	148.8	51.2	0.4	4	0.0	450.0	349.0	250.0	150.0	50.0	0.0
	0.3	440.0	342.7	246.0	148.7	51.1	0.4	5	0.0	450.0	350.0	250.0	150.0	50.0	0.0
								RESULTS							
Average	0.3	440.2	342.6	246.0	148.7	51.2	0.3		0.0	450.0	349.6	250.0	150.0	50.0	0.0

Slope= 1.02372
(Slope ≤ 5% of 1.00)

Offset= -1.26910
(-3 < Offset < 3 ppb)

RSQ= 1
(RSQ ≥ .9999)

PASS =
FAIL =

Comments:

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.2	**PHOTO SPRESS(inch/hg):26.2**
SAMP FL(cc/min): 721	**PHOTO STEMP(c): 39.1**
SAMP TEMP(c):25.9	**PHOTO LAMP TEMP(c):58**
ALAMP TEMP(c):52	**PHOTO FLOW(LPM): .7080**
BOX TEMP(c): 29.2	**O3 FLOW(LPM): 3.5**
DCPS:2438	**OLAMP TEMP(c):48**
	REG PRESSURE:19.7
	BOX TEMP(c):28.1
	DIL PRESSURE(psig): 22.2

IDAHO DEPARTMENT OF HEALTH & WELFARE

Certification Date:6/4/13

API-400 Photometer Primary Standard	
S/N: 537	
Offset: -0.3	Slope: 1.026
CARB Certification Date: 2/22/13	
Log No.	

BP lab: 690.8
Temp. lab: 22.8

API-700U				
S/N:0053	Air Flow Setting: 3.5 L/min			
Calibration Settings	Offset	0.5	Slope	1.013
As Found:				
Final:				

Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
0.3	440.9	342.8	246.3	149.0	51.3	0.2	1	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.2	441.0	342.9	246.3	148.9	51.1	0.3	2	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.2	440.9	342.9	246.4	148.9	51.1	0.2	3	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.3	441.0	343.0	246.4	149.0	51.1	0.2	4	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.4	441.1	343.0	246.3	148.9	51.1	0.3	5	0.0	450.0	350.0	250.0	150.0	50.0	0.0
					RESULTS									
Average 0.3	441.0	342.9	246.3	148.9	51.1	0.2		0.0	450.0	350.0	250.0	150.0	50.0	0.0

Slope= 1.02229 (Slope ≤ 5% of 1.00)

Offset= -1.18270 (-3 < Offset < 3 ppb)

RSQ= 1 (RSQ ≥ .9999)

PASS =

FAIL =

Comments:

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.2	**PHOTO SPRESS(inch/hg):27.1**
SAMP FL(cc/min): 786	**PHOTO STEMP(c): 39.3**
SAMP TEMP(c):26.1	**PHOTO LAMP TEMP(c):58**
ALAMP TEMP(c):52	**PHOTO FLOW(LPM): .0033**
BOX TEMP(c): 29.7	**O3 FLOW(LPM): 3.5**
DCPS:2439	**OLAMP TEMP(c):48**
	REG PRESSURE:19.7
	BOX TEMP(c):28.4
	DIL PRESSURE(psig): 22.2

IDAHO DEPARTMENT OF HEALTH & WELFARE

Certification Date:6/4/13

API-400 Photometer Primary Standard						
S/N: 537						
Offset: -0.3		Slope: 1.026				
CARB Certification Date: 2/22/13			BP lab: 690.3			
Log No.			Temp. lab: 23.2			

API-700U						
S/N:0053			Air Flow Setting: 3.5 L/min			
	Calibration Settings					
	Offset	0.5	Slope	1.004		
As Found:						
Final:						

	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
	0.2	441.1	343.4	246.9	149.4	51.4	0.3	1	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.3	441.0	343.3	246.8	149.3	51.3	0.3	2	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.4	441.0	343.3	246.9	149.3	51.2	0.3	3	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.4	441.1	343.3	246.8	149.1	51.3	0.2	4	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.3	441.2	343.4	246.8	149.0	51.3	0.2	5	0.0	450.0	350.0	250.0	150.0	50.0	0.0
						RESULTS									
Average	0.3	441.1	343.3	246.8	149.2	51.3	0.3		0.0	450.0	350.0	250.0	150.0	50.0	0.0

Slope= 1.02176 (Slope ≤ 5% of 1.00)

Offset= -1.31079 (-3 < Offset < 3 ppb)

RSQ= 1 (RSQ ≥ .9999)

PASS =

FAIL =

Comments:

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.3	**PHOTO SPRESS(inch/hg):26.4**
SAMP FL(cc/min): 786	**PHOTO STEMP(c): 39.6**
SAMP TEMP(c):26.5	**PHOTO LAMP TEMP(c):58**
ALAMP TEMP(c): 52	**PHOTO FLOW(LPM): .7025**
BOX TEMP(c): 29.9	**O3 FLOW(LPM): .1060**
DCPS:2438	**OLAMP TEMP(c):48**
	REG PRESSURE:19.7
	BOX TEMP(c):28.5
	DIL PRESSURE(psig): 22.8

IDAHO DEPARTMENT OF HEALTH & WELFARE

Certification Date:6/7/13

API-400 Photometer Primary Standard				API-700U			
S/N: 537				S/N:0053	Air Flow Setting: 3.5 L/min		
Offset: -0.3	Slope: 1.026			Calibration Settings			
					Offset	0.5 Slope	1.004
CARB Certification Date: 2/22/13		BP lab: 688.2		As Found:			
Log No.		Temp. lab: 21.7		Final:			

	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
	0.4	440.9	342.5	245.9	148.3	51.3	0.3	1	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.4	441.0	342.5	246.0	148.2	51.3	0.4	2	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.2	441.1	342.2	246.0	148.2	51.3	0.3	3	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.3	441.1	342.2	246.1	148.3	51.2	0.3	4	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.4	441.0	342.2	246.1	148.3	51.3	0.4	5	0.0	450.0	350.0	250.0	150.0	50.0	0.0
RESULTS															
Average	0.3	441.0	342.3	246.0	148.3	51.3	0.3		0.0	450.0	350.0	250.0	150.0	50.0	0.0

Slope= 1.02308 (Slope ≤ 5% of 1.00)

Offset= -1.13701 (-3 < Offset < 3 ppb)

RSQ= 1 (RSQ ≥ .9999)

PASS =

FAIL =

Comments:

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.2	**PHOTO SPRESS(inch/hg):26.2**
SAMP FL(cc/min): 727	**PHOTO STEMP(c): 39.4**
SAMP TEMP(c):27.4	**PHOTO LAMP TEMP(c):58**
ALAMP TEMP(c):52.1	**PHOTO FLOW(LPM): 0.7060**
BOX TEMP(c): 30.2	**O3 FLOW(LPM): 3.5**
DCPS:2439	**OLAMP TEMP(c):48**
	REG PRESSURE:19.8
	BOX TEMP(c):28.9
	DIL PRESSURE(psig): 22.9

IDAHO DEPARTMENT OF HEALTH & WELFARE

OZONE REVERIFICATION SUMMARY SHEET

Reference Standard:	API 400 Photometric Ozone Analyzer
Serial Number:	537
Verification Date:	01/27/14
Verification Entity:	CARB

Transfer Standard:	API 700 Dynamic Dilution Calibrator
Serial Number:	53
Organization:	Tetra Tech

RUN	DATE	SLOPE	INTERCEPT
1	05/15/14	1.01840	-0.46490
2	05/15/14	1.02078	-0.73369
3	05/15/14	1.02151	-0.42209
4	05/16/14	1.01822	-0.43424
5	05/16/14	1.01945	-0.43196
6	05/16/14	1.01493	-0.38017

RESULTS

RSD of Slopes (≤ 3.7%) = 0.23 **%**

Mean Slope (Old/New) = 1.0219 (06/07/13) / 1.0189 (05/16/14)

Mean Slope Difference (Old 6x6 vs. New 6x6) (≤ 5%) = **0.29%**

Standard Deviation of Intercepts (≤ 1.5) = 0.13

Mean Intercept = (Old) -1.16475/ (New) -0.47784

XX = PASS

XX = FAIL

Verification performed by: T.Harris Date: 05/16/14

IDAHO DEPARTMENT OF HEALTH & WELFARE

Certification Date:5/15/14

API-400 Photometer Primary Standard	
S/N: 537	
Offset: -0.3	Slope: 1.026
CARB Certification Date: 01/27/2014	
Log No. 02014 030	

BP lab: 694
Temp. lab: 21.5

API-700EU				
S/N:0053	Air Flow Setting: 3.5 L/min			
	Calibration Settings			
	Offset	0.1	Slope	1.002
As Found:				
Final:				

	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
	0.3	442.8	342.6	244.8	147.6	49.8	0.3	1	0.0	452.0	350.0	250.0	150.0	50.0	0.0
	0.3	443.0	342.7	244.7	147.6	49.6	0.3	2	0.0	452.0	350.0	250.0	150.0	50.0	0.0
	0.2	442.8	342.8	244.8	147.7	49.5	0.2	3	0.0	452.0	350.0	250.0	150.0	50.0	0.0
	0.4	442.7	342.7	244.7	147.7	49.6	0.2	4	0.0	451.0	350.0	250.0	150.0	50.0	0.0
	0.3	442.8	342.7	244.8	147.7	49.7	0.3	5	0.0	451.0	350.0	250.0	150.0	50.0	0.0
						RESULTS									
Average	0.3	442.8	342.7	244.8	147.7	49.6	0.3		0.0	451.6	350.0	250.0	150.0	50.0	0.0

Slope= 1.02151 (Slope ≤ 5% of 1.00)

Offset= -0.42209 (-3 < Offset < 3 ppb)

RSQ= 1 (RSQ ≥ .9999)

PASS =
FAIL =

Comments:

1 of 6

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.3	**PHOTO SPRESS(inch/hg):27.3**
SAMP FL(cc/min): 732	**PHOTO STEMP(c): 37.3**
SAMP TEMP(c):25.8	**PHOTO LAMP TEMP(c):58**
ALAMP TEMP(c):52.1	**PHOTO FLOW(LPM): 0.6969**
BOX TEMP(c): 28.4	**O3 FLOW(LPM): 0.1060**
DCPS:2448	**OLAMP TEMP(c): 48.0**
	REG PRESSURE:19
	BOX TEMP(c):27.9
	DIL PRESSURE(psig): 20.6

IDAHO DEPARTMENT OF HEALTH & WELFARE

Certification Date:5/15/14

API-400 Photometer Primary Standard	
S/N: 537	
Offset: -0.3	Slope: 1.026
CARB Certification Date: 01/27/2014	BP lab: 694
Log No. 02014 030	Temp. lab: 21.5

API-700EU	
S/N:0053	Air Flow Setting: 3.5 L/min

Calibration Settings

	Offset	0.1 Slope		1.002
As Found:				
Final:				

Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
0.3	441.3	343.5	245.3	148.8	50.0	0.2	1	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.1	441.5	343.4	245.3	148.9	50.1	0.3	2	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.2	441.3	343.4	245.2	149.1	50.1	0.3	3	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.2	441.4	343.5	245..1	149.0	50.0	0.2	4	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.1	441.4	343.4	245.4	149.0	50.1	0.3	5	0.0	450.0	350.0	250.0	150.0	50.0	0.0
					RESULTS									
Average 0.2	441.4	343.4	245.3	149.0	50.1	0.3		0.0	450.0	350.0	250.0	150.0	50.0	0.0

Slope= 1.02078 (Slope ≤ 5% of 1.00)

Offset= -0.73369 (-3 < Offset < 3 ppb)

RSQ= 1 (RSQ ≥ .9999)

PASS =

FAIL =

Comments:

2 of 6

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.3	**PHOTO SPRESS(inch/hg):27.3**
SAMP FL(cc/min): 732	**PHOTO STEMP(c): 37.3**
SAMP TEMP(c):25.8	**PHOTO LAMP TEMP(c):58**
ALAMP TEMP(c):52.1	**PHOTO FLOW(LPM): 0.6969**
BOX TEMP(c): 28.4	**O3 FLOW(LPM): 0.1060**
DCPS:2441	**OLAMP TEMP(c): 48.0**
	REG PRESSURE:19
	BOX TEMP(c):27.9
	DIL PRESSURE(psig): 20.6

IDAHO DEPARTMENT OF HEALTH & WELFARE

Certification Date:5/15/14

API-400 Photometer Primary Standard	
S/N: 537	
Offset: -0.3	Slope: 1.026
CARB Certification Date: 01/27/2014	
Log No. 02014 030	

BP lab: 692.9
Temp. lab: 22.2

API-700EU				
S/N:0053	Air Flow Setting: 3.5 L/min			
	Calibration Settings			
	Offset	0.1	Slope	1.002
As Found:				
Final:				

	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
	0.3	442.1	344.1	246.1	147.9	49.7	0.4	1	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.4	442.2	344.2	246.0	148.0	49.8	0.3	2	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.3	442.1	344.2	245.9	147.9	49.7	0.3	3	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.3	442.2	344.2	246.0	147.7	49.6	0.4	4	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.2	442.2	344.3	246.1	147.9	49.7	0.3	5	0.0	450.0	350.0	250.0	150.0	50.0	0.0
RESULTS															
Average	0.3	442.2	344.2	246.0	147.9	49.7	0.3		0.0	450.0	350.0	250.0	150.0	50.0	0.0

Slope= 1.01841 (Slope ≤ 5% of 1.00)

Offset= -0.46490 (-3 < Offset < 3 ppb)

RSQ= 1 (RSQ ≥ .9999)

PASS =
FAIL =

Comments:

3 of 6

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.3	**PHOTO SPRESS(inch/hg):27.9**
SAMP FL(cc/min): 732	**PHOTO STEMP(c): 38.4**
SAMP TEMP(c):25.6	**PHOTO LAMP TEMP(c):58**
ALAMP TEMP(c):52.1	**PHOTO FLOW(LPM): 0.6986**
BOX TEMP(c): 28.9	**O3 FLOW(LPM): 0.1060**
DCPS:2447	**OLAMP TEMP(c): 48.0**
	REG PRESSURE:19
	BOX TEMP(c):27.9
	DIL PRESSURE(psig): 20.6

IDAHO DEPARTMENT OF HEALTH & WELFARE

Certification Date:5/16/14

API-400 Photometer Primary Standard	
S/N: 537	
Offset: -0.3	Slope: 1.026
CARB Certification Date: 01/27/2014	BP lab: 689
Log No. 02014 030	Temp. lab: 20.5

API-700EU	
S/N:0053	Air Flow Setting: 3.5 L/min

Calibration Settings

	Offset	0.1 Slope	1.002	
As Found:				
Final:				

Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
0.2	441.9	343.3	245.9	148.0	49.6	0.1	1	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.3	441.6	343.4	245.9	147.9	49.7	0.1	2	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.2	441.7	343.5	245.9	147.9	49.7	0.2	3	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.2	441.9	343.6	245.8	148.0	49.7	0.2	4	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.2	441.9	343.5	245.7	148.0	49.8	0.1	5	0.0	450.0	350.0	250.0	150.0	50.0	0.0
RESULTS														
Average 0.2	441.8	343.5	245.8	148.0	49.7	0.1		0.0	450.0	350.0	250.0	150.0	50.0	0.0

Slope= 1.01945 (Slope ≤ 5% of 1.00)

Offset= -0.43196 (-3 < Offset < 3 ppb)

RSQ= 1 (RSQ ≥ .9999)

PASS =

FAIL =

Comments:

4 of 6

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.2	**PHOTO SPRESS(inch/hg):26.3**
SAMP FL(cc/min): 726	**PHOTO STEMP(c): 33.1**
SAMP TEMP(c):25.1	**PHOTO LAMP TEMP(c):58**
ALAMP TEMP(c):52.1	**PHOTO FLOW(LPM): 0.6931**
BOX TEMP(c): 28.1	**O3 FLOW(LPM): 0.1060**
DCPS:2447	**OLAMP TEMP(c): 48.0**
	REG PRESSURE:19
	BOX TEMP(c):25.5
	DIL PRESSURE(psig): 21

IDAHO DEPARTMENT OF HEALTH & WELFARE

Certification Date:5/16/14

API-400 Photometer Primary Standard	
S/N: 537	
Offset: -0.3	Slope: 1.026
CARB Certification Date: 01/27/2014	BP lab: 688.9
Log No. 02014 030	Temp. lab: 21

API-700EU				
S/N:0053	Air Flow Setting: 3.5 L/min			
Calibration Settings	Offset	0.1	Slope	1.002
As Found:				
Final:				

	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
	0.1	442.1	344.2	246.2	147.9	49.9	0.3	1	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.1	442.1	344.3	246.2	147.7	49.9	0.3	2	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.0	442.0	344.4	246.3	147.9	50.0	0.2	3	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.0	442.1	344.2	246.3	147.8	50.0	0.2	4	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.1	442.0	344.3	246.2	147.7	49.9	0.2	5	0.0	450.0	350.0	250.0	150.0	50.0	0.0
RESULTS															
Average	0.1	442.1	344.3	246.2	147.8	49.9	0.2		0.0	450.0	350.0	250.0	150.0	50.0	0.0

Slope= 1.01822 (Slope ≤ 5% of 1.00)

Offset= -0.43424 (-3 < Offset < 3 ppb)

RSQ= 1 (RSQ ≥ .9999)

PASS =

FAIL =

Comments:

5 of 6

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.2	**PHOTO SPRESS(inch/hg):26.3**
SAMP FL(cc/min): 726	**PHOTO STEMP(c): 33.1**
SAMP TEMP(c):25.1	**PHOTO LAMP TEMP(c):58**
ALAMP TEMP(c):52.1	**PHOTO FLOW(LPM): 0.6931**
BOX TEMP(c): 28.1	**O3 FLOW(LPM): 0.1060**
DCPS:2447	**OLAMP TEMP(c): 48.0**
	REG PRESSURE:19
	BOX TEMP(c):25.5
	DIL PRESSURE(psig): 21

IDAHO DEPARTMENT OF HEALTH & WELFARE

Certification Date:5/16/14

API-400 Photometer Primary Standard	
S/N: 537	
Offset: -0.3	Slope: 1.026
CARB Certification Date: 01/27/2014	
Log No. 02014 030	

BP lab: 688.9
Temp. lab: 21.7

API-700EU				
S/N:0053	Air Flow Setting: 3.5 L/min			
	Calibration Settings			
	Offset	0.1	Slope	1.002
As Found:				
Final:				

	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
	0.3	443.6	345.2	246.8	148.4	49.8	0.2	1	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.2	443.6	345.2	246.7	148.4	49.9	0.1	2	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.4	443.7	345.2	246.8	148.4	49.9	0.1	3	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.3	443.7	345.1	246.8	148.3	49.7	0.2	4	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.2	443.8	345.1	246.8	148.3	49.8	0.2	5	0.0	450.0	350.0	250.0	150.0	50.0	0.0
RESULTS															
Average	0.3	443.7	345.2	246.8	148.4	49.8	0.2		0.0	450.0	350.0	250.0	150.0	50.0	0.0

Slope= 1.01493 (Slope ≤ 5% of 1.00)

Offset= -0.38017 (-3 < Offset < 3 ppb)

RSQ= 1 (RSQ ≥ .9999)

PASS =
FAIL =

Comments:

6 of 6

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.2	**PHOTO SPRESS(inch/hg):26.3**
SAMP FL(cc/min): 725	**PHOTO STEMP(c): 38.0**
SAMP TEMP(c):25.4	**PHOTO LAMP TEMP(c):58**
ALAMP TEMP(c):52.1	**PHOTO FLOW(LPM): 0.6931**
BOX TEMP(c): 29.1	**O3 FLOW(LPM): 0.1060**
DCPS:2447	**OLAMP TEMP(c): 48.0**
	REG PRESSURE:19
	BOX TEMP(c):28.5
	DIL PRESSURE(psig): 21

IDAHO DEPARTMENT OF
HEALTH & WELFARE

OZONE VERIFICATION SUMMARY SHEET

Reference Standard:	API 400 Photometric Ozone Analyzer
Serial Number:	537
Verification Date:	03/27/15
Verification Entity:	CARB

Transfer Standard:	API T700 Dynamic Dilution Calibrator
Serial Number:	53
Organization:	Tetra Tech

RUN	DATE	SLOPE	INTERCEPT
1	04/29/2015	1.02854	-0.01664
2	04/29/2015	1.02958	0.01291
3	04/29/2015	1.03040	0.10561
4	04/30/2015	1.03305	0.13721
5	04/30/2015	1.03142	-0.32405
6	05/01/2015	1.03006	0.04929

RESULTS

RSD of Slopes (≤ 3.7%) = **0.16%**

Mean Slope = (Old 5/16/14) 1.0189 / (New -5/1/15) 1.03051

Mean Slope (Old (1.0189)) vs. (New (1.03051) Slope (≤ 5%) = **0.01%**

Mean Intercept =(Old 5/16/14) -0.47784/ (New – 5/1/15) -0.00595

Standard Deviation of Intercepts (≤ 1.5) =**0.17**

XX = PASS

XX = FAIL

Verification performed by: T. Harris

Date: 05/01/15

IDAHO DEPARTMENT OF
HEALTH & WELFARE

Certification Date:5/1/15

API-400 Photometer Primary Standard	
S/N: 537	
Offset: -0.3	Slope: 1.026
CARB Certification Date: 03/27/15	BP lab: 695.5
Log No. 2015 089	Temp. lab: 21.0

API-T700				
S/N:0053	Air Flow Setting: 3.5 L/min			
	Calibration Settings			
	Offset		0.1 Slope	1.002
As Found:				
Final:				

Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
0.0	437.5	339,4	242.1	145.7	48.2	0.2	1	0.0	450.0	350.0	250.0	150.0	50.0	0.0
-0.1	437.2	339.7	242.3	145.6	48.3	0.2	2	0.0	450.0	350.0	250.0	150.0	50.0	0.0
-0.1	437.1	339.7	242.4	145.5	48.3	0.1	3	0.0	451.0	350.0	250.0	150.0	50.0	0.0
0.0	437.2	339.6	242.4	145.7	48.4	0.1	4	0.0	450.0	350.0	250.0	150.0	50.0	0.0
1.0	437.4	339.8	242.1	145.5	48.1	0.0	5	0.0	450.0	350.0	250.0	150.0	50.0	0.0
							RESULTS							
Average	0.2	437.3	339.7	242.3	145.6	48.3	0.1		0.0	450.2	350.0	250.0	150.0	50.0	0.0

Slope= 1.03006
(Slope ≤ 5% of 1.00)

Offset= 0.04929
(-3 < Offset < 3 ppb)

RSQ= 1.000
(RSQ ≥ .9999)

Comments:

Run 6/6

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.2	PHOTO SPRESS(inch/hg):26.3
SAMP FL(cc/min): 724	PHOTO STEMP(c): 34.3
SAMP TEMP(c):28.1	PHOTO LAMP TEMP(c):58
ALAMP TEMP(c):52	PHOTO FLOW(LPM): 0.6847
BOX TEMP(c): 30.1	O3 FLOW(LPM): 0.1060
DCPS:2450	OLAMP TEMP(c):48
	REG PRESSURE:19.9
	BOX TEMP(c):28.2

IDAHO DEPARTMENT OF
HEALTH & WELFARE

Certification Date:4/29/15

API-400 Photometer Primary Standard	
S/N: 537	
Offset: -0.3	Slope: 1.026
CARB Certification Date: 03/27/15	BP lab: 690.4
Log No. 2015 089	Temp. lab: 22.7

API-T700	
S/N:0053	Air Flow Setting: 3.5 L/min

Calibration Settings

	Offset	0.1 Slope	1.002	
As Found:				
Final:				

Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
0.2	438.0	339.8	243.8	145.8	48.0	0.1	1	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.3	438.0	339.9	243.6	145.7	48.0	0.2	2	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.3	438.2	339.8	243.5	145.9	48.1	0.1	3	0.0	451.0	350.0	250.0	150.0	50.0	0.0
0.4	438.2	339.7	243.7	146.0	48.1	0.1	4	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.2	438.1	339.7	243.4	145.9	48.0	0.3	5	0.0	451.0	350.0	250.0	150.0	50.0	0.0
							RESULTS							
Average	0.3	438.1	339.8	243.6	145.9	48.0	0.2		0.0	450.4	350.0	250.0	150.0	50.0	0.0

Slope= 1.02854
(Slope ≤ 5% of 1.00)

Offset= -0.01664
(-3 < Offset < 3 ppb)

RSQ= 1.000
(RSQ ≥ .9999)

Comments:
Run 1/6

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.2	PHOTO SPRESS(inch/hg):26.6
SAMP FL(cc/min): 724	PHOTO STEMP(c): 33.9
SAMP TEMP(c):26.4	PHOTO LAMP TEMP(c):58
ALAMP TEMP(c):52	PHOTO FLOW(LPM): 0.4678
BOX TEMP(c): 28.6	O3 FLOW(LPM): 0.1060
DCPS:2450	OLAMP TEMP(c):48
	REG PRESSURE:19.9
	BOX TEMP(c):25.7

IDAHO DEPARTMENT OF
HEALTH & WELFARE

Certification Date:4/29/15

API-400 Photometer Primary Standard	
S/N: 537	Slope: 1.026
Offset: -0.3	
CARB Certification Date: 03/27/15	BP lab: 690.4
Log No. 2015 089	Temp. lab: 22.7

API-T700	
S/N:0053	Air Flow Setting: 3.5 L/min

Calibration Settings

	Offset	0.1 Slope		1.002
As Found:				
Final:				

Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
0.1	438.4	339.5	242.2	144.9	49.2	0.1	1	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.1	438.6	339.5	242.3	144.8	49.1	0.1	2	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.3	438.5	339.4	242.4	144.9	49.2	0.0	3	0.0	451.0	350.0	250.0	150.0	50.0	0.0
0.2	438.4	339.4	242.5	145.0	49.2	0.2	4	0.0	451.0	350.0	250.0	150.0	50.0	0.0
0.2	438.3	339.5	242.4	144.9	49.1	0.0	5	0.0	451.0	350.0	250.0	150.0	50.0	0.0
							RESULTS							
Average	0.2	438.4	339.5	242.4	144.9	49.2	0.1		0.0	450.6	350.0	250.0	150.0	50.0	0.0

Slope= 1.02958 (Slope ≤ 5% of 1.00)

Offset= 0.01291 (-3 < Offset < 3 ppb)

RSQ= 1.000 (RSQ ≥ .9999)

400 Settings	700 Settings
PRES (inch/hg): 27.2	PHOTO SPRESS(inch/hg):26.6
SAMP FL(cc/min): 724	PHOTO STEMP(c): 33.9
SAMP TEMP(c):26.4	PHOTO LAMP TEMP(c):58
ALAMP TEMP(c):52	PHOTO FLOW(LPM): 0.4678
BOX TEMP(c): 28.6	O3 FLOW(LPM): 0.1060
DCPS:2450	OLAMP TEMP(c):48
	REG PRESSURE:19.9
	BOX TEMP(c):25.7

Comments:

Run 2/6

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

IDAHO DEPARTMENT OF
HEALTH & WELFARE

Certification Date:4/29/15

API-400 Photometer Primary Standard	
S/N: 537	Slope: 1.026
Offset: -0.3	
CARB Certification Date: 03/27/15	BP lab: 690.2
Log No. 2015 089	Temp. lab: 22.3

API-T700	
S/N:0053	Air Flow Setting: 3.5 L/min

Calibration Settings

	Offset	0.1 Slope		1.002
As Found:				
Final:				

Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb	Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
0.0	436.1	340.2	243.2	144.4	48.3	0.2	1	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.2	436.0	340.2	243.1	144.4	48.3	0.1	2	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.2	436.0	340.4	243.2	144.3	48.3	0.2	3	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.1	436.1	340.5	243.0	144.5	48.3	0.0	4	0.0	450.0	350.0	250.0	150.0	50.0	0.0
0.1	436.0	340.5	243.1	144.4	48.2	-0.1	5	0.0	450.0	350.0	250.0	150.0	50.0	0.0
							RESULTS							
Average	0.1	436.0	340.4	243.1	144.4	48.3	0.1		0.0	450.0	350.0	250.0	150.0	50.0	0.0

Slope= 1.0304 (Slope ≤ 5% of 1.00)

Offset= 0.10561 (-3 < Offset < 3 ppb)

RSQ= 1.000 (RSQ ≥ .9999)

400 Settings	700 Settings
PRES (inch/hg): 27.2	PHOTO SPRESS(inch/hg):26.6
SAMP FL(cc/min): 724	PHOTO STEMP(c): 33.9
SAMP TEMP(c):26.4	PHOTO LAMP TEMP(c):58
ALAMP TEMP(c):52	PHOTO FLOW(LPM): 0.4678
BOX TEMP(c): 28.6	O3 FLOW(LPM): 0.1060
DCPS:2450	OLAMP TEMP(c):48
	REG PRESSURE:19.9
	BOX TEMP(c):25.7

Comments:

Run 3/6

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

IDAHO DEPARTMENT OF
HEALTH & WELFARE

Certification Date:4/30/15

API-400 Photometer Primary Standard		
S/N: 537	Slope: 1.026	
Offset: -0.3		
CARB Certification Date: 03/27/15	BP lab: 695.5	
Log No. 2015 089	Temp. lab: 21.0	

API-T700				
S/N:0053	Air Flow Setting: 3.5 L/min			
	Calibration Settings			
	Offset	0.1	Slope	1.002
As Found:				
Final:				

Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
1	0.0	436.4	338.4	241.2	144.6	48.8	0.2
2	0.0	436.3	338.3	241.2	144.4	48.7	0.1
3	0.0	436.3	338.3	241.1	144.5	48.8	0.2
4	0.0	436.4	338.1	241.2	144.4	48.8	0.1
5	0.0	436.2	338.3	241.0	144.4	48.8	0.1

RESULTS

	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
Average	0.0	436.3	338.3	241.1	144.5	48.8	0.1
	0.0	450.0	350.0	250.0	150.0	50.0	0.0

Slope= 1.03305 (Slope ≤ 5% of 1.00)

Offset= 0.13721 (-3 < Offset < 3 ppb)

RSQ= 1.000 (RSQ ≥ .9999)

Comments:

Run 4/6

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.2	PHOTO SPRESS(inch/hg):26.3
SAMP FL(cc/min): 724	PHOTO STEMP(c): 34.3
SAMP TEMP(c):28.1	PHOTO LAMP TEMP(c):58
ALAMP TEMP(c):52	PHOTO FLOW(LPM): 0.6847
BOX TEMP(c): 30.1	O3 FLOW(LPM): 0.1060
DCPS:2450	OLAMP TEMP(c):48
	REG PRESSURE:19.9
	BOX TEMP(c):28.1

IDAHO DEPARTMENT OF
HEALTH & WELFARE

Certification Date:4/30/15

API-400 Photometer Primary Standard	
S/N: 537	Slope: 1.026
Offset: -0.3	
CARB Certification Date: 03/27/15	BP lab: 695.5
Log No. 2015 089	Temp. lab: 21.0

API-T700	
S/N:0053	Air Flow Setting: 3.5 L/min

Calibration Settings

	Offset	0.1 Slope		1.002
As Found:				
Final:				

Reading	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
1	0.3	436.7	339.4	243.4	144.9	49.7	-0.1
2	0.2	436.7	339.5	243.4	145.0	49.5	0.0
3	0.2	436.6	339.4	243.3	145.2	49.5	0.1
4	0.1	436.5	339.3	243.2	145.2	49.4	0.1
5	0.1	436.5	339.3	243.4	145.1	49.4	0.1

RESULTS

	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
Average	0.2	436.6	339.4	243.3	145.1	49.5	0.0

	Pre 0 ppb	Point 1 450 ppb	Point 2 350 ppb	Point 3 250 ppb	Point 4 150 ppb	Point 5 50 ppb	Post 0 ppb
	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.0	450.0	350.0	250.0	150.0	50.0	0.0
	0.0	450.0	350.0	250.0	150.0	50.0	0.0

Slope= 1.03142 (Slope ≤ 5% of 1.00)

Offset= -0.32405 (-3 < Offset < 3 ppb)

RSQ= 1.000 (RSQ ≥ .9999)

Comments:

Run 5/6

400 vs 700 Regression Results (400 Photometer = X, 700 Calibrator = Y)

Certification performed by: Tyson Harris

Tyson Harris, Idaho Bureau of Labortories

400 Settings	700 Settings
PRES (inch/hg): 27.2	PHOTO SPRESS(inch/hg):26.3
SAMP FL(cc/min): 724	PHOTO STEMP(c): 34.3
SAMP TEMP(c):28.1	PHOTO LAMP TEMP(c):58
ALAMP TEMP(c):52	PHOTO FLOW(LPM): 0.6847
BOX TEMP(c): 30.1	O3 FLOW(LPM): 0.1060
DCPS:2450	OLAMP TEMP(c):48
	REG PRESSURE:19.9
	BOX TEMP(c):28.2

Pre-Cal Gas (200 sccm) S/N 5642700001					Post-Cal Gas (200 sccm) S/N 5642700001				
% Full Scale	Set Point (STP)	Target (Volumetric)	Actual (Volumetric)	% Difference	% Full Scale	Set Point (STP)	Target (Volumetric)	Actual (Volumetric)	% Difference
10.0%	20	23.92	25.44	-6.34%	10.0%	20	23.92	23.87	0.23%
20.0%	40	47.85	50.12	-4.75%	20.0%	40	47.85	47.84	0.02%
35.0%	60	71.77	74.98	-4.47%	30.0%	60	71.77	72.12	-0.48%
50.0%	100	119.62	124.91	-4.42%	50.0%	100	119.62	119.91	-0.24%
65.0%	130	155.51	161.37	-3.77%	65.0%	130	155.51	156.88	-0.88%
80.0%	160	191.39	201.12	-5.08%	80.0%	160	191.39	193.83	-1.27%
90.0%	180	215.32	226.78	-5.32%	90.0%	180	215.32	216.91	-0.74%

RSQ	0.999876724
Intercept	0.285547198
Slope	0.952191365
Mean % Diff.	4.88%

RSQ	0.999967466
Intercept	0.52164091
Slope	0.988412073
Mean % Diff.	0.55%

STD TEMP (K)	273
STD BP (mmHg)	760
ACTUAL TEMP (K)	297
ACTUAL BP (mmHg)	691.2

Multiplication Factor (Convert to Volumetric)	1.196199634

Pre-Cal Zero (20 LPM) S/N 6603500002					Post-Cal Zero (20 LPM) S/N 6603500002				
% Full Scale	Set Point (STP)	Target (Volumetric)	Actual (Volumetric)	% Difference	% Full Scale	Set Point (STP)	Target (Volumetric)	Actual (Volumetric)	% Difference
10.0%	2000	2372.47	2583.50	-8.89%	10.0%	2000	2372.47	2354.70	0.75%
20.0%	4000	4744.94	4996.10	-5.29%	20.0%	4000	4744.94	4692.10	1.11%
35.0%	7000	8303.65	8914.20	-7.35%	30.0%	7000	8303.65	8251.60	0.63%
50.0%	10000	11862.36	12756.00	-7.53%	50.0%	10000	11862.36	11832.00	0.26%
65.0%	13000	15421.06	16321.00	-5.84%	65.0%	13000	15421.06	15410.00	0.07%
80.0%	16000	18979.77	19997.00	-5.36%	80.0%	16000	18979.77	18931.00	0.26%
90.0%	18000	21352.24	23428.00	-9.72%	90.0%	18000	21352.24	21220.00	0.62%

RSQ	0.998731761
Intercept	92.47946487
Slope	0.925764446
Mean % Diff.	7.14%

RSQ	0.999977024
Intercept	14.36705484
Slope	1.002957192
Mean % Diff.	0.53%

STD TEMP (K)	273
STD BP (mmHg)	760
ACTUAL TEMP (K)	294.1
ACTUAL BP (mmHg)	690.2

Multiplication Factor (Convert to Volumetric)	1.186235768

Pre - Cal (20 ccm) S/N 5503200002					Post - Cal Gas (20 sccm) S/N 5503200002				
% Full Scale	Set Point (STP)	Target (Volumetric)	Actual (Volumetric)	% Difference	% Full Scale	Set Point (STP)	Target (Volumetric)	Actual (Volumetric)	% Difference
10.0%	2	2.39	2.59	-8.36%	10.0%	2	2.39	2.42	-1.25%
20.0%	4	4.78	5.21	-8.99%	20.0%	4	4.78	4.79	-0.21%
35.0%	7	8.37	8.90	-6.39%	30.0%	7	8.37	8.40	-0.41%
50.0%	10	11.95	12.46	-4.26%	50.0%	10	11.95	12.01	-0.50%
65.0%	13	15.54	16.06	-3.38%	65.0%	13	15.54	15.52	0.10%
80.0%	16	19.12	19.51	-2.04%	80.0%	16	19.12	19.06	0.32%
90.0%	18	21.51	21.91	-1.86%	90.0%	18	21.51	21.67	-0.74%

RSQ	0.99976578
Intercept	-0.361403693
Slope	0.994726108
Mean % Diff.	5.04%

RSQ	0.999912557
Intercept	-0.008805706
Slope	0.998150519
Mean % Diff.	0.50%

STD TEMP (K)	273
STD BP (mmHg)	760
ACTUAL TEMP (K)	297.1
ACTUAL BP (mmHg)	692.1

Multiplication Factor (Convert to Volumetric)	1.195046345

BGI INCORPORATED 58 GUINAN STREET WALTHAM, MA 02451

NIST Traceable Calibration Facility, ISO 9001:2008 Registered

tetraCal

CERTIFICATE OF CALIBRATION - NIST TRACEABILITY

(Refer to instruction manual for further details of calibration)

tetraCal Serial Number: **939** DATE: 17-Jan-14

Calibration Operator: Sean Crossman

Critical Venturi Flow Meter: Max Uncertainity = 0.346%
Serial Number: 1 *CEESI NVLAP NIST Data File 04BGI151*
Serial Number: 2 *CEESI NVLAP NIST Data File 04BGI152*
Serial Number: 3 *CEESI NVLAP NIST Data File 04BGI153*

Room Temperature: Uncertainity=0.071% Room Temperature: 21.7 C
Brand: Ever-Safe Serial Number: 016076
NIST Traceability No. 516837
tetraCal:
Ambient Temperature (set): 21.7 C
Aux (filter) Temperature (set): C

Barometric Pressure and Absolute Pressure
Vaisala Model PTB330(50-1100) Digital Accuracy: 0.03371%
S/N D4310002
NIST Traceable (Princo Primary Standard Model 453 S/N W12537) Certificate No. P-7485
tetraCal:
Barometric pressure (set): 759.5 mm of Hg

Results of Venturi Calibration
Flow Rate (Q) vs. Pressure Drop (ΔP). Where: Q=Lpm, ΔP= Cm of H2O

No. 1 Q = 5.46840 ΔP ^ 0.51575
No. 2 Q = 1.15688 ΔP ^ 0.52283
No. 3 Q = 0.21498 ΔP ^ 0.53967

Overall Uncertainty: 0.35%

Date Placed In Service_____
(To be filled in by operator upon receipt)

Recommended Recalibration Date _____
(12 months from date placed in service)

Revised: July 2012

To Check a Tetra Cal Date 17-Jan-14 Sean Crossman
6 - 30.00 Lpm BP= 759.5 mm of Hg
VER. 3.41P

Maximum allowable error at any flow rate is .75%.
Serial No. 939

Reading Abs. P Crit. Vent. mm of Hg	Room TEMP	Crit. Vent. TEMP	CV Qa Flow Lpm	Qa 760/20 Flow Lpm	Qa TriCal Indicated	%Error	
184.02	21.7	20.9	7.09	7.13	7.17	**0.54**	
421.12	21.7	20.9	16.47	16.57	16.5	**-0.45**	**Average %**
723.54	21.7	20.9	28.44	28.62	28.7	**0.28**	**0.12**

To Check a Tetra Cal BP= 759.5 mm of Hg
1.20 - 6.00 Lpm

Reading Abs. P Crit. Vent. mm of Hg	Room TEMP	Crit. Vent. TEMP	CV Qa Flow Lpm	Qa 760/20 Flow Lpm	QA TriCal Indicated	% Error	
163.1	21.7	20.9	1.79	1.80	1.814	**0.52**	
331.7	21.7	20.9	3.70	3.72	3.7	**-0.54**	**Average %**
483.6	21.7	20.9	5.41	5.44	5.45	**0.09**	**0.02**

To Check a Tetra Cal BP= 759.5 mm of Hg
0.10 - 1.20 Lpm

Reading Abs. P Crit. Vent. mm of Hg	Room TEMP	Crit. Vent. TEMP	CV Qa Flow Lpm	Qa 760/20 Flow Lpm	QA TriCal Indicated	% Error	
168.42	21.7	21.0	0.293	0.295	0.294	**-0.29**	
385.15	21.7	21.0	0.708	0.712	0.711	**-0.19**	**Average %**
568.87	21.7	21.0	1.059	1.066	1.070	**0.34**	**-0.05**

Mesa Labs 10 Park Place Butler, NJ 07405
NIST Traceable Calibration Facility, ISO 9001:2008 Registered

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CERTIFICATE OF CALIBRATION - NIST TRACEABILITY

(Refer to instruction manual for further details of calibration)

tetraCal Serial Number: **939** DATE: 21-Jan-2015

Calibration OperatorE. Albujar

Critical Venturi Flow Meter: Max Uncertainity = 0.346%
Serial Number: 1A *CEESI NVLAP NIST Data File 07BGI-0001*
Serial Number: 2A *CEESI NVLAP NIST Data File 07BGI-0003*
Serial Number: 3A *CEESI NVLAP NIST Data File 07BGI-0004*
Serial Number: 4A *CEESI NVLAP NIST Data File 07BGI-0002*

Room Temperature: Uncertainity=0.071% Room Temperature: 23.3 °C
Brand: Accu-Safe Serial Number: 254881
NIST Traceability No. 516837
tetraCal:
Ambient Temperature (set): 23.3 °C
Aux (filter) Temperature (set): °C

Barometric Pressure ans Absolute Pressure
Vaisala Model PTB330(50-1100) Digital Accuracy: 0.03371%
S/N DH085001
NIST Traceable (Princo Primary Standard Model 453 S/N W12537) Certificate No. P-7485
tetraCal:
Barometric pressure (set): 754 mm of Hg

Results of Venturi Calibration
Flow Rate (Q) vs. Pressure Drop (ΔP). Where: Q=Lpm, ΔP= Cm of H2O

No. 1 C 5.48607 ΔP ^ 0.51700
No. 2 C 1.16032 ΔP ^ 0.52378
No. 3 C 0.21553 ΔP ^ 0.53109

Overall Uncertainty: 0.35%

Date Placed In Service_____
(To be filled in by operator upon receipt)

Recommended Recalibration Date _____
(12 months from date placed in service)

Revised: October 2014
Cal102-03T2 Rev A

To Check a Tetra Cal 21-Jan-2015 E. Albujar
6 - 30.00 Lpm BP= 754 mm of Hg
VER. 3.41P

Maximum allowable error at any flow rate is .75%.
Serial No. 939

Reading Abs. P Crit. Vent. mm of Hg	Room TEMP	CV Qa Flow Lpm	Qa TriCal Indicated	% Error	
238.81	23.3	9.50	9.52	**0.19**	
414.66	23.3	16.61	16.56	**-0.31**	**Average %**
691.97	23.3	27.82	27.90	**0.28**	**0.05**

To Check a Tetra Cal BP= 754 mm of Hg
1.20 - 6.00 Lpm

Reading Abs. P Crit. Vent. mm of Hg	Room TEMP	CV Qa Flow Lpm	Qa Tri Cal Indicated	% Error	
163.9	23.3	1.85	1.86	**0.33**	
309.0	23.3	3.53	3.51	**-0.52**	**Average %**
518.7	23.3	5.96	5.97	**0.22**	**0.01**

To Check a Tetra Cal BP= 755 mm of Hg
0.10 - 1.20 Lpm

Reading Abs. P Crit. Vent. mm of Hg	Room TEMP	CV Qa Flow Lpm	Qa TriCal Indicated	% Error	
211.49	23.8	0.378	0.38	**0.62**	
346.7	23.8	0.635	0.632	**-0.51**	**Average %**
617.43	23.8	1.151	1.154	**0.26**	**0.12**

Mesa Labs 10 Park Place Butler, NJ 07405
NIST Traceable Calibration Facility, ISO 9001:2008 Registered

MesaLabs

CERTIFICATE OF CALIBRATION - NIST TRACEABILITY

(Refer to instruction manual for further details of calibration)

deltaCal Serial Number: **926** DATE: 6-Jan-2015

Calibration Operator: P.Pitty

Critical Venturi Flow Meter: Max Uncertainity = 0.346%
Serial Number: 1A *CEESI NVLAP NIST Data File 07BGI-0001*
Serial Number: 2A *CEESI NVLAP NIST Data File 07BGI-0003*
Serial Number: 5C COX Nist Data File CCAL33222 - 5 C
Serial Number: 4A *CEESI NVLAP NIST Data File 07BGI-0002*
Serial Number: 3A *CEESI NVLAP NIST Data File 07BGI-0004*

Room Temperature: Uncertainity=0.071% Room Temperature: 23.7 °C
Brand: Accu-Safe Serial Number: 254881
NIST Traceability No. 516837
deltaCal:
Ambient Temperature (set): 23.7 °C
Aux (filter) Temperature (set): 23.7 °C

Barometric Pressure ans Absolute Pressure
Vaisala Model PTB330(50-1100) Digital Accuracy: 0.03371%
S/N DH0850001
NIST Traceable (Princo Primary Standard Model 453 S/N W12537) Certificate No. P-7485
deltaCal:
Barometric pressure (set): 756 mm of Hg

Results of Venturi Calibration
Flow Rate (Q) vs. Pressure Drop (ΔP). Where: Q=Lpm, ΔP= Cm of H2O

Q= 3.91907 ΔP ^ 0.52068 Overall Uncertainty: 0.35%

Date Placed In Service_____
(To be filled in by operator upon receipt)

Recommended Recalibration Date _____
(12 months from date placed in service)

Revised: October 2014
Cal102-01T2 Rev A

To Check a deltaCal

6-Jan-15 P.Pitty

1.5-19.5

VER 3.41P

BP= 756 mm of Hg

Maximum allowable error at any flow rate is .75%.

Serial No. 926

	Reading Abs. P Crit. Vent. mm of Hg	Room Temp	CV Qa Flow Lpm	Qa deltaCal Indicated	% Error
# 5	190.2	23.7	6.22	6.24	**0.40**
	277.3	23.7	9.16	9.16	**-0.01**
	373.5	23.7	12.42	12.42	**0.03**
	467.3	23.7	15.59	15.60	**0.05**
	577.9	23.7	19.33	19.36	**0.14**
				Average %	**0.12**

APPENDIX C
AUDIT RESULTS

TABLE 1 ENVIRON TEJON RANCH 1ST QUARTER 2014 AIR QUALITY STATION
TAPI 200T NO_X/TAPI 400T O_3 ANALYZERS GAS AUDIT

AUDIT DATE: 1/29/2014
SITE: ENVIRON TEJON RANCH AMBIENT AIR QUALITY MONITORING STATION; LEBEC, CA
AUDITED BY: DOUG HERLOCKER, TETRA TECH

Audit Device:
Teledyene API T700 Multi-Gas Calibrator Serial Number: 53;
Audit Gas (10.71 PPM NO; Cylinder Serial Number CC67204)

NO Audit - API T200 NO_X Analyzer Range = 0 - 500 PPB NO_X/Unit Serial Number: 953

Ouput Flow (slpm)		Audit Point	Conc. (PPB NO)	Conc. (PPB NOx)	NO "As Found" (PPB)	NO % diff.	NO_X "As Found" (PPB)	NO_X % diff.	NO_2 "As Found" (PPB)	NO_2 % diff.	NO_X Corrected (PPB)
Cal. Gas	Dilution										
0.0000	5.0420	Zero	0.0	0.0	0.2	N/A	-3.1	N/A	-3.1	N/A	1.32
0.0086	4.9020	1	45.0	45.6	42.8	-4.9	42.1	-7.7	-0.9	N/A	46.42
0.0115	5.4530	2	82.0	83.1	79.7	-2.8	76.1	-8.4	-3.1	N/A	80.35
0.0380	5.9750	3	123.0	124.6	119.8	-2.6	119.3	-4.3	-0.3	N/A	123.46
0.0364	6.3280	4	191.0	193.5	186.3	-2.5	191.2	-1.2	4.7	N/A	195.21

NO_2 Audit (Gas Phase Titration) -API T200 NO_X Analyzer Range = 0 - 500 PPB NO_X/Serial Number: 953

Ouput Flow (slpm)		Calibration Point	NO_2 Audit Conc. (PPB)	NO Conc. (PPB NO)	NO Orig. (PPB)	NO rem. "As Found" (PPB)	NO rem. Corrected (PPB)	NO_X "As Found" (PPB)	NO_2 "As Found" (PPB)	NO2 % diff.	Molybdenum Converter Efficiency (%)
Cal. Gas	Dilution										
0.0000	5.0000	Zero	0.0	0.0	N/A	0.0	0.0	-1.1	-0.8	N/A	N/A
0.0761	5.9360	1	43.5	123.0	119.8	76.3	78.5	119.2	43.0	-1.1	100.0%
0.0761	5.9360	2	77.4	123.0	119.8	42.4	43.8	118.6	76.2	-1.6	99.4%
0.0418	5.2060	3	112.9	191.0	186.3	73.4	75.5	190.1	116.9	3.5	100.0%

Ozone Audit - API T400 Ozone Analyzer Range = 0 - 500 PPB NO_X/Serial Number: 957

Ouput Flow (slpm)		Calibration Point	Conc. (PPB O3)	O3 "As Found" (PPB)	O3 % diff.	O3 Stability	EPA Audit Level	PH Ref	photometer Flow	O3 Gen Drive Voltage
Cal. Gas	Dilution									
0.1060	5.0250	Zero	0.0	0.4	N/A	0.3	NA	NA	0.001	800.00
		1	51.0	55.6	9.0	0.2	4	4425.4	0.759	751.90
0.1060	4.9190	2	75.0	81.1	8.1	0.3	5	4426.1	0.760	805.10
0.1060	4.9190	3	100.0	106.8	6.8	0.4	6	4427.6	0.762	842.90
0.1060	5.0000	4	132.0	138.9	5.2	0.5	7	4424.3	0.762	900.00

Linear Regression
API 200T NO_X Analyzer; API 400T O3 Analyzer

	NO	NO_X	NO_2 (GPT)	O_3
Slope	0.977	1.002	1.036	1.051
Intercept	-0.374	-4.424	-1.717	1.335
Correlation	1.0000	0.9997	0.9994	0.9998
Avg % diff.	-2.62	-5.37	0.28	7.30

TABLE 1 TEJON RANCH 2ND QUARTER 2014 AIR QUALITY STATION GAS AUDIT
TAPI 200T NO_X/TAPI 400T O_3 GAS ANALYZERS

AUDIT DATE: 5/20/2014
SITE: TEJON RANCH AMBIENT AIR QUALITY MONITORING STATION; FOUNTAIN, CO
AUDITED BY: DOUG HERLOCKER, TETRA TECH

AUDIT DEVICE:
TELEDYNE API T700 MULTI-GAS CALIBRATOR SERIAL NUMBER: 53;
AUDIT GAS (10.71 PPM NO; Cylinder Serial Number CC67204)

NO Audit - API 200T NO_X Analyzer Range = 0 - 500 PPB NO_X/Unit Serial Number: 953

Ouput Flow (slpm)		Audit Point	Conc. (PPB NO)	Conc. (PPB NOx)	NO "As Found" (PPB)	NO % diff.	NO_X "As Found" (PPB)	NO_X % diff.	NO_2 "As Found" (PPB)	NO_2 % diff.	NO_X Corrected (PPB)
Audit Gas	Dilution										
0.0001	4.9980	Zero	0.0	0.0	0.1	N/A	-1.4	N/A	-1.9	N/A	-1.76
0.0301	3.9730	1	75.0	76.0	77.9	3.9	76.4	0.6	-1.6	N/A	75.54
0.0380	5.9750	2	149.0	150.9	152.1	2.1	154.2	2.2	2.1	N/A	152.84
0.0848	4.9650	3	251.0	254.3	245.8	-2.1	253.5	-0.3	7.0	N/A	251.50
0.1520	4.1320	4	380.0	385.0	386.5	1.7	400.0	3.9	13.2	N/A	397.05

NO_2 Audit (Gas Phase Titration) -API 200T NO_X Analyzer Range = 0 - 500 PPB NO_X; Unit Serial Number: 953

Ouput Flow (slpm)		Audit Point	NO_2 Audit Conc. (PPB)	NO Conc. (PPB NO)	Ozone Conc. (PPB)	NO Orig. (PPB)	NO rem. "As Found" (PPB)	EPA Audit Level Number	NO_X "As Found" (PPB)	NO_2 "As Found" (PPB)	NO2 % diff.	Molybdenum Converter Efficiency (%)
Audit Gas	Dilution											
0.0000	5.0000	Zero	0.0	0.0	0	N/A	0.0	N/A	-1.4	-1.9	N/A	N/A
0.0761	5.9360	1	42.0	75.0	40	77.9	35.9	5	76.6	40.7	-3.1	100.5%
0.0418	5.2060	2	75.0	149.0	75	152.1	77.1	6	155.0	77.9	3.9	101.0%
0.0418	5.2060	3	105.9	149.0	110	152.1	46.2	7	156.5	110.4	4.2	102.1%
										Average Molybdenum Converter Efficiency=		101.2%

Ozone Audit- API 400T Ozone Analyzer Range = 0 - 500 PPB O_3; Unit Serial Number: 957

Ouput Flow (slpm)		Audit Point	Audit Conc. (PPB O_3)	O_3 "As Found" (PPB)	O_3 % diff.	EPA Audit Level Number
Audit Gas	Dilution					
0.0000	5.160	Zero	0.0	-0.4	N/A	N/A
	5.160	1	35.0	35.5	1.4	3
0.0000	5.160	2	45.0	45.8	1.8	4
0.0000	5.160	3	80.0	81.7	2.1	5
0.0000	5.160	4	100.0	102.4	2.4	6
0.0000	5.160	5	130.0	133.0	2.3	7

Linear Regression and Statistical Analysis

	NO	NO_X	NO_2 (GPT)	O_3
Slope	1.007	1.036	1.066	1.027
Intercept	0.368	-2.855	-2.604	-0.405
Correlation	0.9996	0.9996	0.9998	1.0000
Avg % diff.	1.40	1.58	1.67	2.15

TABLE 1 TEJON RANCH 3RD QUARTER 2014 AIR QUALITY STATION GAS AUDIT
TAPI 200T NO_X/TAPI 400T O_3 GAS ANALYZERS

AUDIT DATE: 8/28/2014
SITE: TEJON RANCH AMBIENT AIR QUALITY MONITORING STATION; TEJON, CA
AUDITED BY: DOUG HERLOCKER, TETRA TECH

AUDIT DEVICE:
TELEDYNE API T700 MULTI-GAS CALIBRATOR/PHOTOMETER SERIAL NUMBER: 53;
AUDIT GAS (10.7 PPM NO; 10.85 PPM NOx; ; CYLINDER SERIAL NUMBER: CC67204)

NO Audit - API 200T NO_X Analyzer Range = 0 - 500 PPB NO_X/Unit Serial Number: 953

Ouput Flow (slpm)		Audit Point	Conc. (PPB NO)	Conc. (PPB NOx)	NO "As Found" (PPB)	NO % diff.	NO_X "As Found" (PPB)	NO_X % diff.	NO_2 "As Found" (PPB)	NO_2 % diff.	NO_X Stability (PPB)
Audit Gas	Dilution										
0.0000	4.0020	Zero	0.0	0.0	0.1	N/A	-1.4	N/A	-1.9	N/A	-2.3
0.0296	4.1810	1	75.0	76.0	79.7	6.3	80.9	6.5	1.5	N/A	76.2
0.0591	4.1530	2	150.0	152.0	160.3	6.9	160.5	5.6	0.2	N/A	0.3
0.0982	4.1140	3	250.0	253.3	261.7	4.7	266.1	5.1	4.7	N/A	0.2

NO_2 Audit (Gas Phase Titration) -API 200T NO_X Analyzer Range = 0 - 500 PPB NO_X; Unit Serial Number: 953

Ouput Flow (slpm)		Audit Point	NO_2 Audit Conc. (PPB)	NO Conc. (PPB NO)	Ozone Conc. (PPB)	NO Orig. (PPB)	NO rem. "As Found" (PPB)	EPA Audit Level Number	NO_X "As Found" (PPB)	NO_2 "As Found" (PPB)	NO2 % diff.	Molybdenum Converter Efficiency (%)
Audit Gas	Dilution											
0.0000	4.0020	Zero	0.0	0.0	0	N/A	0.0	N/A	-1.4	-1.9	N/A	N/A
0.0297	4.0850	1	45.0	75.0	35	79.7	34.7	5	79.5	44.7	-0.7	96.9%
0.0591	4.1590	2	87.4	150.0	75	160.3	72.9	6	160.8	87.8	0.5	100.3%
0.0983	4.0090	3	103.9	250.0	150	261.7	157.8	7	269.6	111.7	7.5	103.1%
											Average Molybdenum Converter Efficiency=	100.1%

Ozone Audit- API 400T Ozone Analyzer Range = 0 - 500 PPB O_3; Unit Serial Number: 957

Ouput Flow (slpm)		Audit Point	Audit Conc. (PPB O_3)	O_3 "As Found" (PPB)	O_3 % diff.	EPA Audit Level Number
Audit Gas	Dilution					
0.0000	5.160	Zero	0.0	-0.4	N/A	N/A
	5.160	1	35.0	35.5	1.4	3
0.0000	5.160	2	45.0	45.8	1.8	4
0.0000	5.160	3	80.0	81.7	2.1	5
0.0000	5.160	4	100.0	102.4	2.4	6
0.0000	5.160	5	130.0	133.0	2.3	7

Linear Regression and Statistical Analysis

	NO	NO_X	NO_2 (GPT)	O_3
Slope	1.048	1.055	1.073	1.027
Intercept	1.009	-0.378	-2.839	-0.405
Correlation	0.9999	1.0000	0.9986	1.0000
Avg % diff.	5.94	5.72	2.43	2.15

TABLE 1 TEJON RANCH 4TH QUARTER 2014 AIR QUALITY STATION GAS AUDIT
TAPI 200T NO_X/TAPI 400T O_3 GAS ANALYZERS

AUDIT DATE: 11/20/2014
SITE: TEJON RANCH AMBIENT AIR QUALITY MONITORING STATION; TEJON, CA
AUDITED BY: DOUG HERLOCKER, TETRA TECH

AUDIT DEVICE:
TELEDYNE API T700 MULTI-GAS CALIBRATOR/PHOTOMETER SERIAL NUMBER: 53;
AUDIT GAS (10.7 PPM NO; 10.85 PPM NOx; ; CYLINDER SERIAL NUMBER: CC67204)

NO Audit - API 200T NO_X Analyzer Range = 0 - 500 PPB NO_X/Serial Number: 953

Ouput Flow (slpm)		Audit Point	Conc. (PPB NO)	Conc. (PPB NOx)	NO "As Found" (PPB)	NO % diff.	NO_X "As Found" (PPB)	NO_X % diff.	NO_2 "As Found" (PPB)	NO_2 % diff.	NO_X Stability (PPB)
Audit Gas	Dilution										
0.0000	4.0020	Zero	0.0	0.0	0.1	N/A	-1.4	N/A	-1.9	N/A	0.2
0.0296	4.1810	1	75.0	76.0	78.2	4.2	81.7	7.5	2.8	N/A	0.2
0.0503	4.3420	2	120.0	121.6	128.9	7.4	131.2	7.9	2.2	N/A	0.3
0.0982	4.1140	3	250.0	253.3	272.3	8.9	278.0	9.8	6.8	N/A	0.2

NO_2 Audit (Gas Phase Titration) -API 200T NO_X Analyzer Range = 0 - 500 PPB NO_X; Unit Serial Number: 953

Ouput Flow (slpm)		Audit Point	NO_2 Audit Conc. (PPB)	NO Conc. (PPB NO)	Ozone Conc. (PPB)	NO Orig. (PPB)	NO rem. "As Found" (PPB)	EPA Audit Level Number	NO_X "As Found" (PPB)	NO_2 "As Found" (PPB)	NO2 % diff.	Molybdenum Converter Efficiency (%)
Audit Gas	Dilution											
0.0000	4.0020	Zero	0.0	0.0	0	N/A	0.0	N/A	-1.4	-1.9	N/A	N/A
0.0297	4.0850	1	42.4	75.0	35	78.2	35.8	5	83.0	46.5	9.7	102.8%
0.0503	4.3420	2	78.7	120.0	70	128.9	50.2	6	132.3	81.9	4.0	101.3%
0.0983	4.0090	3	195.6	250.0	200	272.3	76.7	7	278.2	201.0	2.8	100.1%
										Average Molybdenum Converter Efficiency=		101.4%

Ozone Audit- API 400T Ozone Analyzer Range = 0 - 500 PPB O_3; Unit Serial Number: 957

Ouput Flow (slpm)		Audit Point	Audit Conc. (PPB O_3)	O_3 "As Found" (PPB)	O_3 % diff.	EPA Audit Level Number
Audit Gas	Dilution					
0.0000	5.160	Zero	0.0	1.5	N/A	N/A
0.0000	5.160	2	53.0	55.4	4.6	4
0.0000	5.160	3	85.0	88.0	3.5	5
0.0000	5.160	4	105.0	113.9	8.5	6
0.0000	5.160	5	130.0	126.0	-3.1	7

Linear Regression and Statistical Analysis

	NO	NO_X	NO_2 (GPT)	O_3
Slope	1.092	1.104	1.030	0.992
Intercept	-1.642	-2.009	0.354	2.987
Correlation	0.9999	1.0000	0.9997	0.9958
Avg % diff.	6.86	8.40	5.50	3.38

TABLE 1 TEJON RANCH 1ST QUARTER 2015 AIR QUALITY STATION GAS AUDIT
TAPI 200T NO_X/TAPI 400T O_3 GAS ANALYZERS

AUDIT DATE:3/9-10/2015
SITE: TEJON RANCH AMBIENT AIR QUALITY MONITORING STATION; TEJON, CA
AUDITED BY: DOUG HERLOCKER, TETRA TECH

AUDIT DEVICE:
TELEDYNE API T700 MULTI-GAS CALIBRATOR/PHOTOMETER SERIAL NUMBER: 53;
AUDIT GAS (10.7 PPM NO; 10.85 PPM NOx; ; CYLINDER SERIAL NUMBER: CC67204)

NO Audit - API 200T NO_X Analyzer Range = 0 - 500 PPB NO_X/Serial Number: 953

Ouput Flow (slpm)		Audit Point	Conc. (PPB NO)	Conc. (PPB NOx)	NO "As Found" (PPB)	NO % diff.	NO_X "As Found" (PPB)	NO_X % diff.	NO_2 "As Found" (PPB)	NO_2 % diff.	NO_X Stability (PPB)
Audit Gas	Dilution										
0.0000	5.5300	Zero	0.0	0.0	-0.4	N/A	1.0	N/A	1.1	N/A	0.8
0.0293	5.5620	1	56.0	56.7	61.5	9.7	61.8	8.9	0.2	N/A	0.2
0.0525	5.5400	2	100.0	101.3	114.1	14.1	109.5	8.1	-4.9	N/A	0.5
0.1296	5.3530	3	248.0	251.2	275.8	11.2	269.9	7.4	-5.8	N/A	0.3

NO_2 Audit (Gas Phase Titration) -API 200T NO_X Analyzer Range = 0 - 500 PPB NO_X; Unit Serial Number: 953

Ouput Flow (slpm)		Audit Point	NO_2 Audit Conc. (PPB)	NO Conc. (PPB NO)	Ozone Conc. (PPB)	NO Orig. (PPB)	NO rem. "As Found" (PPB)	EPA Audit Level Number	NO_X "As Found" (PPB)	NO_2 "As Found" (PPB)	NO2 % diff.	Molybdenum Converter Efficiency (%)
Audit Gas	Dilution											
0.0000	5.5300	Zero	0.0	0.0	0	-0.4	-0.4	N/A	1.0	1.1	N/A	N/A
0.0293	5.5620	1	41.1	56.0	40	61.5	20.3	5	60.6	40.0	-2.8	97.1%
0.0525	5.5400	2	82.2	100.0	80	114.1	31.9	6	109.5	77.6	-5.6	100.0%
0.1296	5.3530	3	181.8	248.0	200	275.8	94.0	7	271.3	177.6	-2.3	100.8%
										Average Molybdenum Converter Efficiency=		99.3%

Ozone Audit- API 400T Ozone Analyzer Range = 0 - 500 PPB O_3; Unit Serial Number: 957

Ouput Flow (slpm)		Audit Point	Audit Conc. (PPB O_3)	O_3 "As Found" (PPB)	O_3 % diff.	EPA Audit Level Number
Audit Gas	Dilution					
0.0000	5.160	Zero	0.0	-0.7	N/A	N/A
0.0000	5.160	2	45.0	42.2	-6.2	4
0.0000	5..507	3	80.0	78.5	-1.9	5
0.0000	5.501	4	105.0	103.7	-1.3	6
0.0000	5.509	5	131.0	132.5	1.1	7

Linear Regression and Statistical Analysis

	NO	NO_X	NO_2 (GPT)	O_3
Slope	1.114	1.070	0.972	1.015
Intercept	0.179	1.049	-0.059	-2.058
Correlation	0.9999	1.0000	0.9998	0.9997
Avg % diff.	11.68	8.13	-3.60	-2.06

RAMBOLL ENVIRON

TABLE 1 TEJON RANCH 3RD QUARTER 2015 AIR QUALITY STATION GAS AUDIT
TAPI 200T NO_X/TAPI 400T O_3 GAS ANALYZERS

AUDIT DATE:8/12-8/13/2015
SITE: TEJON RANCH AMBIENT AIR QUALITY MONITORING STATION; TEJON, CA
AUDITED BY: DOUG HERLOCKER, TETRA TECH

AUDIT DEVICE:
TELEDYNE API T700 MULTI-GAS CALIBRATOR/PHOTOMETER SERIAL NUMBER: 53;
AUDIT GAS (10.7 PPM NO; 10.85 PPM NOx; ; CYLINDER SERIAL NUMBER: CC67204)

NO Audit - API 200T NO_X Analyzer Range = 0 - 500 PPB NO_X/Serial Number: 953

Ouput Flow (slpm)		Audit Point	Conc. (PPB NO)	Conc. (PPB NOx)	NO "As Found" (PPB)	NO % diff.	NO_X "As Found" (PPB)	NO_X % diff.	NO_2 "As Found" (PPB)	NO_2 % diff.	NO_X Stability (PPB)
Audit Gas	Dilution										
0.0000	5.5300	Zero	0.0	0.0	-0.4	N/A	1.0	N/A	1.1	N/A	-0.9
0.0293	5.5620	1	56.0	56.7	61.5	9.7	61.8	8.9	0.2	N/A	0.2
0.0525	5.5400	2	100.0	100.5	101.7	1.7	101.1	0.6	-0.9	N/A	0.5
0.1296	5.3530	3	250.0	251.2	252.2	0.9	250.7	-0.2	-1.9	N/A	0.3

NO_2 Audit (Gas Phase Titration) -API 200T NO_X Analyzer Range = 0 - 500 PPB NO_X; Unit Serial Number: 953

Ouput Flow (slpm)		Audit Point	NO_2 Audit Conc. (PPB)	NO Conc. (PPB NO)	Ozone Conc. (PPB)	NO Orig. (PPB)	NO rem. "As Found" (PPB)	EPA Audit Level Number	NO_X "As Found" (PPB)	NO_2 "As Found" (PPB)	% diff.	Molybdenum Converter Efficiency (%)
Audit Gas	Dilution											
0.0000	5.5300	Zero	0.0	0.0	0	-0.4	-0.4	N/A	1.0	1.1	N/A	N/A
0.0293	5.5620	1	41.1	56.0	40	61.5	20.3	5	60.6	40.0	-2.8	97.1%
0.0525	5.5400	2	80.3	100.0	85	101.7	21.4	6	100.2	78.5	-2.3	98.9%
0.1296	5.3530	3	208.9	250.0	260	252.2	43.3	7	252.8	207.5	-0.7	101.0%
										Average Molybdenum Converter Efficiency=		99.0%

Ozone Audit- API 400T Ozone Analyzer Range = 0 - 500 PPB O_3; Unit Serial Number: 957

Ouput Flow (slpm)		Audit Point	Audit Conc. (PPB O_3)	O_3 "As Found" (PPB)	O_3 % diff.	EPA Audit Level Number
Audit Gas	Dilution					
0.0000	5.160	Zero	0.0	-0.7	N/A	N/A
0.0000	5.160	2	45.0	42.2	-6.2	4
0.0000	5..507	3	80.0	78.5	-1.9	5
0.0000	5.501	4	105.0	103.7	-1.3	6
0.0000	5.509	5	131.0	132.5	1.1	7

Linear Regression and Statistical Analysis

	NO	NO_X	NO_2 (GPT)	O_3
Slope	1.003	0.988	0.991	1.015
Intercept	1.885	2.743	-0.080	-2.058
Correlation	0.9998	0.9998	0.9999	0.9997
Avg % diff.	4.11	3.10	-1.93	-2.06

RAMBOLL ENVIRON

Tejon Ranch PM Monitoring Station

Model: **BAM 1020 PM-Coarse System**

Inspection Date: 5-20-2014 **Inspected By:** DH KH

Calibration Device Model: BGI TETRA CAL Serial No: 939 Calibration Date: JAN. 17 2014

PM10	**SN: P16082**	**BAM**	**BAM**	**Ref. Std.**
Ambient Temperature:		as found: 14.0 C	as left: 14.0 C	14.5 C
Barometric Pressure:		as found: 729 mmHg	as left: 729 mmHg	727.5 mmHg
Flow Rate		as found: 16.7 lpm	as left: 16.7 lpm	16.43 lpm

PM2.5	**SN: P16081**	**BAM**	**BAM**	**Ref. Std.**
Ambient Temperature:		as found: 14.0 C	as left: 14.0 C	14.3 C
Barometric Pressure:		as found: 725 mmHg	as left: 725 mmHg	727.5 mmHg
Flow Rate		as found: 16.7 lpm	as left: 16.7 lpm	16.76 lpm

RAMBOLL ENVIRON

Tejon Ranch PM Monitoring Station

Model: **BAM 1020 PM-Coarse System**

Inspection Date: 11-20-2014 **Inspected By:** DH

Calibration Device Model: _____ Serial No: _____ Calibration Date: _____

PM10	**SN: P16082**	**BAM**	**BAM**	**Ref. Std.**
Ambient Temperature:		as found: 15.1 C	as left: 15.1 C	16.0 C
Barometric Pressure:		as found: 728 mmHg	as left: 728 mmHg	728.5 mmHg
Flow Rate		as found: 16.7 lpm	as left: 16.7 lpm	17.15 lpm

PM2.5	**SN: P16081**	**BAM**	**BAM**	**Ref. Std.**
Ambient Temperature:		as found: 15.4 C	as left: 15.4 C	16.1 C
Barometric Pressure:		as found: 728 mmHg	as left: 728 mmHg	728 mmHg
Flow Rate		as found: 16.7 lpm	as left: 16.7 lpm	16.79 lpm

RAMBOLL ENVIRON

Tejon Ranch PM Monitoring Station

Model: **BAM 1020 PM-Coarse System**

Inspection Date: 3-9-2015 **Inspected By:** KH DH

Calibration Device Model: RGI TETRA CAL Serial No: 939 Calibration Date: JAN 21 2015

PM10	**SN: P16082**	**BAM**	**BAM**	**Ref. Std.**
Ambient Temperature:		as found: 22.7 C	as left: 22.7 C	22.8 C
Barometric Pressure:		as found: 730 mmHg	as left: 727 mmHg	726.5 mmHg
Flow Rate		as found: 16.7 lpm	as left: 16.7 lpm	16.65 lpm

PM2.5	**SN: P16081**	**BAM**	**BAM**	**Ref. Std.**
Ambient Temperature:		as found: 20.8 C	as left: 26.5 C	27.3 C
Barometric Pressure:		as found: 727 mmHg	as left: 727 mmHg	726.5 mmHg
Flow Rate		as found: 16.7 lpm	as left: 16.7 lpm	16.44 lpm

RAMBOLL ENVIRON

Tejon Ranch PM Monitoring Station

Model: **BAM 1020 PM-Coarse System**

Inspection Date: 8-12-15 **Inspected By:** KH DH

Calibration Device Model: BGI TETRA CAL Serial No: 939 Calibration Date: JAN 21 2015

PM10	**SN: P16082**	**BAM**	**BAM**	**Ref. Std.**
Ambient Temperature:		as found: 32.2 C	as left: 32.2 C	32.5 C
Barometric Pressure:		as found: 730 mmHg	as left: 727 mmHg	726 mmHg
Flow Rate		as found: 16.7 lpm	as left: 16.7 lpm	16.61 lpm

PM2.5	**SN: P16081**	**BAM**	**BAM**	**Ref. Std.**
Ambient Temperature:		as found: 31.6 C	as left: 31.6 C	32.6 C
Barometric Pressure:		as found: 727 mmHg	as left: 727 mmHg	726 mmHg
Flow Rate		as found: 16.7 lpm	as left: 16.7 lpm	16.87 lpm

November 2013 Audit Summary

Parameter	Accepted Criteria	Criteria Met Yes/No
Wind Speed	±0.2m/s + 5 %	Yes
Wind Speed Starting Threshold	< 0.3 gm-cm	Yes
Wind Direction	±3 degrees	Yes
Wind Direction Starting Threshold	< 9 gm-cm	Yes
Temperature 10-Meter	± 0.5 ^{o}C	Yes
Temperature 2-Meter	± 0.5 ^{o}C	Yes
Differential Temperature	± 0.1 ^{o}C	Yes
Solar Radiation	±5% of Observed	Yes

ENVIRON

METEOROLOGICAL PERFORMANCE AUDIT
FIELD DATA SHEET

Client TEJON RANCH **Date** NOV. 22 2013 **Job No.** 03242 87 K1

WIND SPEED/WIND DIRECTION

Sensor Model	RM YOUNG 5305	**Sensor Serial #**	125847
Sensor Height	10 METERS	**Time**	1400 PST
Data Logger Model	CR 3000	**Logger Serial #**	-

Motor Speed RPM	Calculated Motor Speed	System Indicated Speed CW	System Indicated Speed CCW	Indicated Difference
0	0	0	0	0
100	0.512	0.512	0.512	0
200	1.024	1.024	1.024	0
300	1.536	1.536	1.536	0
500	2.56	2.56	2.56	0
900	4.608	4.608	4.608	0

Torque Reading <0.3 gm-cm **Sensor Threshold** 0.9 mph
Comments

Magnetic North Declination of Site	12.75°E	2.0	N
Crossarm Orientation with Theodolite	13.0°E	89	E
Difference Between Audit and Site	2.5°	179	S
		271	W

Input Angle	System Output	Input Angle	System Output
180	179.5	150	149.6
210	209.7	120	119.2
240	239.6	90	89.2
270	269.9	60	58.8
300	299.1	30	30.2
330	328.6	360	0.3
360	0.4	330	330.9
30	28.4	300	300.6
60	59.2	270	269.7
90	89.9	240	239.9
120	119.1	210	209.4
150	149.6	180	179.6
180	179.2		

Torque Reading <9 gm-cm **Sensor Threshold** ≤ 9 gm/cm - cw ccw
Comments

ENVIRON

METEOROLOGICAL PERFORMANCE AUDIT
FIELD DATA SHEET

Client TEJON RANCH **Date** NOV. 20 2013 **Job No.** 03242871K1

Sensor Model	RM YOUNG RTD	**Sensor Serial #**	2M 022524 10M 022524
Sensor Height	2m 10m	**Time**	BENCHECK MIGHT
Data Logger Model	CR3000	**Logger Serial #**	-

DIFFERENTIAL TEMPERATURE

ICE WATER BATH

10-M Temperature Indication	2-M Temperature Indication	Indicated Difference
33.91 deg F	33.85 deg F	0.06 deg F
1.005 deg C	1.03 deg C	0.02 deg C

AMBIENT WATER BATH

10-M Temperature Indication	2-M Temperature Indication	Indicated Difference
61.24 deg F	61.18 deg F	0.06 deg F
16.24 deg C	16.21 deg C	0.03 deg C

HOT WATER BATH

10-M Temperature Indication	2-M Temperature Indication	Indicated Difference
90.27 deg F	90.22 deg F	0.05 deg F
32.37 deg C	32.34 deg C	0.03 deg C

RELATIVE TEMPERATURE AUDIT

ICE WATER BATH

Certified sensor Indication	10-M Temperature Indication	2-M Temperature Indication
33.40 deg F	33.90 deg F	3395 deg F
0.78 deg C	1.06 deg C	1.08 deg C

AMBIENT WATER BATH

Certified sensor Indication	10-M Temperature Indication	2-M Temperature Indication
62.6 deg F	62.95 deg F	63.00 deg F
17.0 deg C	17.19 deg C	17.22 deg C

HOT WATER BATH

Certified sensor Indication	10-M Temperature Indication	2-M Temperature Indication
93.2 deg F	93.33 deg F	93.38 deg F
34.0 deg C	34.07 deg C	34.1 deg C

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METEOROLOGICAL PERFORMANCE AUDIT
FIELD DATA SHEET

ENVIRON International Corporation
19020 33rd Avenue W, Suite 310
Lynnwood, Washington 98036
(425) 412-1800

SOLAR RADIATION AUDIT

Sensor Model	**LI200S**	**Client**	TEJON RANCH
Sensor Serial #	PY 92828	**Job No.**	03242871K1
Sensor Height	**3 meters**	**Site**	GRAPEVINE, CA
Data Logger Model	**CR3000**	**Date**	NOVEMBER 22 2013
		Time	10 - 2 PST

Certified Sensor Indication	**System Solar Rad. Indication**	**Indicated Difference**
0 wm2	0 wm2	0 %
161.2 wm2	165.7 wm2	2.7 %

Comment _____

Auditor **Kris Hansen**
Signature _____

May 2014 Audit Summary

Parameter	Accepted Criteria	Criteria Met Yes/No
Wind Speed	±0.2m/s + 5 %	Yes
Wind Speed Starting Threshold	< 0.3 gm-cm	Yes
Wind Direction	±3 degrees	Yes
Wind Direction Starting Threshold	< 9 gm-cm	Yes
Temperature 10-Meter	± 0.5 ^{o}C	Yes
Temperature 2-Meter	± 0.5 ^{o}C	Yes
Differential Temperature	± 0.1 ^{o}C	Yes
Solar Radiation	±5% of Observed	Yes

ENVIRON

METEOROLOGICAL PERFORMANCE AUDIT
FIELD DATA SHEET

Client TEJON RANCH **Date** MAY 20 2014 **Job No.** 03 242 87 K1

WIND SPEED/WIND DIRECTION

Sensor Model	RM YOUNG 5305	**Sensor Serial #**	125847
Sensor Height	10 METERS	**Time**	830 PST
Data Logger Model	CR 3000	**Logger Serial #**	-

Motor Speed RPM	Calculated Motor Speed	System Indicated Speed CW	System Indicated Speed CCW	Indicated Difference
0	0	0	0	0
100	0.512	0.512	0.512	0
200	1.024	1.024	1.024	0
300	1.536	1.536	1.536	0
500	2.56	2.56	2.56	0
900	4.608	4.608	4.608	0

Torque Reading <0.3 gm-cm **Sensor Threshold** 0.9 mph
Comments

		0.9	N
Magnetic North Declination of Site	12.75°E	88.4	E
Crossarm Orientation with Theodolite	13.0°E	178.4	S
Difference Between Audit and Site	0.25	269.2	W

Input Angle	System Output	Input Angle	System Output
180	179.6	150	149.6
210	210.6	120	119.2
240	240.5	90	89.8
270	269.9	60	59.3
300	299.6	30	29.3
330	328.7	360	0.7
360	0.14	330	330
30	28.7	300	300.6
60	59.0	270	270.9
90	89.2	240	241
120	119.1	210	209.7
150	149.7	180	179.0
180	179.9		

Torque Reading < 9 gm-cm **Sensor Threshold** ≤ 9 gm/cm - cw ccw
Comments

ENVIRON

METEOROLOGICAL PERFORMANCE AUDIT
FIELD DATA SHEET

Client TEJON RANCH Date MAY 20 2014 Job No. 03 24287K1

Sensor Model	RM YOUNG RTD	Sensor Serial #	2M-022524 10M022526
Sensor Height	2METER 10 METER	Time	730-930 PST
Data Logger Model	CR3000	Logger Serial #	-

DIFFERENTIAL TEMPERATURE

ICE WATER BATH

10-M Temperature Indication	2-M Temperature Indication	Indicated Difference
33.40 deg F	33.46 deg F	0.06 deg F
0.777 deg C	0.812 deg C	0.035 deg C

AMBIENT WATER BATH

10-M Temperature Indication	2-M Temperature Indication	Indicated Difference
65.98 deg F	66.0 deg F	0.02 deg F
18.88 deg C	18.89 deg C	0.01 deg C

HOT WATER BATH

10-M Temperature Indication	2-M Temperature Indication	Indicated Difference
98.29 deg F	98.31 deg F	0.02 deg F
36.83 deg C	36.84 deg C	0.008 deg C

RELATIVE TEMPERATURE AUDIT

ICE WATER BATH

Certified sensor Indication	10-M Temperature Indication	2-M Temperature Indication
33.19 deg F	32.76 deg F	32.87 deg F
0.66 deg C	.421 deg C	0.485 deg C

AMBIENT WATER BATH

Certified sensor Indication	10-M Temperature Indication	2-M Temperature Indication
65.57 deg F	65.98 deg F	66.02 deg F
18.65 deg C	18.88 deg C	18.9 deg C

HOT WATER BATH

Certified sensor Indication	10-M Temperature Indication	2-M Temperature Indication
89.35 deg F	89.49 deg F	89.55 deg F
31.86 deg C	31.94 deg C	31.97 deg C

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METEOROLOGICAL PERFORMANCE AUDIT
FIELD DATA SHEET

ENVIRON International Corporation
19020 33rd Avenue W, Suite 310
Lynnwood, Washington 98036
(425) 412-1800

SOLAR RADIATION AUDIT

Sensor Model	**LI200S**	**Client**	TEJON RANCH
Sensor Serial #	PY 82828	**Job No.**	03242871K1
Sensor Height	**3 meters**	**Site**	GRAPEVINE CA
Data Logger Model	**CR3000**	**Date**	MAY 20 2014
		Time	815 - 930 PST

Certified Sensor Indication	**System Solar Rad. Indication**	**Indicated Difference**
0 **wm2**	0 **wm2**	0 **%**
342.4 **wm2**	351.3 **wm2**	2.5 **%**

Comment _____

Auditor **Kris Hansen**
Signature Kris Hansen

November 2014 Audit Summary

Parameter	Accepted Criteria	Criteria Met Yes/No
Wind Speed	±0.2m/s + 5 %	Yes
Wind Speed Starting Threshold	< 0.3 gm-cm	Yes
Wind Direction	±3 degrees	Yes
Wind Direction Starting Threshold	< 9 gm-cm	Yes
Temperature 10-Meter	± 0.5 ^{o}C	Yes
Temperature 2-Meter	± 0.5 ^{o}C	Yes
Differential Temperature	± 0.1 ^{o}C	Yes
Solar Radiation	±5% of Observed	Yes

11/20/14

CALCULATION / WORK SHEET

Tetra Tech EM Inc.

SHEET_____OF_____

PROJECT:		COMPONENT/SYSTEM:	
PREPARED BY:	DATE:	CHECKED BY:	DATE:

11:40 Collocate Audit Solar Radiation Sensor w/ site sensor

- Audit Time Range = 12:00 — 17:00 (15-minutes.)

12:05 Lower 10-M Tower For WS/WD & Temp Audit

1. Wind Speed Audit using RM Young Motor Drive Unit

RPM	WS As Found (m/s)	RPM	WS As Found (m/s)
0	6.00	2000	10.240
200	1.02	3000	15.360
500 400	2.560	4000	20.480
600	3.072	5000	25.600
800	4.096	∅	0.00
1000	5.120		

2. WIND DIRECTION 4 Quad Alignment w/ Cross Arm
N = 0.646 E = 87.540 S = 178.92 W = 268.03

3. WIND DIRECTION using Vane Alignment Gauge

WD Dial Deg.	As Found	WD Dial Deg.	As Found
0	0.141 0.0	210	208.447
30	28.442	240	237.524
60	57.630	270	267.516
90	87.729	300	297.081
120	117.305	330	327.285
150	147.979	360/0	0.617
180	178.025		

11/20/14

CALCULATION / WORK SHEET

Tetra Tech EM Inc.

SHEET_____OF_____

PROJECT:		COMPONENT/SYSTEM:	
PREPARED BY:	DATE:	CHECKED BY:	DATE:

4. Temperature Audit - 3 point H2O Bath

1. Ice Bath - Audit = 0.08
   2M = 0.054
   10M = 0.052

2. Hot Bath - Audit = 51.47
   2M = 51.472
   10M = 51.449

3. Mid Range Bath - Audit = 25.12
   2M = 25.070
   10M = 25.063

15:19 Raise Tower - online

NOx Audit (cont.)

1. 250 PPB NO - 250PPB/253.5PPB NO/NOX @ 4LPM

As Found:

	T200	CR3000	
NO =	272.1	272.3	NOx STAB =
NO2 =	6.7	6.8	0.3
NOx =	278.1	278.0	

*GPT - 250 PPB NO / 200 PPB O3 @ 4LPM

As Found:

	T200	CR3000
NO =	72.6	72.9
NO2 =	201.2	201.0
NOx =	278.0	278.2

TEJON RANCH SOLAR RAD AUDIT 4TH QUARTER 2014

		AUDIT 1	AUDIT 2	SITE
11/20/2014 12:00	2	565.6	561.6	559.1
11/20/2014 12:15	3	305.3	306	302.9
11/20/2014 12:30	4	198.7	199.3	196
11/20/2014 12:45	5	236.6	238	233.7
11/20/2014 13:00	6	214.3	214.2	210.5
11/20/2014 13:15	7	265.5	266.6	263.3
11/20/2014 13:30	8	127.8	127	123.2
11/20/2014 13:45	9	106.3	104.9	101.9
11/20/2014 14:00	10	65.15	64.17	62.7
11/20/2014 14:15	11	75.17	74.45	71.77
11/20/2014 14:30	12	81.9	80.8	78.26
11/20/2014 14:45	13	73.76	72.79	70.28
11/20/2014 15:00	14	51.64	50.69	48.7
11/20/2014 15:15	15	47.18	46.78	45.67
11/20/2014 15:30	16	77.65	75.29	72.61
11/20/2014 15:45	17	29.04	28.09	27.33
11/20/2014 16:00	18	18.82	18.04	17.45
11/20/2014 16:15	19	13.15	12.54	12.22
11/20/2014 16:30	20	13.4	12.75	12.31
11/20/2014 16:45	21	6.089	5.898	5.732
11/20/2014 17:00	22	1.149	1.143	1.139
	AVE	**122.5809**	**121.9539**	**119.8462**
	SITE % DIFF FROM AUDIT	**2.23%**	**1.73%**	

March 2015 Audit Summary

Parameter	Accepted Criteria	Criteria Met Yes/No
Wind Speed	±0.2m/s + 5 %	Yes
Wind Speed Starting Threshold	< 0.3 gm-cm	Yes
Wind Direction	±3 degrees	Yes
Wind Direction Starting Threshold	< 9 gm-cm	Yes
Temperature 10-Meter	± 0.5 ^{o}C	Yes
Temperature 2-Meter	± 0.5 ^{o}C	Yes
Differential Temperature	± 0.1 ^{o}C	Yes
Solar Radiation	±5% of Observed	Yes

ENVIRON

METEOROLOGICAL PERFORMANCE AUDIT
FIELD DATA SHEET

Client TEJON RANCH **Date** MARCH 10 2015 **Job No.** 03 242 87 K1

WIND SPEED/WIND DIRECTION

Sensor Model	RM YOUNG 5305	**Sensor Serial #**	125847
Sensor Height	10 M	**Time**	1230 PST
Data Logger Model	CR3000	**Logger Serial #**	–

Motor Speed RPM	Calculated Motor Speed	System Indicated Speed CW	System Indicated Speed CCW	Indicated Difference
0	0	0	0	–
100	0.512	0.51	0.51	–
200	1.024	1.02	1.02	–
300	1.536	1.54	1.54	–
500	2.56	2.56	2.56	–
900	4.608	4.61	4.61	–

Torque Reading ≤ 0.3 gm-cm **Sensor Threshold** 0.9 mph
Comments

Magnetic North Declination of Site	12.75° E	1.2	N
Crossarm Orientation with Theodolite	12. 0C	89.3	E
Difference Between Audit and Site	.75	179.6	S
		269.2	W

Input Angle	System Output	Input Angle	System Output
180	178.7	150	149.2
210	209.7	120	119.4
240	239.2	90	90.7
270	269.6	60	60.2
300	298.1	30	31.1
330	328.2	360	1.2
360	1.2	330	329.6
30	28.7	300	299.4
60	59.2	270	270.7
90	89.1	240	240.1
120	120.4	210	210.9
150	148.6	180	179.6
180	180.9		

Torque Reading ≤9 cw ccw gm-cm **Sensor Threshold** ≤ 9 gm/cm - cw ccw
Comments

ENVIRON

METEOROLOGICAL PERFORMANCE AUDIT
FIELD DATA SHEET

Client TEJON RANCH **Date** MARCH 10 2015 **Job No.** 03 242 87 K1

Sensor Model	RM YOUNG RTD	**Sensor Serial #**	2m 022524 10m 022526
Sensor Height	2m 10m	**Time**	0800 - 1100 PST
Data Logger Model	CR 3000	**Logger Serial #**	-

DIFFERENTIAL TEMPERATURE

ICE WATER BATH

10-M Temperature Indication	2-M Temperature Indication	Indicated Difference
37.19 deg F	37.03 deg F	0.16 deg F
2.881 deg C	2.797 deg C	0.08 deg C

AMBIENT WATER BATH

10-M Temperature Indication	2-M Temperature Indication	Indicated Difference
67.48 deg F	67.53 deg F	0.05 deg F
19.71 deg C	19.74 deg C	0.03 deg C

HOT WATER BATH

10-M Temperature Indication	2-M Temperature Indication	Indicated Difference
101.17 deg F	101.3 deg F	0.13 deg F
38.43 deg C	38.5 deg C	0.07 deg C

RELATIVE TEMPERATURE AUDIT

ICE WATER BATH

Certified sensor Indication	10-M Temperature Indication	2-M Temperature Indication
34.16 deg F	34.43 deg F	34.07 deg F
1.20 deg C	1.35 deg C	1.15 deg C

AMBIENT WATER BATH

Certified sensor Indication	10-M Temperature Indication	2-M Temperature Indication
67.80 deg F	67.48 deg F	67.53 deg F
19.89 deg C	19.71 deg C	19.74 deg C

HOT WATER BATH

Certified sensor Indication	10-M Temperature Indication	2-M Temperature Indication
111.58 deg F	111.36 deg F	0111.60 deg F
44.21 deg C	44.09 deg C	44.22 deg C

ENVIRON

METEOROLOGICAL PERFORMANCE AUDIT
FIELD DATA SHEET

ENVIRON International Corporation
19020 33rd Avenue W, Suite 310
Lynnwood, Washington 98036
(425) 412-1800

SOLAR RADIATION AUDIT

Sensor Model	**LI200S**	**Client**	TEJON RANCH
Sensor Serial #	PY 82828	**Job No.**	03242887 K1
Sensor Height	**3 meters**	**Site**	GRAPEVINE, CA
Data Logger Model	**CR3000**	**Date**	MARCH 10 2015
		Time	

Certified Sensor Indication	**System Solar Rad. Indication**	**Indicated Difference**
0 wm2	0 wm2	0 %
565 wm2	555.9 wm2	-1.6 %

Comment _____

Auditor Kris Hansen
Signature _____

August 2015 Audit Summary

Parameter	Accepted Criteria	Criteria Met Yes/No
Wind Speed	±0.2m/s + 5 %	Yes
Wind Speed Starting Threshold	< 0.3 gm-cm	No*
Wind Direction	±3 degrees	Yes
Wind Direction Starting Threshold	< 9 gm-cm	Yes
Temperature 10-Meter	± 0.5 ^{o}C	Yes
Temperature 2-Meter	± 0.5 ^{o}C	Yes
Differential Temperature	± 0.1 ^{o}C	Yes
Solar Radiation	±5% of Observed	Yes

* < 0.4 gm-cm. Sensor adjusted and re-audited = pass

RAMBOLL ENVIRON

METEOROLOGICAL PERFORMANCE AUDIT
FIELD DATA SHEET

Client TEJON RANCH **Date** AUGUST 12 2015 **Job No.** 03 24287 K 1

WIND SPEED/WIND DIRECTION

Sensor Model	RM YOUNG 5305 AQ	**Sensor Serial #**	125847
Sensor Height	10 METER	**Time**	1050 PST
Data Logger Model	CR 3000	**Logger Serial #**	8550

Motor Speed RPM	Calculated Motor Speed	System Indicated Speed CW	System Indicated Speed CCW	Indicated Difference
0	0	0	0	0/0
100	0.512	0.512	0.512	0/0
200	1.024	1.024	1.024	0/0
300	1.536	1.536	1.536	0/0
500	2.56	2.56	2.56	0/0
900	4.608	/	/	/

Torque Reading >0.3 **gm-cm** **Sensor Threshold** 0.9 **mph**

Comments changed WS bearings regapped WS shaft

Magnetic North Declination of Site	12.7°E	0.2	**N**
Crossarm Orientation with Theodolite	12.°E	89.3	**E**
Difference Between Audit and Site	<1°E	179.2	**S**
		269.5	**W**

Input Angle	System Output	Input Angle	System Output
180	179.6	150	149.9
210	210.2	120	119.2
240	240.5	90	89.0
270	269.4	60	58.9
300	299.5	30	30.7
330	330.0	360	0.15
360	0.15	330	328.6
30	29.1	300	299.4
60	59.3	270	270.0
90	89.5	240	240.4
120	119.6	210	210.8
150	150.2	180	180.4
180	180.5		

Torque Reading <9 CW CCW **gm-cm** **Sensor Threshold** ≤ 9 gm/cm - cw ccw

Comments

TOWER DOWN 830 PST

RAMBOLL ENVIRON

METEOROLOGICAL PERFORMANCE AUDIT
FIELD DATA SHEET

Client TEJON RANCH **Date** AUGUST 12 2015 **Job No.** 03242871K1

Sensor Model	RM YOUNG RTD	**Sensor Serial #**	2M 022524 10M 022526
Sensor Height	10METER 2METER	**Time**	1000 1515 PST
Data Logger Model	CR 3000	**Logger Serial #**	8550

DIFFERENTIAL TEMPERATURE

ICE WATER BATH

10-M Temperature Indication	2-M Temperature Indication	Indicated Difference
33.62 deg F	33.51 deg F	0.11 deg F
0.90 deg C	0.84 deg C	.06 deg C

AMBIENT WATER BATH

10-M Temperature Indication	2-M Temperature Indication	Indicated Difference
83.43 deg F	83.39 deg F	0.04 deg F
28.57 deg C	28.55 deg C	0.018 deg C

HOT WATER BATH

10-M Temperature Indication	2-M Temperature Indication	Indicated Difference
100.13 deg F	100.17 deg F	-0.04 deg F
37.85 deg C	37.87 deg C	-0.02 deg C

RELATIVE TEMPERATURE AUDIT

ICE WATER BATH

Certified sensor Indication	10-M Temperature Indication	2-M Temperature Indication
33.76 deg F	33.67 deg F	33.58 deg F
0.98 deg C	0.93 deg C	0.88 deg C

AMBIENT WATER BATH

Certified sensor Indication	10-M Temperature Indication	2-M Temperature Indication
80.9 deg F	80.82 deg F	80.85 deg F
27.17 deg C	27.12 deg C	27.14 deg C

HOT WATER BATH

Certified sensor Indication	10-M Temperature Indication	2-M Temperature Indication
96.49 deg F	96.94 deg F	97.02 deg F
35.83 deg C	36.08 deg C	36.12 deg C

RAMBOLL ENVIRON

METEOROLOGICAL PERFORMANCE AUDIT
FIELD DATA SHEET

SOLAR RADIATION AUDIT

Sensor Model	**LI200S**	**Client**	TEJON RANCH
Sensor Serial #	PY 02929	**Job No.**	03242873K1
Sensor Height	**3 meters**	**Site**	GRAPEVINE, CA
Data Logger Model	**CR3000**	**Date**	AUGUST 12 2015
		Time	1500 1615 PST

Certified Sensor Indication	**System Solar Rad. Indication**	**Indicated Difference**
0 wm2	0 wm2	0 %
552.2 wm2	547.7 wm2	1 %

Comment _____

APPENDIX E

Air Quality and Health Risk Assessment Modeling Analysis (Yorke)

Tejon Grapevine, LLC
Grapevine Project
Air Quality and Health Risk Assessment
Modeling Analysis

Dudek

31878 Camino Capistrano No. 200
San Juan Capistrano, California 92675

November 2015

Prepared by:

Yorke ENGINEERING, LLC
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Tejon Ranchcorp
Grapevine Project
Air Quality and Health Risk Assessment Modeling Analysis

Prepared for:

Dudek

31878 Camino Capistrano No. 200
San Juan Capistrano, California
92675

November 2015

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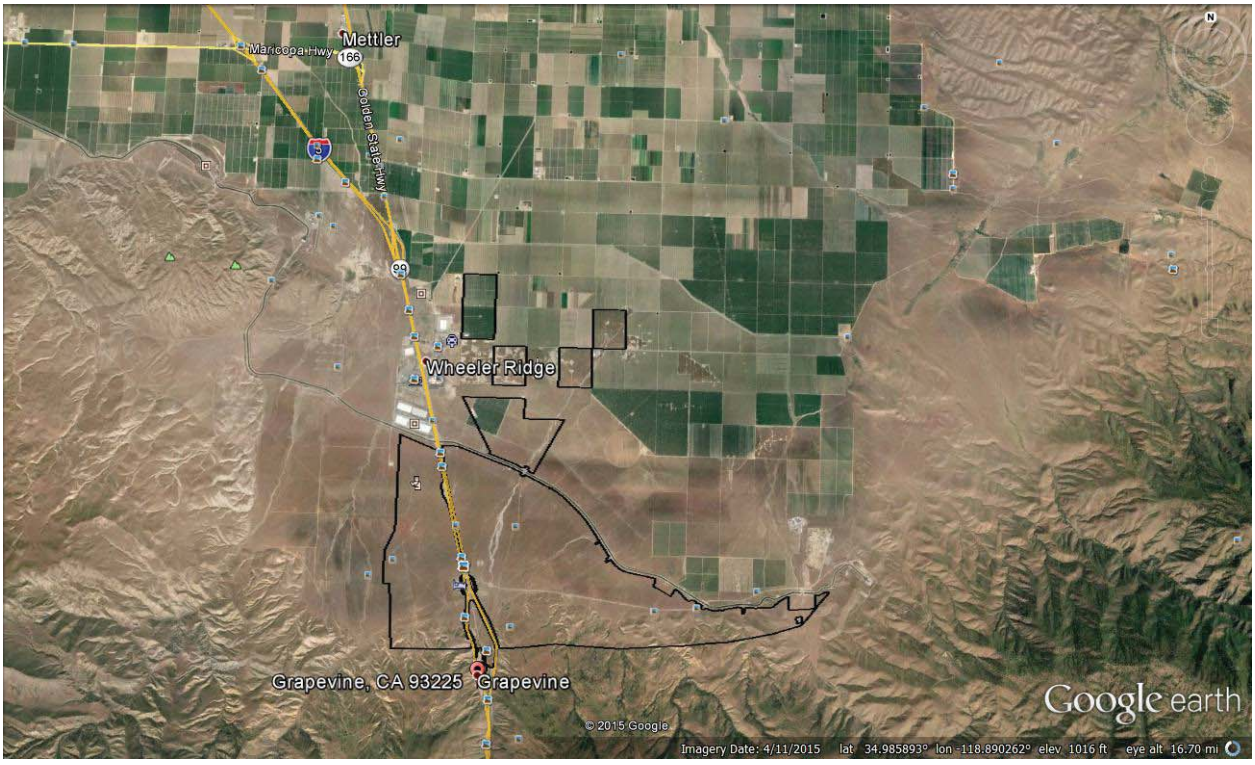
Tejon Ranchcorp Grapevine Project Air Quality and Health Risk Assessment Modeling Analysis

1.0 INTRODUCTION

Tejon Ranchcorp is submitting an air quality and greenhouse gas technical report for the Grapevine Project ("the Project") to the County of Kern for use in an Environmental Impact Report for the proposed Project. The Project would encompasses approximately 8,010 acres within the 15,644-acre Grapevine planning area in southwestern Kern County, California. The Project would involve approximately 4,780 acres of residential community and employment center development and approximately 3,230 acres (about 40% of the planning area) of agriculture with grazing and open space as the predominant land uses. The 8,010-acre Grapevine development project would be located at the extreme southern end of the San Joaquin Valley in Kern County just south of the junction of Interstate 5 (I-5) and State Route 99 (SR-99), formerly U.S. 99. The Project site is located within the San Joaquin Valley Air Basin and is subject to the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD).

In support of the technical report preparation, Yorke Engineering, LLC (Yorke) has prepared an air quality impact analysis (AQIA) and health risk assessment (HRA) modeling analysis to estimate ambient air quality and health risk impacts from the operation of potential stationary sources which could be included in the Project. Figure 1-1 shows the Project area evaluated in the AQIA and HRA.

Figure 1-1: Project Vicinity



The analysis presented in this report uses air dispersion modeling methodology to evaluate potential ambient air quality impacts and public health risks posed by the conceptual operation of stationary sources which could be included in the Project. Results of the modeling analysis are compared with the most recent California Environmental Quality Act (CEQA) significance impact thresholds established by the SJVAPCD.

Per CEQA Appendix G, the AQIA and HRA directly address Air Quality questions (b) and (d), respectively. With respect to question (c), the ambient air quality significance of reactive organic gas (ROG) emissions is indirectly addressed via the HRA. Would the project:

(b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

(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)?

(d) Expose sensitive receptors to substantial pollutant concentrations?

2.0 AIR QUALITY PLANS AND BACKGROUND

Several guidance documents and regulations shape and define the scope of the modeling analysis. Methods and supplemental information regarding criteria pollutants—volatile organic compounds (VOC), oxides of nitrogen (NO_x), sulfur oxides (SO_x), carbon monoxide (CO), particulate matter (PM)—can be found in the SJVAPCD Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI, SJVAPCD 2015a). The GAMAQI includes pertinent background information, definitions, significance thresholds, and other relevant materials. These significance thresholds are detailed in Table 2-1 below.

Table 2-1: SJVAPCD CEQA Air Quality Significance Thresholds (2015)

Pollutant/Precursor	Construction Emissions (tons/year)	Operational Emissions	
		Permitted Equipment and Activities (tons/year)	Non-Permitted Equipment and Activities (tons/year)
ROG	10	10	10
NO_x	10	10	10
CO	100	100	100
SO_x	27	27	27
PM_{10}	15	15	15
$PM_{2.5}$	15	15	15

Toxic Air Contaminants (TACs) are listed in the AB2588 Air Toxic "Hot Spots" and Assessment Act's "Emissions Inventory Criteria and Guideline Regulation." A subset of these TACs has been listed by the Office of Environmental Health Hazard Assessment (OEHHA) as having acute, chronic, and/or carcinogenic effects on public health.

Sulfur dioxide (SO2) was not included in the AQIA because the region is in attainment for both state and federal SO2standards. In addition, California requires ultra-low sulfur content in both

natural gas and diesel fuels. The SJVAPCD monitors for SO2 at only one site, the Fresno 1st Street Station, which indicates measured value significantly below ambient air quality threshold, as reflected in the attainment status of the region. The stationary source emissions budget for the project (Table 4-3) is 0.4 tons per year (tpy), far below the 27 tpy operational threshold.

The San Joaquin Valley Air Pollution Control District's current thresholds of significance for TAC emissions from the operations of both permitted and non-permitted sources are combined and presented in Table 2-2.

Table 2-2: SJVAPCD CEQA Toxic Air Contaminants Thresholds (2015)

Carcinogens	Non-Carcinogens	
	Acute	Chronic
Maximally Exposed Individual risk equals or exceeds 20 in one million	Hazard Index equals or exceeds 1 for the Maximally Exposed Individual	Hazard Index equals or exceeds 1 for the Maximally Exposed Individual

2.1 Kern County Guidelines for Air Quality Assessments

Per the Kern County AQIA Guidelines (County of Kern 2006), the modeling analysis implements the following selected elements for the Grapevine project:

1. Estimates of long-term operational emissions in tons per year and maximum emission rates in pounds per hour.
2. AERMOD modeling of maximum 24-hour average concentration of primary PM_{10} and $PM_{2.5}$ at the project boundary (baseline + increment) with comparison to California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS). *For the Level 1 AQIA where site-specific information about source locations is not known, maximum impacts serve as surrogate boundaries, which is conservative.*
3. If applicable, AERMOD modeling of maximum 24-hour average concentrations of odorous compounds at the project boundary and within a 6 mile limit identifying the location of any sensitive receptors.
4. An HRA using AERMOD and HARP2 analyzing the acute, chronic, and carcinogenic health risks of TACs that would be emitted by the project.
5. A summary table showing mitigated operational emissions in tons per year, with a comparison to Kern County CEQA thresholds is included. Unmitigated operational emissions do not apply per the Voluntary Emissions Reduction Agreement (VERA) for the proposed Project.
6. For western Kern County, the most recent version of the GAMAQI (SJVAPCD 2015a) was used in the preparation of the AQIA, as identified below for the "Full Analysis Level."

2.2 SJVAPCD Full Analysis Level for Large Projects

Per the GAMAQI, the Grapevine air quality and greenhouse technical report requires the Full Analysis Level (FAL) approach. The FAL consists of all the elements required by the Small Project Analysis Level (SPAL) and the Cursory Analysis Level (CAL), as well as requiring an AQIA report that fully describes the air quality impacts to the public. Modeling analysis requirements for the FAL results are provided as a technical appendices.

3.0 EMISSIONS AND DISPERSION MODELING METHODOLOGY

The AQIA and HRA utilized current versions of the following models as applicable at the time modeling work commenced: CalEEMod (version 2013.2.2) for estimating emissions from land use development (performed by Dudek), applicable AP-42 (EPA 1995-2015), CARB, or District (SJVAPCD 2013-2015) emission estimation techniques (EETs) for programmatic stationary sources, the U.S. Environmental Protection Agency's (EPA) AERMOD modeling software (version 15181) for stationary source dispersion modeling, the Hotspots Analysis and Reporting Program (HARP2) Risk Assessment Standalone Tool (RAST, version 15197) which implements the new Office of Environmental Health Hazard Assessment (OEHHA) age-weighting methodology for assessing toxics risks. AERMOD is a steady-state Gaussian plume model that incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, building downwash, and both simple and complex terrain (EPA 2015b).

Since the proposed Project site is over 5 acres, air dispersion modeling was performed to assess AQIA and HRA impacts of emissions estimated for several types of programmatic stationary sources. Principal parameters of AERMOD for the proposed Project construction and operations include:

- Meteorological Data: The SJVAPCD requires the use of AERMOD for air dispersion modeling. The latest 5-year meteorological data (2009-2013) for the Bakersfield station (Station ID 23155) from SJVAPCD were downloaded. For cancer or chronic non-cancer risk assessments, the average cancer risk of all years modeled was used.
- Urban and Rural Options: Urban areas typically have more surface roughness as well as structures and low-albedo surfaces that absorb more sunlight – and thus more heat – relative to rural areas. According to SJVAPCD guidelines, the urban dispersion option was selected due to the planned developed nature of the Project area.
- Modeling Options: The modeling included the use of standard regulatory default options.
- Terrain Characteristics: The terrain in the vicinity of the modeled industrial site is generally flat with the base of the Tehachapi mountain range about 5 miles to the south. The elevation of the modeled (characteristic) industrial site is about 1,000 feet above sea level (ASL). Stationary sources were programmatically modeled as either point sources, volume sources, or in combination. Point source stack heights and volume source dimensions were estimated as typical for the type of source based on existing similar facilities elsewhere. Digital elevation model (DEM) files were imported into AERMOD so that complex terrain features were evaluated as appropriate.
- Modeling Grid: A regularly-spaced Cartesian receptor grid was evaluated to determine impacts to ambient air. Characteristic 100-meter spacing was used for 2-kilometer receptor grid for the refined air dispersion modeling.
- Discrete Receptors: Since the Project is in the preliminary planning phase, the air quality modeling evaluated the points of maximum impact for the AQIA and HRA. The point of maximum impact is a location within the modeling grid where the model calculates the highest (worst-case) pollutant concentrations. The point of maximum impact may or may not be a habitable location; however, using it for the subsequent analysis is the most

conservative approach since all other receptors within the modeling grid would have lower pollutant concentrations. While specific receptors, such as the nearest future residence and nearest future off-site workplace, were not evaluated, this approach was anticipated to disclose reasonably conservative estimates of impacts to future receptors.

- Source Equipment Operating Scenarios: Air dispersion modeling of operational activities was conducted using 100% rated loads at actual annual capacity factors based on the expected duty cycles and operating periods of the various source devices (emergency generators, boilers, heaters, etc.) unless otherwise specified based on emissions inventory data. Table 3-1 shows the overall stationary source emissions budget for the Project.
- Source Release Characterizations: Modeling release parameters were developed for the construction and operational analyses. For modeling construction emissions impacts using AERMOD, it was estimated that approximately 33% of the total site area (586 acres) would have active construction activities in any of 3 years. This results in a site active area of 195.33 acres (8,508,720 square feet) in any given year. The construction activity was modeled as a thin volume source with a ratio of height to side length of 1.69 percent. Table 3-1 shows the construction release characteristics used in the AERMOD model. For modeling operational emissions, modeling release parameters were developed based on the predominant emission generating activity at the source. Table 3-2 shows modeled release characteristics for each operational source and its AQIA/HRA applicability. In accordance with applicable guidelines and good engineering practice (GEP), operational stationary sources were characterized as point or volume sources, or in combination.

Table 3-1: Construction Volume Source Characteristics for AQIA and HRA

Parameter	Units	Value
Emission Rate	grams per second (g/s)	1
Release Height	meters	15
Length of Side	meters	889.3
Height/Side	ratio	0.0169
Initial Lateral Dimension	meters	206.82
Initial Vertical Dimension	meters	6.98

Table 3-2: Operational Stationary Source Characteristics

Stationary Source Emissions	Source Release Characterization	AQIA	HRA
Cannery/food processing (boiler)	Point Source	Yes	Yes
Auto service stations (8)	Point & Volume Sources	No	Yes
Green waste composting	Volume Source	No	Yes
Asphaltic concrete plant (drum mix)	Point & Volume Sources	Yes	Yes
Bakery (ovens & off-gassing)	Point Source	Yes	Yes
Wastewater treatment plants (3)	Volume Source	No	Yes
WWTP emergency generators (3)	Point Source	Yes	Yes
WTP emergency generator	Point Source	Yes	Yes
General manufacturing (A/B)	Point & Volume Sources	No	Yes

4.0 PROJECT EMISSIONS

Estimated construction and operational emissions for the Project were used in the modeling analysis as described below.

4.1 Project Construction Emissions

Project construction emissions were estimated using the California Emissions Estimator Model (CalEEMod® 2013), public domain software developed by the California Air Pollution Control Officers Association (CAPCOA) in collaboration with the SJVAPCD and other California air districts specifically for land use development projects. CalEEMod® provides air basin-specific emissions estimates of air pollutants generated from the use of diesel-powered off-road equipment and on-road vehicles, as well as paving and painting. Estimated construction emissions include criteria pollutants from fuel combustion (VOCs, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$), fugitive dust (PM_{10} and $PM_{2.5}$), and diesel particulate matter (DPM).

Off-site concentrations were modeled as volume sources for the construction phase with the highest (worst-case) emissions as determined by CalEEMod®, which is typically earthmoving using heavy equipment within a defined land area (e.g., project phase). Thus, if the worst-case phase demonstrates compliance with state and federal ambient air quality standards (AAQS), then it can be assumed all other construction phases would also meet AAQS.

For the construction HRA modeling, DPM from diesel-fueled off-road construction equipment was the risk-driving toxic air contaminant (TAC) evaluated in the construction HRA since it aggregates a long list of toxics species including aromatic hydrocarbons such as aromatic hydrocarbons (benzene-ring) compounds, polycyclic aromatic hydrocarbons (PAHs), and metals. Table 4-1 summarizes estimated construction emissions. Planning Area 6A was selected for the construction HRA modeling because it has the highest emissions per acre of land. Detailed significance evaluations for each Planning Area per SJVAPCD criteria are contained in Appendix A.

Table 4-1a: Mitigated Annual Project Construction Emissions

Planning Area	Mitigated Annual Tons					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
6A	14.0	33.6	41.5	0.07	7.3	2.0
2	16.9	33.4	41.4	0.09	10.6	2.5
1	17.2	11.4	21.9	0.05	5.5	1.3
3	13.7	14.1	31.3	0.07	5.9	1.1
4	12.6	12.2	25.6	0.06	6.7	1.1
6B	0.4	1.2	8.9	0.02	2.6	0.4
5A	10.2	3.1	23.3	0.05	5.9	0.9
6C	0.9	0.9	9.1	0.02	1.5	0.2
6D	0.8	0.8	8.1	0.02	1.4	0.2
6E	1.2	0.8	8.1	0.02	1.4	0.2
5B	0.9	0.9	9.1	0.02	1.5	0.2

Source: Dudek 2015, CalEEMod v2013.2.2

Table 4-2b: Mitigated Average Daily Project Construction Emissions

Planning Area	Mitigated Average Daily Pounds					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
6A	111.8	269.0	332.3	0.6	58.0	15.6
2	134.8	267.4	330.9	0.7	84.8	20.2
1	137.4	91.0	175.2	0.4	43.8	10.4
3	109.9	113.0	251.5	0.6	47.7	9.1
4	100.4	97.7	204.8	0.5	53.8	8.5
6B	3.5	9.7	71.4	0.2	21.1	2.9
5A	81.5	25.0	186.6	0.4	47.0	7.4
6C	7.2	6.9	72.8	0.2	12.1	1.6
6D	6.6	6.2	64.8	0.2	11.4	1.5
6E	9.4	6.2	64.8	0.2	11.4	1.5
5B	7.2	6.9	72.8	0.2	12.1	1.6

Source: Dudek 2015, CalEEMod v2013.2.2

4.2 Project Operation Emissions

Operational emissions from fixed (stationary) sources include those supporting commercial and industrial activities. These include general commercial, highway commercial, and light industrial activities.

- General commercial includes retail and service facilities of relatively low intensity providing a broad range of goods and services that serve the day-to-day needs of nearby residents. Uses would include, but are not limited to: neighborhood shopping centers, convenience markets, restaurants, offices, wholesale business facilities, resort hotels and motels, hospitals, schools (including trade schools), churches, and commercially related light manufacturing or storage within fully enclosed facilities.
- Highway commercial provides services, amenities, and accommodations at key locations along major roadways to visitors and through-traffic. Uses would include, but are not limited to: hotels, motels, restaurants, garages, service stations, recreational vehicle parks, fast-food restaurants, truck stops, and truck washes.
- Light industrial includes unobtrusive industrial activities that can locate in close proximity to residential and commercial uses with a minimum of environmental conflicts. These industries are characterized as nonpolluting and do not produce noticeable fumes, odors, noise, or vibrations detrimental to nearby properties. Uses shall include, but are not limited to, the following: Wholesale businesses, storage buildings and yards, warehouses, manufacturing, and assembling. There are no heavy industry or other high-emissions stationary source uses proposed or allowed at the Grapevine project.

Based on the sources identified as part of the proposed Project, a selected number of representative stationary source categories that could be developed as part of the Grapevine project were evaluated for operational impacts on ambient air quality and health risk analysis. Emissions estimates for these source categories are characterized and summarized in Tables 4-2 and 4-3 below.

Table 4-3: Stationary Source Emissions Estimation Techniques

Stationary Source Emissions	References & Data Sources	Throughput Basis
Cannery/food processing (boiler)	EPA 1998; VCAPCD 2001; SCAQMD 2004, 2006	One boiler 75 MMBtu/hr at 70% load for 4 months
Auto service stations (8)	SCAQMD 2007; SJVAPCD 2007, 2014	132,000 gallons/month each (average retail station)
Green waste composting	SCAQMD 2015; SJVAPCD 2014	4,000 wet tons/year, meets 19% BMP reduction
Asphaltic concrete plant (drum mix)	EPA 2004; SJVAPCD 2013, 2014	200,000 tons/year
Bakery (ovens & off-gassing)	EPA 1997, 1998; VCAPCD 2001; SJVAPCD 2014	50 tons baked goods/day with 95% VOC control
Wastewater treatment plants (3)	SJVAPCD 2013	2.4 MGD average total; 3 POTW sites
WWTP emergency generators (3)	EPA 1996, 2014; 40 CFR 89.112	Engine powering a 500 kW generator (PM_{10} as DPM)
WTP emergency generator	EPA 1996, 2014; 40 CFR 89.112	Engine powering a 500 kW generator (PM_{10} as DPM)
General manufacturing (A/B)	Dudek 2015; SJVAPCD 2007, 2014	90th percentile emissions from 129 facility sample

Table 4-4: Estimated Stationary Source Emissions Budget

Stationary Sources	Notes	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
		tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr
Cannery/food processing (boiler)	1	0.41	0.46	6.23	0.05	0.56	0.56
Auto service stations (8)		8.04	—	—	—	—	—
Green waste composting		5.94	—	—	—	—	—
Asphaltic concrete plant (drum mix)		3.23	1.23	7.31	0.34	1.43	1.32
Bakery (oven & off-gassing)	1	3.79	0.40	2.40	0.01	0.06	0.06
Wastewater treatment plants (3)		0.46	—	—	—	—	—
WWTP emergency generators (3)	1	0.04	0.15	0.15	0.001	0.017	0.017
WTP emergency generator	1	0.01	0.05	0.05	0.000	0.006	0.006
General manufacturing A (point)	2	1.65	—	—	—	0.05	0.05
General manufacturing B (volume)	2	1.65	—	—	—	0.05	0.05
Stationary Source Totals		**25.2**	**2.3**	**16.1**	**0.4**	**2.2**	**2.1**
SJVAPCD CEQA Thresholds, Operational		**10**	**10**	**100**	**27**	**15**	**15**
Significance Evaluation		**PS**	**LTS**	**LTS**	**LTS**	**LTS**	**LTS**

Sources: Dudek 2015, SJVAPCD 2013-2015

Notes:

For emissions budgeting purposes, it is assumed that there is one (1) of each type of facility with the exception of the number of facilities noted in parenthesis.

PS – potential significant; LTS – less than significant.

(1) Estimated PM emissions assumed to be 99 percent of estimated PM_{10} emissions (conservative assumption, SCAQMD 2006).

(2) General manufacturing is a surrogate for small manufacturing operations that would involve the use of coatings on products.

As shown in Table 4-3 above, all criteria mass emissions are below SJVAPCD operational thresholds except reactive organic gases (ROG), an ozone (O_3) precursor which is above the 10 tons per year CEQA threshold and thus potentially significant with respect to the SJVAPCD significance thresholds However, unlike O_3, NO_2, CO, SO_x, PM_{10} and $PM_{2.5}$, there are no published ambient air quality standards for ROG[1], neither state nor federal, therefore, since ROG contains various TAC species, ROG emissions impacts are evaluated for significance in terms of health risks to the public, as addressed in Section 5.2 below.

[1] Also referred to as VOC – volatile organic compounds.

5.0 AIR DISPERSION MODELING AQIA/HRA RESULTS

Results of the air dispersion modeling for AQIA and HRA impacts show that all potential impacts are below SJVAPCD CEQA significance thresholds, i.e., less than significant impacts. The following subsections contain the details of the analyses which support this conclusion.

Appendix A contains the AQIA/HRA modeling analysis spreadsheets with emissions calculations; Appendix B contains background ambient air quality data (setting); Appendix C contains the AERMOD output files; and Appendix D contains the HARP2 output files for the HRA.

Modeled emission rates for criteria pollutants were determined for construction and operations of the proposed Project. The scaled rates are simply the 1-hour (maximum) emission rates expressed for the other applicable averaging periods (i.e., 8-hour, 24-hour, annual) using EPA scaling ratios (EPA 2011)[2]. Ozone is a photochemical oxidation product of NO_x and ROG emissions that is not evaluated in a source impact AQIA because it is not quantifiably present in combustion exhaust gases, i.e., not directly emitted.

Fugitive dust was included in the construction AQIA. Under SJVAPCD Regulation VIII, a Dust Control Plan would be required for the Project. All applicable control measures would be required to be fully implemented which would, by definition, reduce fugitive dust impacts to less than significant for the Project.

5.1 Air Quality Impact Assessment

Table 5-1 shows the modeled emission rates for criteria pollutants from construction of the proposed Project.

Table 5-1: Estimated Criteria Construction Emissions for Modeling Input

Impact Parameter	Planning Area 6A
	lbs/hr
1-hour CO	4.79
8-hour CO	4.31
1-hour NO_2	6.47
Annual NO_2	0.65
24-hour PM_{10}	0.17
Annual PM_{10}	0.03
24-hour $PM_{2.5}$	0.11
Annual $PM_{2.5}$	0.02

Sources: Dudek 2015, CalEEMod v2013.2.2

Table 5-2 shows the modeled emission rates for criteria pollutants from the five operational sources of CO, NO_x, PM_{10}, and $PM_{2.5}$. All of these are operational combustion sources (i.e., natural gas, diesel) except general manufacturing, which emits some PM_{10} and $PM_{2.5}$ as post-control dusts. Planning Area 6c was selected for modeling the operational sources because it is centrally located and the land is relatively flat that would result in the worst-case pollutant ground level concentration (GLC).

[2] In practice, average period scalers are applied to modeling results, not modeling inputs, which yields the same results due to commutative properties of multiplication.

Table 5-2: Estimated Criteria Operational Emissions for Modeling Input

Impact Parameter	Cannery/ Food Processing	Asphaltic Concrete Plant	Bakery	Emergency Generator	General Mfg.	Normal Operational Totals
	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr
1-hour CO	4.32	7.31	1.20	2.03	—	12.83
8-hour CO	3.89	6.58	1.08	3.66	—	11.55
1-hour NO_2	0.32	1.23	0.20	2.04	—	1.75
Annual NO_2	0.03	0.12	0.02	0.41	—	0.18
24-hour PM_{10}	0.23	0.86	0.02	0.14	0.06	1.17
Annual PM_{10}	0.04	0.14	0.003	0.02	0.01	0.19
24-hour $PM_{2.5}$	0.23	0.79	0.02	0.14	0.06	1.10
Annual $PM_{2.5}$	0.04	0.13	0.00	0.02	0.01	0.18

Sources: See Table 4-2

Notes:

Combustion emissions of $PM_{2.5}$ are 99 percent of PM_{10} emissions (SCAQMD 2006)

1-hour CO and NO_2 emissions for emergency generators are based on one engine operating for 30 minutes per 1-hour period for maintenance

Normal Operational Totals do not include emergency generator operation

5.1.1 AQIA Methodology

Per SJVAPCD guidance (SJVAPCD 2014b), a Level 1 analysis was performed using AERMOD for each averaging period where the maximum concentration for each source and receptor combination was generated to produce worst-case concentrations for each directly emitted criteria pollutant of concern (CO, NO_2, PM_{10}, $PM_{2.5}$) without respect to time of occurrence.

In the Level 1 analysis, all criteria pollutants were modeled together, with a normalized (i.e., unit) emission rate of 1 gram per second for each source. The use of a normalized emission rate enabled the modeling run outputs to be used for multiple pollutant analyses, similar to an HRA. The main differences are in the pollutant-specific averaging periods. The Level 1 procedure is described below:

- Normalization: For each source, the modeled dispersion factor, X/Q, in units of micrograms per cubic meter per grams per second ($\mu g/m^3$)/(g/s) was multiplied by the calculated emission rate of each subject pollutant in units of grams per second (g/s) to obtain ambient pollutant GLC in units of micrograms per cubic meter ($\mu g/m^3$).
- Averaging Periods: For all AQIA analyses, the appropriate averaging periods were selected for compatibility with criteria pollutant ambient air quality standards, i.e., 1-hour, 8-hour, 24-hour, and annual averaging periods shown in the Ambient Air Quality Standards table in Appendix A.
- Receptors: Since actual plant/facility boundaries were not defined for the preliminary planning stage, a characteristic 2-kilometer receptor grid with

100-meter spacing was established for Special Plan Area 6a and 6c, for construction and operational emissions respectively, as the programmatic industrial zone. This geometry yielded a 20 meter x 20 meter grid with 400 x 1 hectare cells for AERMOD to process in each modeling run. One hectare (10,000 square meters) is a land area equivalent to 2.47 acres (107,639 square feet). For each run, a maximum GLC was obtained for the programmatic (i.e., hypothetical) receptor.

- Process: Using estimated release parameters for each source type (i.e., point or volume sources), AERMOD output files were generated for each averaging period and source combination.
  - For Step 1 of the AQIA analysis, the maximum background concentration for the Project Area (see Appendix B) for each pollutant and averaging period combination was added to the corresponding maximum GLC (Project impact). The sum of these values was then compared to the corresponding ambient air quality standard. If the Project impact did not cause an exceedance of an ambient air quality standard, then the analysis was complete for that source/receptor/pollutant combination because no exceedance of an ambient air quality standard was determined. If the Project impact caused an exceedance of an ambient air quality standard, then the analysis proceeded to Step 2.
  - Step 2 was similar to a Step 1 with one major difference. For this step, the maximum GLC of each pollutant and averaging period combination was compared to its corresponding Significant Impact Level (SIL, see Appendix A). If the maximum GLC did not exceed the corresponding SIL, then the analysis was complete for that source/receptor/pollutant combination because the emissions would not be considered to *contribute* to an exceedance of an ambient air quality standard, and no further action was required.

5.1.2 AQIA Results

Tables 5-3 and 5-4 below summarize the results of the Level 1 construction AQIA methodology described above and contained in Appendix A, and Tables 5-5 and 5-6 below summarize the results of the Level 1 operational AQIA methodology. Background ambient air quality data is contained in Appendix B, and the AERMOD outputs are contained in Appendix C.

Specifically, Tables 5-3 and 5-5 show the Step 1 results, and Tables 5-4 and 5-6 show the Step 2 results:

- For all CO and NO_2 impacts, the Step 1 analysis yield passing results (i.e., no exceedance of an ambient air quality standard).
- Except for the federal 24-hour PM_{10} standard (150 µg/m^3), the Project Area is in nonattainment for PM_{10} and $PM_{2.5}$ and the Step 1 analyses for all PM_{10} and $PM_{2.5}$ sources did not pass and it was necessary to apply Step 2 which yielded passing results (i.e., no significant contribution to an exceedance of an ambient air quality standard) .

- Since the Project Area is in attainment or unclassified for NO_2, the Step 1 NO_2 impacts from diesel engine operation (i.e., construction equipment, emergency generators) yielded passing results without the need to apply Step 2.

Therefore, with respect to CEQA Appendix G, Air Quality question (b), the AQIA shows that criteria pollutant emissions from construction of the Project and operation of stationary sources associated with the Project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation.

Impacts: Less Than Significant

Mitigation Measures: None Required

Table 5-3: Construction Impacts Results Summary – Step 1 AAQS Basis

Impact Parameter	S/F AAQS	Construction Planning Area 6A	
	µg/m³	µg/m³	Status
1-hour CO	22,900	2,438	PASS
	40,100	2,438	PASS
8-hour CO	10,300	2,206	PASS
	10,300	2,206	PASS
1-hour NO_2	338	134	PASS
	188	135	PASS
Annual NO_2	56	25	PASS
	100	24	PASS
24-hour PM_{10}	50	123	Step 2
	150	108	PASS
Annual PM_{10}	20	42	Step 2
24-hour $PM_{2.5}$	35	92	Step 2
Annual $PM_{2.5}$	12	16	Step 2
	12	17	Step 2

Sources: CARB 2015b, CARB 2015c, EPA 2015b, EPA 1992, EPA 2011, SJVAPCD APR-1925

Table 5-4: Construction Impacts Results Summary – Step 2 SIL Basis

Impact Parameter	Class II SILs	Construction Planning Area 6A	
	µg/m³	µg/m³	Status
1-hour CO	2000	34.82	PASS
8-hour CO	500	31.34	PASS
1-hour NO_2	7.5	37.64	Step 1
Annual NO_2	1	4.70	Step 1
24-hour PM_{10}	5	1.20	PASS
Annual PM_{10}	1	0.20	PASS
24-hour $PM_{2.5}$	5	0.78	PASS
Annual $PM_{2.5}$	1	0.13	PASS

Sources: CARB 2015b, CARB 2015c, EPA 2015b, EPA 1992, EPA 2011, SJVAPCD APR-1925

Table 5-5: Operational Impacts Results Summary – Step 1 AAQS Basis

Impact Parameter	CAAQS/ NAAQS	Cannery/Food Processing		Asphaltic Concrete Plant		Bakery		Emergency Generator		General Manufacturing	
	µg/m³	µg/m³	Status	µg/m³	Status	µg/m³	Status	µg/m³	Status	µg/m³	Status
1-hour CO	22,900	2,424	PASS	2,447	PASS	2,429	PASS	2,473	PASS	—	—
	40,100	2,424	PASS	2,447	PASS	2,429	PASS	2,473	PASS	—	—
8-hour CO	10,300	2,193	PASS	2,214	PASS	2,198	PASS	2,299	PASS	—	—
	10,300	2,193	PASS	2,214	PASS	2,198	PASS	2,299	PASS	—	—
1-hour NO_2	338	97	PASS	102	PASS	99	PASS	152	PASS	—	—
	188	99	PASS	104	PASS	101	PASS	154	PASS	—	—
Annual NO_2	56	21	PASS	21	PASS	21	PASS	35	PASS	—	—
	100	19	PASS	20	PASS	19	PASS	33	PASS	—	—
24-hour PM_{10}	50	123	Step 2	132	Step 2	122	Step 2	127	Step 2	124	Step 2
	150	108	PASS	117	PASS	107	PASS	112	PASS	109	PASS
Annual PM_{10}	20	42	Step 2	44	Step 2	42	Step 2	43	Step 2	42	Step 2
24-hour $PM_{2.5}$	35	92	Step 2	100	Step 2	91	Step 2	96	Step 2	93	Step 2
Annual $PM_{2.5}$	12	16	Step 2	18	Step 2	16	Step 2	17	Step 2	16	Step 2
	12	17	Step 2	19	Step 2	17	Step 2	18	Step 2	17	Step 2

Sources: CARB 2015b, CARB 2015c, EPA 2015b, EPA 1992, EPA 2011, SJVAPCD APR-1925, SJVAPCD 2013, 2015a

Table 5-6: Operational Impacts Results Summary – Step 2 SIL Basis

Impact Parameter	Class II SILs	Cannery/Food Processing		Asphaltic Concrete Plant		Bakery		Emergency Generator		General Manufacturing	
	µg/m³	µg/m³	Status	µg/m³	Status	µg/m³	Status	µg/m³	Status	µg/m³	Status
1-hour CO	2000	20.35	PASS	43.60	PASS	26.02	PASS	69.41	PASS	—	—
8-hour CO	500	18.32	PASS	39.24	PASS	23.41	PASS	124.93	PASS	—	—
1-hour NO_2	7.5	1.20	PASS	5.87	PASS	3.50	PASS	55.80	Step 1	—	—
Annual NO_2	1	0.15	PASS	0.73	PASS	0.44	PASS	13.95	Step 1	—	—
24-hour PM_{10}	5	1.10	PASS	4.89	PASS	0.40	PASS	4.78	PASS	1.42	PASS
Annual PM_{10}	1	0.18	PASS	0.82	PASS	0.07	PASS	0.80	PASS	0.24	PASS
24-hour $PM_{2.5}$	5	1.09	PASS	4.53	PASS	0.39	PASS	4.74	PASS	1.42	PASS
Annual $PM_{2.5}$	1	0.18	PASS	0.76	PASS	0.07	PASS	0.79	PASS	0.24	PASS

Sources: CARB 2015b, CARB 2015c, EPA 2015b, EPA 1992, EPA 2011, SJVAPCD APR-1925, SJVAPCD 2013, 2015a

5.2 Health Risk Assessment

All Project sources, regardless of type, emit quantities of TACs which were quantified using District-approved emission factors (SJVAPCD 2013-2015, SCAQMD 2007, 2015, VCAPCD 2001). The HRA used two scaled averaging times: annual average for cancer and chronic non-cancer risks, and 1-hour (maximum) for acute risks (CARB 2015a, EPA 2011).

5.2.1 HRA Methodology

The Children's Environmental Health Protection Act of 1999 (Senate Bill 25), which requires explicit consideration of infants and children in assessing risks from air toxics, required revisions of the methods for both non-cancer and cancer risk assessment and of the exposure assumptions in the 2003 Office of Environmental Health Hazard Assessment **(**OEHHA) health risk assessment guidance manual. In response to SB 25, OEHHA released three technical support documents (TSDs) addressing reference exposure levels (RELs) (OEHHA 2008), cancer potency (OEHHA 2009), and exposure assessment and stochastic analysis (OEHHA 2012) and adopted a revised health risk assessment guidance manual (OEHHA 2015). The TSD for RELs and continuing work to reevaluate TACs to ensure adequate protection for infants and children has led to revisions of RELs for approximately 10 chemicals and chemical families.

The basic methodology for evaluating acute and chronic health effects using the RELs otherwise remained the same as in the previous guidance manual. Moreover, RELs are designed to protect the most sensitive individuals in the population including infants and children by the selection of appropriate toxicological data and by including margins of safety. Accordingly, the evaluation methods are assumed to protect children as well as other sensitive subpopulations (groups of more highly susceptible individuals) from adverse health effects in the event of exposure (OEHHA 2008). The cancer risk methodology described in exposure assessment and stochastic analysis TSD and the OEHHA guidance manual accounts for the higher sensitivity of infants and children by applying age-specific breathing rates and age-sensitivity factors.

According to the TSD, "Accounting for effects of early-in life exposure requires accounting for both the increased potency of early in life exposure to carcinogens and the greater exposure on a per [kilogram] body weight that occurs early in life due to behavioral and physiological differences between infants and children, and adults" (OEHHA 2012). As compared to the previous guidance, which relied on a single breathing rate for all ages, the revised guidance also includes age-specific breathing rates that reflect the differences between those for infants, children, and adults. The health risk assessment in this report uses HARP 2, which incorporates RELs, cancer potency factors, and health effects calculations based on the 2015 OEHHA guidance manual. Accordingly, this assessment evaluates and reflects conservative, health-protective methodologies to assess health impacts to adults as well as infants, children, and other sensitive subpopulations.

As chronicled above, in March 2015 the OEHHA approved the new *Air Toxics Hot Spots Program Risk Guidance Manual for Preparation of Health Risk Assessments*. The SJVAPCD requires that all HRAs prepared for CEQA documents follow District policies in conjunction with the OEHHA guidance document. In order to implement the OEHHA

guidance based on project information, the District has developed a 3-tiered approach where each successive tier is progressively more refined with fewer conservatisms applied.

In July 2015 the California Air Resources Board (CARB), in cooperation with the California Air Pollution Control Officers Association (CAPCOA), published a set of Risk Management Guidance for Stationary Source of Air Toxics. This document is intended to help Districts with their reevaluation process and to communicate ARB and Districts' plans, priorities, and policies regarding implementation of the new OEHHA risk assessment methodology.

As a screening protocol, Tier 1 uses the most conservative modeling and exposure parameters resulting in the highest calculated risks for sensitive receptors, specifically residences with children. Tier 1 applies when site-specific information about a project and its location relative to actual or foreseen receptors is not known, such as in the case of preliminary plans (e.g., this Project). OEHHA guidance for HRAs use a 30-year residential exposure period whereas SJVAPCD guidance for HRAs use a 70-year residential exposure period and includes homegrown produce exposure pathways. SJVAPCD guidance follows OEHHA guidance for exposure estimates using age groups (bins), however uses a 70-year exposure estimate instead of the CARB. 30-year period as recommended by the CARB. Due to use of highly conservative "default" modeling parameters and 70-year multi-pathway lifetime risk calculations, no additional data (i.e., source characteristic and receptor details) is required from the applicant.

Per SJVAPCD guidance (SJVAPCD 2015b), Tier 1 cancer and non-cancer health risk calculations were performed using the Hotspots Analysis and Reporting Program Version 2 (HARP2) Risk Assessment Standalone Tool (RAST, version 15197) given the ground-level concentration (GLC) input file format, which was calculated using the annual average and hourly maximum emission rates in units of grams per second (g/s) times the annual and hourly X/Q values predicted by AERMOD for the stationary point and volume sources as applicable at the maximum impact locations.

Based on its review of RELs and cancer potency factors to provide consideration of infants and children, OEHHA did not propose any revisions of the values for DPM, the primary TAC associated with construction equipment and emergency generators. As noted, the cancer risk calculations in the revised OEHHA guidance manual include age-specific adjustments for infant and children, which are described in more detail below. Therefore, the HRA results presented below reflect the latest OEHHA guidance.

5.2.2 HRA Results

Table 5-7 below summarizes the construction HRA results of the Tier 1 HRA methodology described above and contained in Appendix A. Planning Area 6A was determined to be the most intensive (worst-case) construction activity over a period of 3 years; more intensive than Planning Area 2 or any other Planning Areas. Thus, if the most intensive construction activity yields less than significant results, all other construction activities would also be less than significant and analysis of the other Planning Areas is not required.

The results of the construction analysis, which are highly conservative, demonstrate that the construction mobile sources exhibit maximum individual cancer risks (MICR) below

the 20 in a million threshold, chronic hazard indices (HIC) less than 1, and acute hazard indices (HIA) less than 1.

Table 5-8 below summarizes the operational HRA results of the Tier 1 HRA methodology described above and contained in Appendix A. AERMOD outputs are contained in Appendix C. HARP2 output files are contained in Appendix D.

The results of the operational analysis, which are highly conservative, demonstrate that all sources exhibit maximum individual cancer risks (MICR) below the 20 in a million threshold, chronic hazard indices (HIC) less than 1, and acute hazard indices (HIA) less than 1.

Therefore, with respect to CEQA Appendix G, Air Quality question (d), TAC emissions from construction of the Project and operation of stationary sources associated with the Project would not expose sensitive receptors to substantial pollutant concentrations.

Impacts: Less Than Significant

Mitigation Measures: None Required

Table 5-7: Construction Tier 1 Screening Health Risk Assessment Results Summary

Mobile Sources	3-year Residential MICR (MP) (Risk in 1 million)	Residential HIC	Residential HIA
Construction Planning Area 6A	9.7	0.06	0.00
	PASS	PASS	PASS

Sources: SJVAPCD 2013-15, SJVAPCD APR-1906, CARB 2015a, EPA 1992, EPA 2011

Notes:

MICR – Maximum Individual Cancer Risk

HIC – Chronic Hazard Index

HIA – Acute Hazard Index

Construction equipment TAC expressed as DPM

Tier 1 Screen:

OEHHA derived method (default)

70-year lifetime exposure (resident)

Multipathway (MP): inhalation, soil ingestion, dermal, mother's milk, homegrown produce

Controlled deposition rate: 0.02 m/s

Table 5-8: Operational Tier 1 Screening Health Risk Assessment Results Summary

Stationary Sources	70-year Residential MICR (MP) (Risk in 1 million)	Residential HIC	Residential HIA
Cannery/food processing (boiler)	0.1	0.023	0.0005
	PASS	PASS	PASS
Auto service stations (8)	6.5	0.28	0.16
	PASS	PASS	PASS
Green waste composting	1.4	0.85	0.002
	PASS	PASS	PASS
Asphaltic concrete plant (drum mix)	9.3	0.32	0.20
	PASS	PASS	PASS
Bakery (oven & off-gassing)	0.3	0.03	0.001
	PASS	PASS	PASS
Wastewater treatment plants (3)	0.5	0.38	0.01
	PASS	PASS	PASS
WWTP emergency generators (3)	4.5	0.02	0.00
	PASS	PASS	PASS
WTP emergency generator	4.5	0.02	0.00
	PASS	PASS	PASS
General manufacturing A	0.2	0.52	0.01
	PASS	PASS	PASS
General manufacturing B	0.3	0.89	0.02
	PASS	PASS	PASS

Sources: SJVAPCD 2013-15, SJVAPCD APR-1906, CARB 2015a, EPA 1992, EPA 2011

Notes:

Emergency generator TAC expressed as DPM

Tier 1 Screen:

OEHHA derived method (default)

70-year lifetime exposure (resident)

Multi-pathway (MP): inhalation, soil ingestion, dermal, mother's milk, homegrown produce

Controlled deposition rate: 0.02 m/s

6.0 REFERENCES

California Air Resources Board (CARB). 2015a. Hotspots Analysis and Reporting Program Version 2 (HARP2) Risk Assessment Standalone Tool (RAST), version 15197. Website (http://www.arb.ca.gov/toxics/harp/rast.htm) accessed August 2015.

California Air Resources Board (CARB). 2015b. Air Quality Data Analysis Management System (ADAM). Website (http://www.arb.ca.gov/adam/) accessed September 2015.

California Air Resources Board (CARB). 2015c. Ambient Air Quality Standards. Website (http://www.arb.ca.gov/research/aaqs/aaqs2.pdf) accessed September 2015.

California Air Resources Board (CARB). 2014. Area Designations Maps / State and National. Website (http://www.arb.ca.gov/desig/adm/adm.htm) accessed September 2015.

California Air Resources Board (CARB). 2005. Air Quality and Land Use Handbook: A Community Health Perspective. Website (http://www.arb.ca.gov/ch/handbook.pdf) accessed August 2015.

California Code of Regulations, Title 17 Part 93115 et seq (17 CCR 93115). Airborne Toxic Control Measure for Stationary Compression Ignition (CI) Engines. Website (http://www.arb.ca.gov/diesel/documents/FinalReg2011.pdf) accessed August 2015.

California Emissions Estimator Model (CalEEMod v2013.2.2). 2013. Website (http://www.caleemod.com/) accessed October 2015.

California Office of Environmental Health Hazard Assessment (OEHHA). 2015. Air Toxics Hot Spots Program, Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments. Website (http://oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf) accessed August 2015.

California Office of Environmental Health Hazard Assessment (OEHHA). 2012. Air Toxics Hot Spots Program Risk Assessment Guidelines – Technical Support Document Exposure Assessment and Stochastic Analysis. Website (http://www.oehha.ca.gov/air/hot_spots/pdf/2012tsd/TSDportfolio2012.pdf) accessed August 2015.

California Office of Environmental Health Hazard Assessment (OEHHA). 2009. Technical Support Document for Cancer Potency Factors: Methodologies for Derivation, Listing of Available Values, and Adjustments to Allow for Early Life Stage Exposures. Website (http://www.oehha.ca.gov/air/hot_spots/2009/TSDCancerPotency.pdf) accessed August 2015.

California Office of Environmental Health Hazard Assessment (OEHHA). 2008. Air Toxics Hot Spots Risk Assessment Guidelines – Technical Support Document for the Derivation of Noncancer Reference Exposure Levels. Website (http://www.oehha.ca.gov/air/hot_spots/2008/NoncancerTSD_final.pdf) accessed August 2015.

Code of Federal Regulations, Title 40 Part 1039 et seq (40 CFR 1039). Control of Emissions from New and In-Use Nonroad Compression-Ignition Engines. Website (http://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title40/40cfr1039_main_02.tpl) accessed August 2015.

County of Kern. 2006. Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports. December 1, 2006.

Intergovernmental Panel on Climate Change (IPCC). 2006. Guidelines for National Greenhouse Gas Inventories: Volume 5 Chapters 4 and 6. Website (http://www.ipcc-nggip.iges.or.jp/public/2006gl/) accessed October 2015.

San Joaquin Valley Unified Air Pollution Control District (SJVAPCD). 2013-2015. Toxics Emissions Factors. *Bakery Ovens (2014), General Coating (2014), Composing Greenwaste (2014), Natural Gas External Combustion (2015), Publically Owned Treatment Works (2013), Storage Tank Gasoline Fugitives (2014), Asphalt Batch Plant Emissions & Dust Generation (2013, 2014)*. Website

(http://www.valleyair.org/busind/pto/emission_factors/emission_factors_idx.htm) accessed August 2015.

San Joaquin Valley Unified Air Pollution Control District (SJVAPCD). 2015a. Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI). Website (http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf) accessed August 2015.

San Joaquin Valley Unified Air Pollution Control District (SJVAPCD). 2015b. APR-1906 Framework for Performing Health Risk Assessments. Website (http://www.valleyair.org/policies_per/Policies/apr-1906.pdf) accessed August 2015.

San Joaquin Valley Unified Air Pollution Control District (SJVAPCD). 2014a. Ambient Air Quality Standards & Valley Attainment Status. Website (http://www.valleyair.org/aqinfo/attainment.htm) accessed September 2015.

San Joaquin Valley Unified Air Pollution Control District (SJVAPCD). 2014b. APR-1925 Policy for District Rule 2201 AAQA Modeling. Website (http://www.valleyair.org/policies_per/Policies/apr-1925.pdf) accessed August 2015.

San Joaquin Valley Unified Air Pollution Control District (SJVAPCD). 2013. Ambient Air Quality Analysis Project Daily Emissions Assessment. Website (http://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI_AAQA_05-24-2013.pdf) accessed August 2015.

San Joaquin Valley Unified Air Pollution Control District (SJVAPCD). 2007. Guidance for Air Dispersion Modeling. Website (http://www.valleyair.org/busind/pto/Tox_Resources/AirQualityMonitoring.htm#modeling_guidance) accessed August 2015.

South Coast Air Quality Management District (SCAQMD). 2015. Guidelines for Calculating Emissions from Greenwaste Composting and Co-Composting Operations. Website (http://www.aqmd.gov/docs/default-source/planning/annual-emission-reporting/guidecalcgreenwaste.pdf?sfvrsn=6) accessed August 2015.

South Coast Air Quality Management District (SCAQMD). 2007. Emission Inventory and Risk Assessment Guidelines for Gasoline Dispensing Stations. Website (http://www.aqmd.gov/home/regulations/compliance/toxic-hot-spots-ab-2588/iws-facilities/iws-gas-station) accessed August 2015.

South Coast Air Quality Management District (SCAQMD). 2006. Final Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds. Website (http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/pm-2-5-significance-thresholds-and-calculation-methodology) accessed August 2015.

South Coast Air Quality Management District (SCAQMD). 2004. Appendix C – Scattergood. Website (http://www.aqmd.gov/docs/default-source/ceqa/documents/permit-projects/2005/ladwp/appc243.pdf?sfvrsn=2) accessed August 2015.

U.S. Environmental Protection Agency (EPA). 2015a. The Green Book Nonattainment Areas for Criteria Pollutants. Website (http://www3.epa.gov/airquality/greenbook/)

U.S. Environmental Protection Agency (EPA). 2015b. AERMOD Version 15181 & Implementation Guide. Website (http://www3.epa.gov/ttn/scram/dispersion_prefrec.htm) accessed August 2015.

U.S. Environmental Protection Agency (EPA). 2014. Nonroad Compression-Ignition Engines – Exhaust Emission Standards. Website (http://www3.epa.gov/otaq/standards/nonroad/nonroadci.htm) accessed September 2015.

U.S. Environmental Protection Agency (EPA). 2011. AERSCREEN User's Guide, EPA-454/B-11-001. Website (http://www.epa.gov/scram001/models/screen/aerscreen_userguide.pdf) accessed August 2015.

U.S. Environmental Protection Agency (EPA). 1995-2015. AP-42, Fifth Edition, Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources. *Chapters: 1.4 Natural Gas Combustion (1998); 3.3 Gasoline and Diesel Industrial Engines (1996); 3.4 Large Stationary Diesel and All Stationary Dual-fuel Engines (1996); 9.9.6 Bread Baking (1997); 11.1 Hot Mix Asphalt Plants (2004).* Website (http://www.epa.gov/ttnchie1/ap42/) accessed August 2015.

U.S. Environmental Protection Agency (EPA). 1992. Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised, EPA-454/R-92-019. Website (http://www.epa.gov/oppt/exposure/presentations/efast/usepa_1992b_sp_for_estim_aqi_of_ss.pdf) accessed August 2015.

Ventura County Air Pollution Control District (VCAPCD). 2001. AB 2588 Combustion Emission Factors. (http://www.vcapcd.org/pubs/Engineering/AirToxics/combem.pdf) accessed August 2015.

APPENDIX A – AQIA/HRA MODELING ANALYSIS

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CEQA AQIA & SHRA

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Elevation, feet ASL:	1,240
UTM Easting, m:	323922.28 m E
UTM Northing, m:	3871404.97 m N
UTM Zone:	11 S
NAICS Code:	NA
Facility ID:	NA
Author:	Brad Boyes, Eric Chan
Peer Reviewer:	Greg Wolffe
Date:	11/11/2015
Other Notes:	

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Attainment Status - San Joaquin Valley Air Basin

Criteria Pollutants	Averaging Time	State Designation	Federal Designation
Ozone (O_3)	1-hour	Nonattainment/Severe	—
	8-hour	Nonattainment	Nonattainment/Extreme[1]
Nitrogen Dioxide (NO_2)	1-hour	Attainment	Attainment/Unclassified[2]
	Annual	Attainment	Attainment
Sulfur Dioxide (SO_2)	All	Attainment	Attainment/Unclassified[2]
Carbon Monoxide (CO)	All	Attainment/Unclassified[2]	Attainment/Unclassified[2]
Particulates (as PM_{10})	24-hour	Nonattainment	Attainment
	Annual	Nonattainment	—
Particulates (as $PM_{2.5}$)	24-hour	—	Nonattainment
	Annual	Nonattainment	Nonattainment
Lead (Pb)	All	Attainment	Attainment/Unclassified[2]
Sulfates (as SO_4)	24-hour	Attainment	—
Hydrogen Sulfide (H_2S)	1-hour	Unclassified[2]	—
Vinyl Chloride (C_2H_3Cl)	24-hour	Attainment	—
Visibility	8-hour	Unclassified[2]	—

Sources: SJVAPCD 2014a, CARB 2014, EPA 2015a

Notes:

[1] The 0.08 ppmv federal 8-hour ozone standard applied until 2008; 0.075 ppmv thereafter

[2] At the time of designation, if the available data does not support a designation of attainment or nonattainment, the area is designated as unclassified

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Ambient Air Quality Standards

Criteria Pollutants	Averaging Time	California Standards		Federal Standards	
		ppmv	µg/m^3	ppmv	µg/m^3
Ozone (O_3)	1-hour	0.09	177	—	—
	8-hour	0.07	137	0.07	137
Nitrogen Dioxide (NO_2)	1-hour	0.18	338	0.100	188
	Annual	0.03	56	0.053	100
Sulfur Dioxide (SO_2)	1-hour	0.25	655	0.075	196
	3-hour Secondary	—	—	0.50	1,309
	24-hour	0.04	105	0.14	367
	Annual	—	—	0.03	79
Carbon Monoxide (CO)	1-hour	20	22,900	35	40,100
	8-hour	9	10,300	9	10,300
	Lake Tahoe (8-hr)	6	6,900	—	—
Particulates (as PM_{10})	24-hour	—	50	—	150
	Annual	—	20	—	—
Particulates (as $PM_{2.5}$)	24-hour	—	—	—	35
	Annual Primary	—	12	—	12
	Annual Secondary	—	—	—	15
Lead (Pb)	30-day	—	1.5	—	—
	3-month (rolling)	—	—	—	0.15
Sulfates (as SO_4)	24-hour	—	25	—	—
Hydrogen Sulfide (H_2S)	1-hour	0.03	42	—	—
Vinyl Chloride (C_2H_3Cl)	24-hour	0.01	26	—	—
Visibility Reducing Particles	8-hour	Extinction coefficient of 0.23 per km; visibility of 10 miles or more (0.07 to 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70%.		—	—

Source: CARB 2015c

Notes:

ppmv = parts per million by volume

µg/m^3 = micrograms per cubic meter

The 1.5 µg/m^3 federal quarterly lead standard applied until 2008; 0.15 µg/m^3 rolling 3-month average thereafter

For gases, ug/m^3 calculated from ppmv based on molecular weight and standard conditions:

Standard Temperature	25	°C for ambient air monitoring
Standard Molar Volume	24.465	liter/g-mole for ambient air monitoring

The thresholds of significance for Ambient Air Quality are based on the California Ambient Air Quality Standard (CAAQS) and National Ambient Air Quality Standard (NAAQS). A project would be considered to have a significant impact if its emissions are predicted to cause or contribute to a violation of an ambient air quality standard by exceeding any California Ambient Air Quality Standard (CAAQS) / National Ambient Air Quality Standard (NAAQS).

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SJVAPCD Significant Impact Levels

Pollutant	Averaging Period	SILs (µg/m^3)		
		Class I	Class II*	Class III
$PM_{2.5}$	24-hour	**	**	**
	Annual	**	**	**
Fugitive $PM_{2.5}$	24-hour	—	**	—
	Annual	—	**	—
PM_{10}	24-hour	0.2	5	—
	Annual	0.32	1	—
Fugitive PM_{10}	24-hour	—	10.4	—
	Annual	—	2.08	—
CO	1-hour	—	2000	—
	8-hour	—	500	—
NO_2	1-hour	—	7.5	—
	Annual	0.1	1	—
SO_2	1-hour	—	7.8	—
	3-hour	1	25	—
	24-hour	0.2	5	—
	Annual	0.08	1	—

Source: SJVAPCD APR-1925

* Only Class II SILs applicable for District use

** $PM_{2.5}$ SILs vacated by Court Order, use PM_{10} SILs as surrogate $PM_{2.5}$ SILs

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Stationary Source Emissions Estimation Techniques (EETs) for AQIA & HRA Applicability

Stationary Source Emissions	Process Emissions Characteristics	Source Release Characterization	AQIA[4]	HRA	Notes	References & Data Sources	Throughput Basis
Cannery/food processing (boiler)	Natural gas fuel combustion	Point Source	Yes	Yes	1	EPA 1998; VCAPCD 2001; SCAQMD 2004, 2006, 40 CFR 98	One boiler 75 MMBtu/hr at 70% load for 4 months
Auto service stations (8)	Fugitive VOCs & TACs	Point & Volume Sources	No	Yes	3	SCAQMD 2007; SJVAPCD 2007, 2014	132,000 gallons/month each (average retail station)
Green waste composting	Fugitive VOCs & TACs	Volume Source	No	Yes		SCAQMD 2015; SJVAPCD 2014; IPCC 2006	4,000 wet tons/year, meets 19% BMP reduction
Asphaltic concrete plant (drum mix)	Nat. gas combustion, fugitives	Point & Volume Sources	Yes	Yes		EPA 2004; SJVAPCD 2013, 2014; 40 CFR 98	200,000 tons/year
Bakery (ovens & off-gassing)	Nat. gas combustion, fugitives	Point Source	Yes	Yes	1	EPA 1997, 1998; VCAPCD 2001; SJVAPCD 2014; 40 CFR 98	50 tons baked goods/day with 95% VOC control
Publicly Owned Treatment Works (3)	Fugitive VOCs & TACs	Volume Source	No	Yes		SJVAPCD 2013; IPCC 2006	2.4 MGD average total; 3 POTW sites
POTW emergency generators (3)	Diesel ICE emissions (Tier 3)	Point Source	Yes	Yes	1	EPA 1996, 2014; 40 CFR 89.112; 40 CFR 98	Engine powering a 500 kW generator (PM_{10} as DPM)
WTP emergency generator	Diesel ICE emissions (Tier 3)	Point Source	Yes	Yes	1	EPA 1996, 2014; 40 CFR 89.112; 40 CFR 98	Engine powering a 500 kW generator (PM_{10} as DPM)
General manufacturing (A/B)	Process VOCs & TACs	Point & Volume Sources	No	Yes	2	Dudek 2015; SJVAPCD 2007, 2014	90th percentile emissions from 129 facility sample

Source: Dudek 2015

Notes:

For emissions budgeting purposes, it is assumed that there is one (1) of each type of facility with the exception of the number of facilities noted in parenthesis. This can be modified.

$PM_{2.5}$ emissions are a subset of PM_{10} emissions. Accordingly, it is assumed that PM_{10} emission reductions under a VERA would also cover $PM_{2.5}$ emissions.

[1] Estimated $PM_{2.5}$ emissions assumed to be 99 percent of estimated PM_{10} emissions (conservative assumption, SCAQMD 2006).

[2] Furniture manufacturing is a surrogate for small manufacturing operations that would involve the use of coatings on the products.

[3] Assumes one gas station per planning area (8 areas).

[4] AQIA for criteria pollutants will include CO, NO_2, PM_{10}, and $PM_{2.5}$ (SO_2 need not be assessed per current agency guidance).

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Table 3-1: Project Stationary Source Characteristics

Stationary Source Emissions	Process Emissions Characteristics	Source Release Characterization	AQIA	HRA
Cannery/food processing (boiler)	Natural gas fuel combustion	Point Source	Yes	Yes
Auto service stations (8)	Fugitive VOCs & TACs	Point & Volume Sources	No	Yes
Green waste composting	Fugitive VOCs & TACs	Volume Source	No	Yes
Asphaltic concrete plant (drum mix)	Nat. gas combustion, fugitives	Point & Volume Sources	Yes	Yes
Bakery (ovens & off-gassing)	Nat. gas combustion, fugitives	Point Source	Yes	Yes
Publicly Owned Treatment Works (3)	Fugitive VOCs & TACs	Volume Source	No	Yes
POTW emergency generators (3)	Diesel ICE emissions (Tier 3)	Point Source	Yes	Yes
WTP emergency generator	Diesel ICE emissions (Tier 3)	Point Source	Yes	Yes
General manufacturing (A/B)	Process VOCs & TACs	Point & Volume Sources	No	Yes

Table 4-2: Stationary Source Emissions Estimation Techniques

Stationary Source Emissions	References & Data Sources	Throughput Basis
Cannery/food processing (boiler)	EPA 1998; VCAPCD 2001; SCAQMD 2004, 2006, 40 CFR 98	One boiler 75 MMBtu/hr at 70% load for 4 months
Auto service stations (8)	SCAQMD 2007; SJVAPCD 2007, 2014	132,000 gallons/month each (average retail station)
Green waste composting	SCAQMD 2015; SJVAPCD 2014; IPCC 2006	4,000 wet tons/year, meets 19% BMP reduction
Asphaltic concrete plant (drum mix)	EPA 2004; SJVAPCD 2013, 2014; 40 CFR 98	200,000 tons/year
Bakery (ovens & off-gassing)	EPA 1997, 1998; VCAPCD 2001; SJVAPCD 2014; 40 CFR 98	50 tons baked goods/day with 95% VOC control
Publicly Owned Treatment Works (3)	SJVAPCD 2013; IPCC 2006	2.4 MGD average total; 3 POTW sites
POTW emergency generators (3)	EPA 1996, 2014; 40 CFR 89.112; 40 CFR 98	Engine powering a 500 kW generator (PM10 as DPM)
WTP emergency generator	EPA 1996, 2014; 40 CFR 89.112; 40 CFR 98	Engine powering a 500 kW generator (PM10 as DPM)
General manufacturing (A/B)	Dudek 2015; SJVAPCD 2007, 2014	90th percentile emissions from 129 facility sample

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Table 4-3: Estimated Stationary Source Emissions Budget

Stationary Sources	Notes	Process Emissions Characteristics	ROG	NO_x	CO	SO_X	PM_{10}	$PM_{2.5}$	CO_2e
			tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	MT/yr
Cannery/food processing (boiler)	1,3	Natural gas combustion	0.41	0.46	6.23	0.05	0.56	0.56	8,031
Auto service stations (8)		Fugitive VOCs & TACs	8.04	—	—	—	—	—	—
Green waste composting	4	Fugitive VOCs & TACs	5.94	—	—	—	—	—	622
Asphaltic concrete plant (drum mix)	1,3	Nat. gas combustion, fugitives	3.23	1.23	7.31	0.34	1.43	1.32	2,656
Bakery (oven & off-gassing)	1,3	Nat. gas combustion, fugitives	3.79	0.40	2.40	0.01	0.06	0.06	871
Publicly Owned Treatment Works (3)	4	Fugitive VOCs & TACs	0.46	—	—	—	—	—	47
POTW emergency generators (3)	1,3	Diesel ICE emissions (Tier 3)	0.04	0.15	0.15	0.001	0.017	0.017	55
WTP emergency generator	1,3	Diesel ICE emissions (Tier 3)	0.01	0.05	0.05	0.000	0.006	0.006	18
General manufacturing A (point)	2	Process VOCs & TACs	1.65	—	—	—	0.05	0.05	—
General manufacturing B (volume)	2	Process VOCs & TACs	1.65	—	—	—	0.05	0.05	—
Stationary Source Totals			**25.2**	**2.3**	**16.1**	**0.4**	**2.2**	**2.1**	**12,300**
SJVAPCD CEQA Thresholds, Operational			**10**	**10**	**100**	**27**	**15**	**15**	—
Significance Evaluation			**PS**	**LTS**	**LTS**	**LTS**	**LTS**	**LTS**	—

Sources: Dudek 2015, SJVAPCD 2013-2015

Notes:

For emissions budgeting purposes, it is assumed that there is one (1) of each type of facility with the exception of the number of facilities noted in parenthesis. This can be modified.

$PM_{2.5}$ emissions are a subset of PM_{10} emissions. Accordingly, it is assumed that PM_{10} emission reductions under a VERA would also cover $PM_{2.5}$ emissions.

[1] Estimated $PM_{2.5}$ emissions assumed to be 99 percent of estimated PM_{10} emissions (conservative assumption, SCAQMD 2006).

[2] General manufacturing is a surrogate for small manufacturing operations that would involve the use of coatings on products.

[3] Fuel combustion GHGs per 40 CFR 98 Tables A-1, C-1, C-2

[4] Biogenic GHG per IPCC 2006 Chapters 4 & 5

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Original Grapevine Stationary Source Emissions Budget (Dudek)

Stationary Sources	Notes	Process Emissions Characteristics	ROG	NO_x	CO	SO_X	PM_{10}	$PM_{2.5}$
			tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr
Cannery/food processing	1	Natural gas combustion	0.4	0.6	6.4	0.2	0.5	0.5
Auto service stations (8)		Fugitive VOCs & TACs	6.0	—	—	—	—	—
Green waste composting		Fugitive VOCs & TACs	9.3	—	—	—	—	—
Asphaltic concrete plant (drum mix)		Nat. gas combustion, fugitives	3.2	1.3	8.1	0.4	2.6	2.3
Bakery (ovens & off-gassing)	1	Nat. gas combustion, fugitives	4.1	—	—	—	—	—
Publicly Owned Treatment Works (3)		Fugitive VOCs & TACs	0.5	—	—	—	—	—
POTW emergency generators (3)	1	Diesel ICE emissions (Tier 3)	0.1	0.4	0.3	0.0	0.1	0.1
WTP emergency generator	1	Diesel ICE emissions (Tier 3)	0.1	0.1	0.1	0.0	0.1	0.1
General manufacturing	2	Process VOCs & TACs	3.3	—	—	—	0.1	0.1
Stationary Source Totals		—	**27.0**	**2.4**	**15.0**	**0.6**	**3.4**	**3.1**

Source: Dudek 2015

Notes:

For emissions budgeting purposes, it is assumed that there is one (1) of each type of facility with the exception of the number of facilities noted in parenthesis. This can be modified.

$PM_{2.5}$ emissions are a subset of PM_{10} emissions. Accordingly, it is assumed that PM_{10} emission reductions under a VERA would also cover $PM_{2.5}$ emissions.

[1] Estimated $PM_{2.5}$ emissions assumed to be 99 percent of estimated PM_{10} emissions (conservative assumption, SCAQMD 2006).

[2] Furniture manufacturing is a surrogate for small manufacturing operations that would involve the use of coatings on products.

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Project Contribution & Significance Thresholds Analysis Worksheet - Cannery/Food Processing (point source)

Distance to Maximum Impact	AERMOD/AERSCREEN Maximum Impact X/Q, $(ug/m^3)/(g/s)$				
	Maximum	Scaled	Scaled	Scaled	Scaled
meters	1-hour	3-hour	8-hour	24-hour	Annual
—	37.4	37.4	33.6	22.4	3.7

Impact Parameter	CAS No.	Hr. Max.	X/Q (above)	NO_X to NO_2	C_{PC}	Scaled Rate
		g/sec	$(ug/m^3)/(g/s)$	Conversion	ug/m^3	lbs/hr
1-hour CO	630080	5.45E-01	37.36	—	20.35	4.323
8-hour CO	630080	5.45E-01	33.62	—	18.32	3.891
1-hour NO_2	10102440	4.02E-02	37.36	80%	1.20	0.319
Annual NO_2	10102440	4.02E-02	3.74	100%	0.15	0.032
24-hour PM_{10}	85101	4.93E-02	22.42	—	1.10	0.235
Annual PM_{10}	85101	4.93E-02	3.74	—	0.18	0.039
24-hour $PM_{2.5}$	88101	4.88E-02	22.42	—	1.09	0.232
Annual $PM_{2.5}$	88101	4.88E-02	3.74	—	0.18	0.039

Sources: EPA 2015b, EPA 1992, EPA 2011

Impact Parameter	Applicable Standard	Project Area Maximum Background Concentration		Project Contribution	Cumulative Conc.	AAQS Threshold	Step 1 Significance	Significant Impact Level	Step 2 Significance
		ppmv	ug/m^3	ug/m^3	ug/m^3	ug/m^3		ug/m^3	
1-hour CO[1]	State	2.1	2,403	20.35	2,424	22,900	PASS	2000	PASS
	Federal	2.1	2,403	20.35	2,424	40,100	PASS	2000	PASS
8-hour CO	State	1.9	2,175	18.32	2,193	10,300	PASS	500	PASS
	Federal	1.9	2,175	18.32	2,193	10,300	PASS	500	PASS
1-hour NO_2	State	0.051	96	1.20	97	338	PASS	7.5	PASS
	Federal	0.052	98	1.20	99	188	PASS	7.5	PASS
Annual NO_2	State	0.011	21	0.15	21	56	PASS	1	PASS
	Federal	0.010	19	0.15	19	100	PASS	1	PASS
24-hour PM_{10}	State	—	122	1.10	123	50	Step 2	5	PASS
	Federal	—	107	1.10	108	150	PASS	5	PASS
Annual PM_{10}	State	—	42	0.18	42	20	Step 2	1	PASS
24-hour $PM_{2.5}$	Federal	—	91	1.09	92	35	Step 2	5	PASS
Annual $PM_{2.5}$	State	—	16	0.18	16	12	Step 2	1	PASS
	Federal	—	17	0.18	17	12	Step 2	1	PASS

Sources: CARB 2015b, CARB 2015c, EPA 2015b, EPA 1992, EPA 2011, SJVAPCD APR-1925, SJVAPCD 2013, 2015a

[1] Annualized 1-hour CO summary data not available; scaled from available 8-hour summary data

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Project Contribution & Significance Thresholds Analysis Worksheet - Bakery (point source)

Distance to Maximum Impact	AERMOD/AERSCREEN Maximum Impact X/Q, (ug/m^3)/(g/s)				
	Maximum	Scaled	Scaled	Scaled	Scaled
meters	1-hour	3-hour	8-hour	24-hour	Annual
—	172.2	172.2	155.0	103.3	17.2

Impact Parameter	CAS No.	Hr. Max.	X/Q (above)	NO_X to NO_2	C_{PC}	Scaled Rate
		g/sec	(ug/m^3)/(g/s)	Conversion	ug/m^3	lbs/hr
1-hour CO	630080	1.51E-01	172.21	—	26.02	1.199
8-hour CO	630080	1.51E-01	154.99	—	23.41	1.079
1-hour NO_2	10102440	2.54E-02	172.21	80%	3.50	0.202
Annual NO_2	10102440	2.54E-02	17.22	100%	0.44	0.020
24-hour PM_{10}	85101	3.85E-03	103.33	—	0.40	0.018
Annual PM_{10}	85101	3.85E-03	17.22	—	0.07	0.003
24-hour $PM_{2.5}$	88101	3.81E-03	103.33	—	0.39	0.018
Annual $PM_{2.5}$	88101	3.81E-03	17.22	—	0.07	0.003

Sources: EPA 2015b, EPA 1992, EPA 2011

Impact Parameter	Applicable Standard	Project Area Maximum Background Concentration		Project Contribution	Cumulative Conc.	AAQS Threshold	Step 1 Significance	Significant Impact Level	Step 2 Significance
		ppmv	ug/m^3	ug/m^3	ug/m^3	ug/m^3		ug/m^3	
1-hour CO[1]	State	2.1	2,403	26.02	2,429	22,900	PASS	2000	PASS
	Federal	2.1	2,403	26.02	2,429	40,100	PASS	2000	PASS
8-hour CO	State	1.9	2,175	23.41	2,198	10,300	PASS	500	PASS
	Federal	1.9	2,175	23.41	2,198	10,300	PASS	500	PASS
1-hour NO_2	State	0.051	96	3.50	99	338	PASS	7.5	PASS
	Federal	0.052	98	3.50	101	188	PASS	7.5	PASS
Annual NO_2	State	0.011	21	0.44	21	56	PASS	1	PASS
	Federal	0.010	19	0.44	19	100	PASS	1	PASS
24-hour PM_{10}	State	—	122	0.40	122	50	Step 2	5	PASS
	Federal	—	107	0.40	107	150	PASS	5	PASS
Annual PM_{10}	State	—	42	0.07	42	20	Step 2	1	PASS
24-hour $PM_{2.5}$	Federal	—	91	0.39	91	35	Step 2	5	PASS
Annual $PM_{2.5}$	State	—	16	0.07	16	12	Step 2	1	PASS
	Federal	—	17	0.07	17	12	Step 2	1	PASS

Sources: CARB 2015b, CARB 2015c, EPA 2015b, EPA 1992, EPA 2011, SJVAPCD APR-1925, SJVAPCD 2013, 2015a

[1] Annualized 1-hour CO summary data not available; scaled from available 8-hour summary data

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Project Contribution & Significance Thresholds Analysis Worksheet - Asphaltic Concrete Plant (point source)

Distance to Maximum Impact	AERMOD/AERSCREEN Maximum Impact X/Q, (ug/m^3)/(g/s)				
Maximum	Scaled	Scaled	Scaled	Scaled	
meters	1-hour	3-hour	8-hour	24-hour	Annual
—	47.3	47.3	42.6	28.4	4.7

Impact Parameter	CAS No.	Hr. Max.	X/Q (above)	NO_X to NO_2	C_{PC}	Scaled Rate
		g/sec	(ug/m^3)/(g/s)	Conversion	ug/m^3	lbs/hr
1-hour CO	630080	9.21E-01	47.33	—	43.60	7.310
8-hour CO	630080	9.21E-01	42.60	—	39.24	6.579
1-hour NO_2	10102440	1.55E-01	47.33	80%	5.87	1.230
Annual NO_2	10102440	1.55E-01	4.73	100%	0.73	0.123
24-hour PM_{10}	85101	1.71E-01	28.40	—	4.87	0.816
Annual PM_{10}	85101	1.71E-01	4.73	—	0.81	0.136
24-hour $PM_{2.5}$	88101	1.59E-01	28.40	—	4.51	0.756
Annual $PM_{2.5}$	88101	1.59E-01	4.73	—	0.75	0.126

Sources: EPA 2015b, EPA 1992, EPA 2011

Impact Parameter	Applicable Standard	Project Area Maximum Background Concentration		Project Contribution	Cumulative Conc.	AAQS Threshold	Step 1 Significance	Significant Impact Level	Step 2 Significance
		ppmv	ug/m^3	ug/m^3	ug/m^3	ug/m^3		ug/m^3	
1-hour CO[1]	State	2.1	2,403	43.60	2,447	22,900	PASS	2000	PASS
	Federal	2.1	2,403	43.60	2,447	40,100	PASS	2000	PASS
8-hour CO	State	1.9	2,175	39.24	2,214	10,300	PASS	500	PASS
	Federal	1.9	2,175	39.24	2,214	10,300	PASS	500	PASS
1-hour NO_2	State	0.051	96	5.87	102	338	PASS	7.5	PASS
	Federal	0.052	98	5.87	104	188	PASS	7.5	PASS
Annual NO_2	State	0.011	21	0.73	21	56	PASS	1	PASS
	Federal	0.010	19	0.73	20	100	PASS	1	PASS
24-hour PM_{10}	State	—	122	4.87	127	50	Step 2	5	PASS
	Federal	—	107	4.87	112	150	PASS	5	PASS
Annual PM_{10}	State	—	42	0.81	43	20	Step 2	1	PASS
24-hour $PM_{2.5}$	Federal	—	91	4.51	96	35	Step 2	5	PASS
Annual $PM_{2.5}$	State	—	16	0.75	17	12	Step 2	1	PASS
	Federal	—	17	0.75	18	12	Step 2	1	PASS

Sources: CARB 2015b, CARB 2015c, EPA 2015b, EPA 1992, EPA 2011, SJVAPCD APR-1925, SJVAPCD 2013, 2015a

[1] Annualized 1-hour CO summary data not available; scaled from available 8-hour summary data

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Project Contribution & Significance Thresholds Analysis Worksheet - Asphaltic Concrete Plant (volume source)

Distance to Maximum Impact	AERMOD/AERSCREEN Maximum Impact X/Q, (ug/m^3)/(g/s)				
	Maximum	Scaled	Scaled	Scaled	Scaled
meters	1-hour	3-hour	8-hour	24-hour	Annual
—	951.6	951.6	856.4	570.9	95.2

Impact Parameter	CAS No.	Hr. Max.	X/Q (above)	NO_X to NO_2	C_{PC}	Scaled Rate
		g/sec	(ug/m^3)/(g/s)	Conversion	ug/m^3	lbs/hr
1-hour CO	630080	#N/A	951.57	—	#N/A	#N/A
8-hour CO	630080	#N/A	856.42	—	#N/A	#N/A
1-hour NO_2	10102440	#N/A	951.57	80%	#N/A	#N/A
Annual NO_2	10102440	#N/A	95.16	100%	#N/A	#N/A
24-hour PM_{10}	85101	8.57E-03	570.94	—	4.89	0.041
Annual PM_{10}	85101	8.57E-03	95.16	—	0.82	0.007
24-hour $PM_{2.5}$	88101	7.94E-03	570.94	—	4.53	0.038
Annual $PM_{2.5}$	88101	7.94E-03	95.16	—	0.76	0.006

Sources: EPA 2015b, EPA 1992, EPA 2011

Impact Parameter	Applicable Standard	Project Area Maximum Background Concentration		Project Contribution	Cumulative Conc.	AAQS Threshold	Step 1 Significance	Significant Impact Level	Step 2 Significance
		ppmv	ug/m^3	ug/m^3	ug/m^3	ug/m^3		ug/m^3	
1-hour CO[1]	State	2.1	2,403	#N/A	#N/A	22,900	#N/A	2000	#N/A
	Federal	2.1	2,403	#N/A	#N/A	40,100	#N/A	2000	#N/A
8-hour CO	State	1.9	2,175	#N/A	#N/A	10,300	#N/A	500	#N/A
	Federal	1.9	2,175	#N/A	#N/A	10,300	#N/A	500	#N/A
1-hour NO_2	State	0.051	96	#N/A	#N/A	338	#N/A	7.5	#N/A
	Federal	0.052	98	#N/A	#N/A	188	#N/A	7.5	#N/A
Annual NO_2	State	0.011	21	#N/A	#N/A	56	#N/A	1	#N/A
	Federal	0.010	19	#N/A	#N/A	100	#N/A	1	#N/A
24-hour PM_{10}	State	—	122	4.89	127	50	Step 2	5	PASS
	Federal	—	107	4.89	112	150	PASS	5	PASS
Annual PM_{10}	State	—	42	0.82	43	20	Step 2	1	PASS
24-hour $PM_{2.5}$	Federal	—	91	4.53	96	35	Step 2	5	PASS
Annual $PM_{2.5}$	State	—	16	0.76	17	12	Step 2	1	PASS
	Federal	—	17	0.76	18	12	Step 2	1	PASS

Sources: CARB 2015b, CARB 2015c, EPA 2015b, EPA 1992, EPA 2011, SJVAPCD APR-1925, SJVAPCD 2013, 2015a

[1] Annualized 1-hour CO summary data not available; scaled from available 8-hour summary data

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Project Contribution & Significance Thresholds Analysis Worksheet - 500 kW Diesel Emergency Generator (point source)

Distance to Maximum Impact	AERMOD/AERSCREEN Maximum Impact X/Q, (ug/m^3)/(g/s)				
	Maximum	Scaled	Scaled	Scaled	Scaled
meters	1-hour	3-hour	8-hour	24-hour	Annual
—	271.2	271.2	244.1	162.7	27.1

Impact Parameter	CAS No.	Hr. Max.	X/Q (above)	NO_X to NO_2	C_{PC}	Scaled Rate
		g/sec	(ug/m^3)/(g/s)	Conversion	ug/m^3	lbs/hr
1-hour CO	630080.1	2.56E-01	271.22	—	69.41	2.031
8-hour CO	630080	5.12E-01	244.10	—	124.93	3.656
1-hour NO_2	10102440.1	2.57E-01	271.22	80%	55.80	2.041
Annual NO_2	10102440	5.14E-01	27.12	100%	13.95	0.408
24-hour PM_{10}	85101	2.94E-02	162.73	—	4.78	0.140
Annual PM_{10}	85101	2.94E-02	27.12	—	0.80	0.023
24-hour $PM_{2.5}$	88101	2.91E-02	162.73	—	4.74	0.139
Annual $PM_{2.5}$	88101	2.91E-02	27.12	—	0.79	0.023

Sources: EPA 2015b, EPA 1992, EPA 2011

Impact Parameter	Applicable Standard	Project Area Maxima Background Concentration		Project Contribution	Cumulative Conc.	AAQS Threshold	Step 1 Significance	Significant Impact Level	Step 2 Significance
		ppmv	ug/m^3	ug/m^3	ug/m^3	ug/m^3		ug/m^3	
1-hour CO[1]	State	2.1	2,403	69.41	2,473	22,900	PASS	2000	PASS
	Federal	2.1	2,403	69.41	2,473	40,100	PASS	2000	PASS
8-hour CO	State	1.9	2,175	124.93	2,299	10,300	PASS	500	PASS
	Federal	1.9	2,175	124.93	2,299	10,300	PASS	500	PASS
1-hour NO_2	State	0.051	96	55.80	152	338	PASS	7.5	Step 1
	Federal	0.052	98	55.80	154	188	PASS	7.5	Step 1
Annual NO_2	State	0.011	21	13.95	35	56	PASS	1	Step 1
	Federal	0.010	19	13.95	33	100	PASS	1	Step 1
24-hour PM_{10}	State	—	122	4.78	127	50	Step 2	5	PASS
	Federal	—	107	4.78	112	150	PASS	5	PASS
Annual PM_{10}	State	—	42	0.80	43	20	Step 2	1	PASS
24-hour $PM_{2.5}$	Federal	—	91	4.74	96	35	Step 2	5	PASS
Annual $PM_{2.5}$	State	—	16	0.79	17	12	Step 2	1	PASS
	Federal	—	17	0.79	18	12	Step 2	1	PASS

Sources: CARB 2015b, CARB 2015c, EPA 2015b, EPA 1992, EPA 2011, SJVAPCD APR-1925, SJVAPCD 2013, 2015a

[1] Annualized 1-hour CO summary data not available; scaled from available 8-hour summary data

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Project Contribution & Significance Thresholds Analysis Worksheet - General Manufacturing (point source)

Distance to Maximum Impact	AERMOD/AERSCREEN Maximum Impact X/Q, (ug/m^3)/(g/s)				
	Maximum	Scaled	Scaled	Scaled	Scaled
meters	1-hour	3-hour	8-hour	24-hour	Annual
—	218.5	218.5	196.7	131.1	21.9

Impact Parameter	CAS No.	Hr. Max.	X/Q (above)	NO_X to NO_2	C_{PC}	Scaled Rate
		g/sec	(ug/m^3)/(g/s)	Conversion	ug/m^3	lbs/hr
1-hour CO	630080	#N/A	218.53	—	#N/A	#N/A
8-hour CO	630080	#N/A	196.68	—	#N/A	#N/A
1-hour NO_2	10102440	#N/A	218.53	80%	#N/A	#N/A
Annual NO_2	10102440	#N/A	21.85	100%	#N/A	#N/A
24-hour PM_{10}	85101	6.30E-03	131.12	—	0.83	0.030
Annual PM_{10}	85101	6.30E-03	21.85	—	0.14	0.005
24-hour $PM_{2.5}$	88101	6.30E-03	131.12	—	0.83	0.030
Annual $PM_{2.5}$	88101	6.30E-03	21.85	—	0.14	0.005

Sources: EPA 2015b, EPA 1992, EPA 2011

Impact Parameter	Applicable Standard	Project Area Maxima Background Concentration		Project Contribution	Cumulative Conc.	AAQS Threshold	Step 1 Significance	Significant Impact Level	Step 2 Significance
		ppmv	ug/m^3	ug/m^3	ug/m^3	ug/m^3		ug/m^3	
1-hour CO[1]	State	2.1	2,403	#N/A	#N/A	22,900	#N/A	2000	#N/A
	Federal	2.1	2,403	#N/A	#N/A	40,100	#N/A	2000	#N/A
8-hour CO	State	1.9	2,175	#N/A	#N/A	10,300	#N/A	500	#N/A
	Federal	1.9	2,175	#N/A	#N/A	10,300	#N/A	500	#N/A
1-hour NO_2	State	0.051	96	#N/A	#N/A	338	#N/A	7.5	#N/A
	Federal	0.052	98	#N/A	#N/A	188	#N/A	7.5	#N/A
Annual NO_2	State	0.011	21	#N/A	#N/A	56	#N/A	1	#N/A
	Federal	0.010	19	#N/A	#N/A	100	#N/A	1	#N/A
24-hour PM_{10}	State	—	122	0.83	123	50	Step 2	5	PASS
	Federal	—	107	0.83	108	150	PASS	5	PASS
Annual PM_{10}	State	—	42	0.14	42	20	Step 2	1	PASS
24-hour $PM_{2.5}$	Federal	—	91	0.83	92	35	Step 2	5	PASS
Annual $PM_{2.5}$	State	—	16	0.14	16	12	Step 2	1	PASS
	Federal	—	17	0.14	17	12	Step 2	1	PASS

Sources: CARB 2015b, CARB 2015c, EPA 2015b, EPA 1992, EPA 2011, SJVAPCD APR-1925, SJVAPCD 2013, 2015a

[1] Annualized 1-hour CO summary data not available; scaled from available 8-hour summary data

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Project Contribution & Significance Thresholds Analysis Worksheet - General Manufacturing (volume source)

Distance to Maximum Impact	AERMOD/AERSCREEN Maximum Impact X/Q, (ug/m^3)/(g/s)				
	Maximum	Scaled	Scaled	Scaled	Scaled
meters	1-hour	3-hour	8-hour	24-hour	Annual
—	376.5	376.5	338.9	225.9	37.7

Impact Parameter	CAS No.	Hr. Max.	X/Q (above)	NO_X to NO_2	C_{PC}	Scaled Rate
		g/sec	(ug/m^3)/(g/s)	Conversion	ug/m^3	lbs/hr
1-hour CO	630080	#N/A	376.52	—	#N/A	#N/A
8-hour CO	630080	#N/A	338.87	—	#N/A	#N/A
1-hour NO_2	10102440	#N/A	376.52	80%	#N/A	#N/A
Annual NO_2	10102440	#N/A	37.65	100%	#N/A	#N/A
24-hour PM_{10}	85101	6.30E-03	225.91	—	1.42	0.030
Annual PM_{10}	85101	6.30E-03	37.65	—	0.24	0.005
24-hour $PM_{2.5}$	88101	6.30E-03	225.91	—	1.42	0.030
Annual $PM_{2.5}$	88101	6.30E-03	37.65	—	0.24	0.005

Sources: EPA 2015b, EPA 1992, EPA 2011

Impact Parameter	Applicable Standard	Project Area Maxima Background Concentration		Project Contribution	Cumulative Conc.	AAQS Threshold	Step 1 Significance	Significant Impact Level	Step 2 Significance
		ppmv	ug/m^3	ug/m^3	ug/m^3	ug/m^3		ug/m^3	
1-hour CO[1]	State	2.1	2,403	#N/A	#N/A	22,900	#N/A	2000	#N/A
	Federal	2.1	2,403	#N/A	#N/A	40,100	#N/A	2000	#N/A
8-hour CO	State	1.9	2,175	#N/A	#N/A	10,300	#N/A	500	#N/A
	Federal	1.9	2,175	#N/A	#N/A	10,300	#N/A	500	#N/A
1-hour NO_2	State	0.051	96	#N/A	#N/A	338	#N/A	7.5	#N/A
	Federal	0.052	98	#N/A	#N/A	188	#N/A	7.5	#N/A
Annual NO_2	State	0.011	21	#N/A	#N/A	56	#N/A	1	#N/A
	Federal	0.010	19	#N/A	#N/A	100	#N/A	1	#N/A
24-hour PM_{10}	State	—	122	1.42	123	50	Step 2	5	PASS
	Federal	—	107	1.42	108	150	PASS	5	PASS
Annual PM_{10}	State	—	42	0.24	42	20	Step 2	1	PASS
24-hour $PM_{2.5}$	Federal	—	91	1.42	92	35	Step 2	5	PASS
Annual $PM_{2.5}$	State	—	16	0.24	16	12	Step 2	1	PASS
	Federal	—	17	0.24	17	12	Step 2	1	PASS

Sources: CARB 2015b, CARB 2015c, EPA 2015b, EPA 1992, EPA 2011, SJVAPCD APR-1925, SJVAPCD 2013, 2015a

[1] Annualized 1-hour CO summary data not available; scaled from available 8-hour summary data

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Table 5-1: Estimated Criteria Emissions for Modeling Input - Scaled Rates

Impact Parameter	Cannery/ Food Processing	Asphaltic Concrete Plant	Bakery	Emergency Generator	General Mfg.	Normal Operational Totals
	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr	lbs/hr
1-hour CO	4.32	7.31	1.20	2.03	—	12.83
8-hour CO	3.89	6.58	1.08	3.66	—	11.55
1-hour NO_2	0.32	1.23	0.20	2.04	—	1.75
Annual NO_2	0.03	0.12	0.02	0.41	—	0.18
24-hour PM_{10}	0.23	0.86	0.02	0.14	0.06	1.17
Annual PM_{10}	0.04	0.14	0.003	0.02	0.01	0.19
24-hour $PM_{2.5}$	0.23	0.79	0.02	0.14	0.06	1.10
Annual $PM_{2.5}$	0.04	0.13	0.00	0.02	0.01	0.18

Sources: See Table 4-2

Notes:

Combustion emissions of $PM_{2.5}$ are 99 percent of PM_{10} emissions (SCAQMD 2006)

1-hour CO & NO_2 emissions for emergency generators are based on one engine operating for 30 minutes per 1-hour period for maintenance

Normal Operational Totals do not include emergency generator operation

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Table 5-2: Air Quality Impact Assessment Results Summary - Step 1 AAQS Basis

Impact Parameter	S/F AAQS	Cannery/Food Processing		Asphaltic Concrete Plant		Bakery		Emergency Generator		General Manufacturing	
	µg/m³	µg/m³	Status	µg/m³	Status	µg/m³	Status	µg/m³	Status	µg/m³	Status
1-hour CO	22,900	2,424	PASS	2,447	PASS	2,429	PASS	2,473	PASS	—	—
	40,100	2,424	PASS	2,447	PASS	2,429	PASS	2,473	PASS	—	—
8-hour CO	10,300	2,193	PASS	2,214	PASS	2,198	PASS	2,299	PASS	—	—
	10,300	2,193	PASS	2,214	PASS	2,198	PASS	2,299	PASS	—	—
1-hour NO_2	338	97	PASS	102	PASS	99	PASS	152	PASS	—	—
	188	99	PASS	104	PASS	101	PASS	154	PASS	—	—
Annual NO_2	56	21	PASS	21	PASS	21	PASS	35	PASS	—	—
	100	19	PASS	20	PASS	19	PASS	33	PASS	—	—
24-hour PM_{10}	50	123	Step 2	132	Step 2	122	Step 2	127	Step 2	124	Step 2
	150	108	PASS	117	PASS	107	PASS	112	PASS	109	PASS
Annual PM_{10}	20	42	Step 2	44	Step 2	42	Step 2	43	Step 2	42	Step 2
24-hour $PM_{2.5}$	35	92	Step 2	100	Step 2	91	Step 2	96	Step 2	93	Step 2
Annual $PM_{2.5}$	12	16	Step 2	18	Step 2	16	Step 2	17	Step 2	16	Step 2
	12	17	Step 2	19	Step 2	17	Step 2	18	Step 2	17	Step 2

Sources: CARB 2015b, CARB 2015c, EPA 2015b, EPA 1992, EPA 2011, SJVAPCD APR-1925, SJVAPCD 2013, 2015a

Table 5-3: Air Quality Impact Assessment Results Summary - Step 2 SIL Basis

Impact Parameter	Class II SILs	Cannery/Food Processing		Asphaltic Concrete Plant		Bakery		Emergency Generator		General Manufacturing	
	µg/m³	µg/m³	Status	µg/m³	Status	µg/m³	Status	µg/m³	Status	µg/m³	Status
1-hour CO	2000	20.35	PASS	43.60	PASS	26.02	PASS	69.41	PASS	—	—
8-hour CO	500	18.32	PASS	39.24	PASS	23.41	PASS	124.93	PASS	—	—
1-hour NO_2	7.5	1.20	PASS	5.87	PASS	3.50	PASS	55.80	Step 1	—	—
Annual NO_2	1	0.15	PASS	0.73	PASS	0.44	PASS	13.95	Step 1	—	—
24-hour PM_{10}	5	1.10	PASS	4.89	PASS	0.40	PASS	4.78	PASS	1.42	PASS
Annual PM_{10}	1	0.18	PASS	0.82	PASS	0.07	PASS	0.80	PASS	0.24	PASS
24-hour $PM_{2.5}$	5	1.09	PASS	4.53	PASS	0.39	PASS	4.74	PASS	1.42	PASS
Annual $PM_{2.5}$	1	0.18	PASS	0.76	PASS	0.07	PASS	0.79	PASS	0.24	PASS

Sources: CARB 2015b, CARB 2015c, EPA 2015b, EPA 1992, EPA 2011, SJVAPCD APR-1925, SJVAPCD 2013, 2015a

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Tier 1 Screening Health Risk Assessment - Cannery/Food Processing (point source)

Time and Age Weighted Toxic Air Contaminants Risks	AERMOD/HARP2 Screening Results			
	Risk	Per million	Threshold	Significance
70-year Residential MICR - Multipathway	6.5E-08	0.065	20	PASS
Residential HIC	0.02	—	1	PASS
Residential HIA	0.0005	—	1	PASS

Tier 1 Screening Health Risk Assessment - Auto Service Station (point & volume sources)

Time and Age Weighted Toxic Air Contaminants Risks	AERMOD/HARP2 Screening Results			
	Risk	Per million	Threshold	Significance
70-year Residential MICR - Multipathway	6.5E-06	6.5	20	PASS
Residential HIC	0.28	—	1	PASS
Residential HIA	0.16	—	1	PASS

Tier 1 Screening Health Risk Assessment - Green Waste Composting (volume source)

Time and Age Weighted Toxic Air Contaminants Risks	AERMOD/HARP2 Screening Results			
	Risk	Per million	Threshold	Significance
70-year Residential MICR - Multipathway	1.4E-06	1.4	20	PASS
Residential HIC	0.85	—	1	PASS
Residential HIA	0.002	—	1	PASS

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Tier 1 Screening Health Risk Assessment - Asphaltic Concrete Plant (point & volume sources)

Time and Age Weighted Toxic Air Contaminants Risks	AERMOD/HARP2 Screening Results			
	Risk	Per million	Threshold	Significance
70-year Residential MICR - Multipathway	9.3E-06	9.3	20	PASS
Residential HIC	0.32	—	1	PASS
Residential HIA	0.20	—	1	PASS

Tier 1 Screening Health Risk Assessment - Bakery (point source)

Time and Age Weighted Toxic Air Contaminants Risks	AERMOD/HARP2 Screening Results			
	Risk	Per million	Threshold	Significance
70-year Residential MICR - Multipathway	2.7E-07	0.3	20	PASS
Residential HIC	0.03	—	1	PASS
Residential HIA	0.001	—	1	PASS

Tier 1 Screening Health Risk Assessment - Publicly Owned Treatment Works (volume source)

Time and Age Weighted Toxic Air Contaminants Risks	AERMOD/HARP2 Screening Results			
	Risk	Per million	Threshold	Significance
70-year Residential MICR - Multipathway	4.7E-07	0.5	20	PASS
Residential HIC	0.38	—	1	PASS
Residential HIA	0.01	—	1	PASS

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Tier 1 Screening Health Risk Assessment - 500 kW Diesel Emergency Generator (point source)

Time and Age Weighted Toxic Air Contaminants Risks	AERMOD/HARP2 Screening Results			
	Risk	Per million	Threshold	Significance
70-year Residential MICR - Multipathway	4.5E-06	4.5	20	PASS
Residential HIC	0.02	—	1	PASS
Residential HIA	0.00	—	1	PASS

Tier 1 Screening Health Risk Assessment - General Manufacturing (point source A)

Time and Age Weighted Toxic Air Contaminants Risks	AERMOD/HARP2 Screening Results			
	Risk	Per million	Threshold	Significance
70-year Residential MICR - Multipathway	2.0E-07	0.2	20	PASS
Residential HIC	0.52	—	1	PASS
Residential HIA	0.01	—	1	PASS

Tier 1 Screening Health Risk Assessment - General Manufacturing (volume source B)

Time and Age Weighted Toxic Air Contaminants Risks	AERMOD/HARP2 Screening Results			
	Risk	Per million	Threshold	Significance
70-year Residential MICR - Multipathway	3.4E-07	0.3	20	PASS
Residential HIC	0.89	—	1	PASS
Residential HIA	0.02	—	1	PASS

Sources: SJVAPCD 2013-15, SJVAPCD APR-1906, CARB 2015a, EPA 1992, EPA 2011

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Table 5-4: Tier 1 Screening Health Risk Assessment Results Summary

Stationary Sources	Annual TACs (scaled lbs/hr)	70-year Residential MICR (MP)	Residential HIC	Residential HIA
Cannery/food processing (boiler)	0.015	0.1	0.023	0.0005
		PASS	PASS	PASS
Auto service stations (8)	0.027	6.5	0.28	0.16
		PASS	PASS	PASS
Green waste composting	0.045	1.4	0.85	0.002
		PASS	PASS	PASS
Asphaltic concrete plant (drum mix)	0.127	9.3	0.32	0.20
		PASS	PASS	PASS
Bakery (oven & off-gassing)	0.003	0.3	0.03	0.001
		PASS	PASS	PASS
Publicly Owned Treatment Works (3)	0.008	0.5	0.38	0.01
		PASS	PASS	PASS
POTW emergency generators (3)	0.070	4.5	0.02	0.00
		PASS	PASS	PASS
WTP emergency generator	0.023	4.5	0.02	0.00
		PASS	PASS	PASS
General manufacturing A	0.083	0.2	0.52	0.01
		PASS	PASS	PASS
General manufacturing B	0.083	0.3	0.89	0.02
		PASS	PASS	PASS
Normal Operational Totals	**0.39**			

Sources: SJVAPCD 2013-15, SJVAPCD APR-1906, CARB 2015a, EPA 1992, EPA 2011

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Notes:

MICR - Maximum Individual Cancer Risk
HIC - Chronic Hazard Index
HIA - Acute Hazard Index
Normal Operational Totals do not include emergency generator operation
Emergency generator TAC expressed as DPM

Tier 1 Screen:

OEHHA derived method (default)
70-year lifetime exposure (resident)
Multipathway (MP): inhalation, soil ingestion, dermal, mother's milk, homegrown produce
Controlled deposition rate: 0.02 m/s

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Boiler/Heater Emissions Calculations (steady-state point source, elev. 300 m ASL)

Project Characteristics

Process Equipment Description	Natural gas fired boiler, 75 mmBTU/hr, steady-state	
Rated Size Range (pull-down)	10-100	mmBTU/hr (this selects EFs)

Constants	References/Remarks	Value	Units
Fuel Gas HHV	EPA default	1020	BTU/cf
Standard Molar Volume	EPA Method 19 (68°F, 20°C)	385.3	dscf/lb-mole
Dry Fd Factor	EPA Method 19 (68°F, 20°C)	8710	dscf/mmBTU
Wet Fw Factor	EPA Method 19 (68°F, 20°C)	10610	wscf/mmBTU

Emissions Parameters	References/Remarks	Value	Units
Hourly Heat Input	Client specified, 70% load	52.5	mmBTU/hr
Daily Heat Input	Calculated for estimating	1260	mmBTU/day
Annual Heat Input	Calculated for estimating	151200	mmBTU/yr
Daily Schedule (hours)	Client specified	24	hrs/day
Annual Schedule (days)	Client specified, 4 mos/yr	120	days/yr
Annual Schedule (hours)	Calculated for estimating	2880	hrs/yr
Monthly Schedule (days)	Client specified	30	days/mo

Release Parameters	References/Remarks	Value	Units
Stack Exit Temperature	DNX SCR, 360-930 °F	400	°F
Stack Exit Temperature	**Calculated for modeling**	**478**	**°K**
Stack Gas Oxygen Content	Typical, LNB	6.00	percent O_2
Stack Flowrate, wet standard	Calculated for percent O_2	13022	wscf/min
Stack Flowrate, actual	Calculated for stack temp	21210	wacf/min
Stack Flowrate, actual	Calculated for modeling	10.01	wacm/sec
Stack Height	Typical, Industrial	40.00	feet
Stack Height	**Calculated for modeling**	**12.19**	**meters**
Stack Diameter	Typical, Industrial	48.00	inches
Stack Diameter	**Calculated for modeling**	**1.22**	**meters**
Stack Velocity	**Calculated for modeling**	**8.57**	**meters/sec**
Stack Velocity	Informational	1688	feet/min

ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$	CO_2e
tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	MT/yr
0.41	0.46	6.23	0.05	0.56	0.56	8,031

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Boiler/Heater Emissions Calculations (steady-state point source, elev. 300 m ASL)

Criteria & Toxic Air Contaminants	CAS No.	Reference/Remarks	Emission Factors			AHU	AHC	MHU	MHC	MDU	MDC	AA/MAC	30DA	An. Avg.	Hr. Max.
			lb/mmcf	ppmv @3%	lb/mmBTU	lb/hr	lb/hr	lb/hr	lb/hr	lb/day	lb/day	lb/yr	lb/day	g/sec	g/sec
CO	630080	EPA 1998	84	–	0.08235	1.42	1.42	4.32	4.32	103.76	103.76	12451	103.76	1.79E-01	5.45E-01
NO_x	10102440	EPA, 1998, BACT 2015	–	5.0	0.00607	0.10	0.10	0.32	0.32	7.65	7.65	918	7.65	1.32E-02	4.02E-02
PM_{10}	85101	EPA 1998	7.60	–	0.00745	0.13	0.13	0.39	0.39	9.39	9.39	1126	9.39	1.62E-02	4.93E-02
$PM_{2.5}$	88101	EPA 1998, SCAQMD 2006	7.52	–	0.00738	0.13	0.13	0.39	0.39	9.30	9.30	1116	9.30	1.60E-02	4.88E-02
VOC	43104	EPA 1998	5.50	–	0.00539	0.09	0.09	0.28	0.28	6.79	6.79	815	6.79	1.17E-02	3.57E-02
SO_x	7446095	EPA 1998	0.66	–	0.00065	0.01	0.01	0.03	0.03	0.82	0.82	98	0.82	1.41E-03	4.30E-03
PM_{10} $(NH_4)_2SO_4$	9960	SCAQMD 2004	0.07	–	0.00007	0.00	0.00	0.00	0.00	0.09	0.09	11	0.09	1.52E-04	4.63E-04
CO_2	124389	40 CFR 98 Table C-1	53.06	kg/mmBTU	116.98	2,019	2,019	6,141	6,141	147,390	147,390	17,686,783	147,390	–	–
CH_4	74828	40 CFR 98 Table C-2	0.001	kg/mmBTU	0.0022	0.04	0.04	0.12	0.12	2.78	2.78	333.34	2.78	–	–
N_2O	10024972	40 CFR 98 Table C-2	0.0001	kg/mmBTU	0.0002	0.00	0.00	0.01	0.01	0.28	0.28	33.33	0.28	–	–
CO_2e	124389	40 CFR 98 Table A-1	53.11	kg/mmBTU	117.10	2,021	2,021	6,148	6,148	147,542	147,542	17,705,049	147,542	–	–
aAmmonia slip (SCR)	7664417	BACT 2015	–	5.0	0.00224	–	–	1.18E-01	1.18E-01	–	–	339	–	4.87E-03	1.48E-02
Acetaldehyde	75070	VCAPCD 2001	0.0031	–	3.04E-06	–	–	1.60E-04	1.60E-04	–	–	0.46	–	6.61E-06	2.01E-05
Acrolein	107028	VCAPCD 2001	0.0027	–	2.65E-06	–	–	1.39E-04	1.39E-04	–	–	0.40	–	5.76E-06	1.75E-05
Benzene	71432	VCAPCD 2001	0.0058	–	5.69E-06	–	–	2.99E-04	2.99E-04	–	–	0.86	–	1.24E-05	3.76E-05
Ethylbenzene	100414	VCAPCD 2001	0.0069	–	6.76E-06	–	–	3.55E-04	3.55E-04	–	–	1.02	–	1.47E-05	4.47E-05
Formaldehyde	50000	VCAPCD 2001	0.0123	–	1.21E-05	–	–	6.33E-04	6.33E-04	–	–	1.82	–	2.62E-05	7.98E-05
Hexane	110543	VCAPCD 2001	0.0046	–	4.51E-06	–	–	2.37E-04	2.37E-04	–	–	0.68	–	9.81E-06	2.98E-05
Naphthalene	91203	VCAPCD 2001	0.0003	–	2.94E-07	–	–	1.54E-05	1.54E-05	–	–	0.04	–	6.40E-07	1.95E-06
PAH's (excl. naphthalene)	1151	VCAPCD 2001	0.0001	–	9.80E-08	–	–	5.15E-06	5.15E-06	–	–	0.01	–	2.13E-07	6.48E-07
Propylene	115071	VCAPCD 2001	0.5300	–	5.20E-04	–	–	2.73E-02	2.73E-02	–	–	78.56	–	1.13E-03	3.44E-03
Toluene	108883	VCAPCD 2001	0.0265	–	2.60E-05	–	–	1.36E-03	1.36E-03	–	–	3.93	–	5.65E-05	1.72E-04
Xylenes (mixed)	1330207	VCAPCD 2001	0.0197	–	1.93E-05	–	–	1.01E-03	1.01E-03	–	–	2.92	–	4.20E-05	1.28E-04

Table 3: Rules 404 & 409 Compliance Evaluation

Particulate Matter Emissions	Value	Units
Particulate Matter Concentration	0.0043	gr/dscf
Stack Flowrate, dry standard	10690	dscf/min
Rule 404 Limit - Table 404(a)	0.0774	gr/dscf
Rule 404 Evaluation	Pass	
Rule 409 Limit	0.1000	gr/dscf
Rule 409 Evaluation	Pass	

Table 1: Criteria Pollutants Emissions Summary

Criteria Pollutants	AHU (lb/hr)	AHC (lb/hr)	MHU (lb/hr)	MHC (lb/hr)	MDU (lb/day)	MDC (lb/day)	AA (lb/yr)	30DA (lb/day)
CO	1.42	1.42	4.32	4.32	103.76	103.76	12,451	103.76
NO_x	0.10	0.10	0.32	0.32	7.65	7.65	918	7.65
PM_{10}	0.13	0.13	0.39	0.39	9.39	9.39	1,126	9.39
$PM_{2.5}$	0.13	0.13	0.39	0.39	9.30	9.30	1,116	9.30
VOC	0.09	0.09	0.28	0.28	6.79	6.79	815	6.79
SO_x	0.01	0.01	0.03	0.03	0.82	0.82	98	0.82
SO_4	0.00	0.00	0.00	0.00	0.09	0.09	11	0.09

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Boiler/Heater Emissions Calculations (steady-state point source, elev. 300 m ASL)

Table 4: Estimated SCR Reducing Agent Consumption

SCR Performance Parameter	Value	Units
NO_X reducing agent (pull-down)	32% aqueous urea - CO(NH2)2	
Uncontrolled (peak) inlet NO_X	2.57	lb/hr (AP-42 LNB)
Controlled outlet NO_X	0.32	lb/hr (84% reduction)
NO_X reduction (90% NO; 10% NO_2)	2.26	lb/hr
NH_3 reacted as reducing agent	2.14	lb/hr
Reducing agent reacted	6.69	lb/hr
NH_3 slip	0.12	lb/hr
NH_3 slip as reducing agent	0.21	lb/hr
Reducing agent slip	0.65	lb/hr
Reducing agent injection rate	**7.34**	**lb/hr**
Estimated SCR Reducing Agent Consumption	0.81	gal/hr
	19.4	gal/day
	582	gal/month

Table 2: Toxic Air Contaminants Emissions Summary

Toxic Air Contaminants	MHU (lb/hr)	MHC (lb/hr)	MAC (lb/yr)
aAmmonia slip (SCR)	1.18E-01	1.18E-01	338.69
Acetaldehyde	1.60E-04	1.60E-04	0.46
Acrolein	1.39E-04	1.39E-04	0.40
Benzene	2.99E-04	2.99E-04	0.86
Ethylbenzene	3.55E-04	3.55E-04	1.02
Formaldehyde	6.33E-04	6.33E-04	1.82
Hexane	2.37E-04	2.37E-04	0.68
Naphthalene	1.54E-05	1.54E-05	0.04
PAH's (excl. naphthalene)	5.15E-06	5.15E-06	0.01
Propylene	2.73E-02	2.73E-02	78.56
Toluene	1.36E-03	1.36E-03	3.93
Xylenes (mixed)	1.01E-03	1.01E-03	2.92

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Air Toxics Emissions for Gasoline Loading & Breathing (point source, elev. 300 m ASL)

Emissions Parameters	References/Remarks	Value	Units
Annual ROG Emissions	132,000 gal/mo sales	173	lbs/yr/site
Daily ROG Emissions	198 days/yr (16.5 loads/mo)	0.87	lbs/day/site
Hourly ROG Emissions	1 hrs/day	0.87	lbs/hr/site

Release Parameters	References/Remarks	Value	Units
Vent height	12'	3.66	m
Vent diameter	2"	0.0508	m
Vent exit temperature	64 °F (17.8 °C)	291	°K
Vent exit velocity	4.13 ft/hr	0.00035	m/sec

Toxic Air Contaminants	CAS No.	EF (lb/lb)	MHU (lb/hr)	MHC (lb/hr)	AA/MAC (lb/yr)	An. Avg. (g/sec)	Hr. Max. (g/sec)
Benzene	71432	0.007	0.0061	0.0061	1.21	1.74E-05	7.69E-04
Toluene	108883	0.010	0.0087	0.0087	1.73	2.48E-05	1.10E-03
Xylenes (mixed)	1330207	0.010	0.0087	0.0087	1.73	2.48E-05	1.10E-03

Source: SJVAPCD 2007, SJVAPCD 2014, SCAQMD 2007

Notes:

TAC species profiles are from the 1995 District memo "Toxic Emissions Inventory Plan Regarding Diesel and Gasoline Storage Weight Fractions"

Loading emissions 77%, breathing emissions 23%; therefore, loading is dominant mechanism for 9% of gas station emissions; breathing 23% x 9% = 2% overall minor contribution per Draft Guidance for Air Dispersion Modeling (SJVAPCD 2007)

Parameter	Value	Units	Percent
Loading losses	0.084	lb/mgal	77%
Breathing losses	0.025	lb/mgal	23%
Total receiving losses	0.109	lb/mgal	100%
Annual throughput	1584	mgal/yr	
ROG Emissions per site	**173**	**lbs/yr**	**9%**

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Air Toxics Emissions for Gasoline Refueling & Spillage (volume source, elev. 300 m ASL)

Emissions Parameters	References/Remarks	Value	Units
Annual ROG Emissions	132,000 gal/mo sales	1837	lbs/yr/site
Daily ROG Emissions	365 days/yr	5.03	lbs/day/site
Hourly ROG Emissions	14 hrs/day (peak sales)	0.36	lbs/hr/site

Release Parameters	References/Remarks	Value	Units
Volume side length, L	canopy dimensions	13.0	m
Distance from center to edge	L/2	6.5	m
Volume height, H	canopy dimensions	4.0	m
Initial lateral dimension, y	EPA Table 4-6	3.02	m
Initial vertical dimension, z	EPA Table 4-6	1.86	m

Toxic Air Contaminants	CAS No.	EF (lb/lb)	MHU (lb/hr)	MHC (lb/hr)	AA/MAC (lb/yr)	An. Avg. (g/sec)	Hr. Max. (g/sec)
Benzene	71432	0.007	0.0025	0.0025	12.86	1.85E-04	3.17E-04
Toluene	108883	0.010	0.0036	0.0036	18.37	2.64E-04	4.53E-04
Xylenes (mixed)	1330207	0.010	0.0036	0.0036	18.37	2.64E-04	4.53E-04

Source: SJVAPCD 2007, SJVAPCD 2014, SCAQMD 2007

Notes:

TAC species profiles are from the 1995 District memo "Toxic Emissions Inventory Plan Regarding Diesel and Gasoline Storage Weight Fractions"
per Draft Guidance for Air Dispersion Modeling (SJVAPCD 2007)

Parameter	Value	Units	Percent
Refueling losses	0.74	lb/mgal	64%
Spillage losses	0.42	lb/mgal	36%
Total dispensing losses	1.16	lb/mgal	100%
Annual throughput	1584	mgal/yr	
ROG Emissions per site	**1837**	**lbs/yr**	**91%**

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Air Toxics Emissions for Green Waste Composting (volume source, elev. 300 m ASL)

Emissions Parameters	References/Remarks	Value	Units	
Annual ROG Emissions	4,000 wet tons/yr	11880	lbs/yr	BMPs, SCAQMD, February 2015
Daily ROG Emissions	365 days/yr	32.55	lbs/day	meets 19% BMP reduction (Rule 4566 Table 2)
Hourly ROG Emissions	24 hrs/day	1.36	lbs/hr	

Release Parameters	References/Remarks	Value	Units
Site area	10 acres w/ 4x buffer zone	1742400	sf area
Volume side length, L	sqrt(area)	402.4	m
Distance from center to edge	L/2	201.2	m
Volume height, H	c. 50 feet	15.0	m
Initial lateral dimension, y	EPA Table 4-6	93.59	m
Initial vertical dimension, z	EPA Table 4-6	6.98	m

CO_2e MT/yr
622

Toxic Air Contaminants & GHGs	CAS No.	EF (lb/lb)	MHU (lb/hr)	MHC (lb/hr)	AA/MAC (lb/yr)	An. Avg. (g/sec)	Hr. Max. (g/sec)
Ammonia	7664417	0.1919	0.2602	0.2602	2279.77	3.28E-02	3.28E-02
Acetaldehyde	75070	0.0014	0.0019	0.0019	16.63	2.39E-04	2.39E-04
Methanol	67561	0.1279	0.1735	0.1735	1519.45	2.19E-02	2.19E-02
Naphthalene	91203	0.0050	0.0068	0.0068	59.40	8.54E-04	8.54E-04
Propylene	115071	0.0022	0.0030	0.0030	26.14	3.76E-04	3.76E-04
sec-Butyl alcohol	78922	0.0039	0.0053	0.0053	46.33	6.66E-04	6.66E-04
CO_2	124389	0.0000	0	0	0	—	—
CH_4	74828	2.6936	3.7	3.7	32,000	—	—
N_2O	10024972	0.1616	0.2	0.2	1,920	—	—
CO_2e	124389	115.5017	157	157	1,372,160	—	—

Source: SCAQMD 2015, SJVAPCD 2014, SJVAPCD Rule 4566 Table 2, IPCC 2006

Notes:

TAC emission factors are derived from the VOC profile 8933, "Green Waste Composting" from EPA Speciate 4.4, test data from the 2011 article Volatile organic compound emissions from green waste composting: Characterization and ozone formation in the journal, Atmospheric Environment, (45, 2011, 1841-1848).

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Criteria & Air Toxics Emissions for Gas-Fired Asphalt Drum Mix Plant (point source, elev. 300 m ASL)

Emissions Parameters	References/Remarks	Value	Units
Annual thoughput	200,000 tons/yr	200000	tons/yr
Daily throughput	250 day/yr	800	tons/day
Hourly throughput	8 hrs/day	100	tons/hr
Hourly heat input	per Dudek (Astec Industries)	25	mmBTU/hr

Release Parameters	References/Remarks	Value	Units
Stack height	55' (Boral)	16.8	m
Stack diameter	32" (Boral est.)	0.81	m
Stack exit temperature	170°F (Boral)	350	°K
Stack exit velocity	2500 fpm (Boral est.)	12.7	m/sec

Criteria & Toxic Air Contaminants	CAS No.	EF (lb/ton)	MHU (lb/hr)	MHC (lb/hr)	AA/MAC (lb/yr)	An. Avg. (g/sec)	Hr. Max. (g/sec)
CO	630080	0.0731	7.3	7.3	14620	2.10E-01	9.21E-01
NO_x	10102440	0.0123	1.2	1.2	2460	3.54E-02	1.55E-01
PM_{10}	85101	0.0136	1.4	1.4	2720	3.91E-02	1.71E-01
$PM_{2.5}$	88101	0.0126	1.3	1.3	2520	3.62E-02	1.59E-01
VOC	43104	0.0320	3.2	3.2	6400	9.21E-02	4.03E-01
SO_x	7446095	0.0034	0.3	0.3	680	9.78E-03	4.28E-02
CO_2	124389	29.24	2,924	2,924	5,848,804	—	—
CH_4	74828	0.001	0.06	0.06	110	—	—
N_2O	10024972	0.0001	0.01	0.01	11	—	—
CO_2e	124389	29.27	2,927	2,927	5,854,844	—	—
2,2,4-Trimethylpentane	540841	4.0E-05	4.00E-03	4.00E-03	8.00E+00	1.15E-04	5.04E-04
2-Methyl naphthalene	91576	7.4E-05	7.40E-03	7.40E-03	1.48E+01	2.13E-04	9.32E-04
Acenaphthene	83329	1.4E-06	1.40E-04	1.40E-04	2.80E-01	4.03E-06	1.76E-05
Acenaphthylene	208968	8.6E-06	8.60E-04	8.60E-04	1.72E+00	2.47E-05	1.08E-04
Anthracene	120127	2.2E-07	2.20E-05	2.20E-05	4.40E-02	6.33E-07	2.77E-06

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Criteria & Air Toxics Emissions for Gas-Fired Asphalt Drum Mix Plant (point source, elev. 300 m ASL)

Antimony	7440360	1.8E-07	1.80E-05	1.80E-05	3.60E-02	5.18E-07	2.27E-06
Arsenic	7440382	5.6E-07	5.60E-05	5.60E-05	1.12E-01	1.61E-06	7.06E-06
Barium	7440393	5.8E-06	5.80E-04	5.80E-04	1.16E+00	1.67E-05	7.31E-05
Benzene	71432	3.9E-04	3.90E-02	3.90E-02	7.80E+01	1.12E-03	4.91E-03
Benzo(a)anthracene	56553	2.1E-07	2.10E-05	2.10E-05	4.20E-02	6.04E-07	2.65E-06
Benzo(a)pyrene	50328	9.8E-09	9.80E-07	9.80E-07	1.96E-03	2.82E-08	1.23E-07
Benzo(b)fluoranthene	205992	1.0E-07	1.00E-05	1.00E-05	2.00E-02	2.88E-07	1.26E-06
Benzo(g,h,i)perylene	191242	4.0E-08	4.00E-06	4.00E-06	8.00E-03	1.15E-07	5.04E-07
Benzo(k)fluoranthene	207089	4.1E-08	4.10E-06	4.10E-06	8.20E-03	1.18E-07	5.17E-07
Cadmium	7440439	4.1E-07	4.10E-05	4.10E-05	8.20E-02	1.18E-06	5.17E-06
Chromium	7440473	5.5E-06	5.50E-04	5.50E-04	1.10E+00	1.58E-05	6.93E-05
Chrysene	218019	1.8E-07	1.80E-05	1.80E-05	3.60E-02	5.18E-07	2.27E-06
Cobalt	7440484	2.6E-08	2.60E-06	2.60E-06	5.20E-03	7.48E-08	3.28E-07
Copper	7440508	3.1E-06	3.10E-04	3.10E-04	6.20E-01	8.92E-06	3.91E-05
Ethylbenzene	100414	2.4E-04	2.40E-02	2.40E-02	4.80E+01	6.90E-04	3.02E-03
Ethylene	74851	7.0E-03	7.00E-01	7.00E-01	1.40E+03	2.01E-02	8.82E-02
Fluorene	86737	3.8E-06	3.80E-04	3.80E-04	7.60E-01	1.09E-05	4.79E-05
Fluoranthene	206440	6.1E-07	6.10E-05	6.10E-05	1.22E-01	1.75E-06	7.69E-06
Formaldehyde	50000	3.1E-03	3.10E-01	3.10E-01	6.20E+02	8.92E-03	3.91E-02
Hexane	110543	9.2E-04	9.20E-02	9.20E-02	1.84E+02	2.65E-03	1.16E-02
Hexvalent Chromium	18540299	4.5E-07	4.50E-05	4.50E-05	9.00E-02	1.29E-06	5.67E-06
Indeno(1,2,3-cd)pyrene	193395	7.0E-09	7.00E-07	7.00E-07	1.40E-03	2.01E-08	8.82E-08
Lead	7439921	6.2E-07	6.20E-05	6.20E-05	1.24E-01	1.78E-06	7.81E-06
Manganese	7439965	7.7E-06	7.70E-04	7.70E-04	1.54E+00	2.22E-05	9.70E-05
Mercury	7439976	2.4E-07	2.40E-05	2.40E-05	4.80E-02	6.90E-07	3.02E-06
Methyl Chloroform	71556	4.8E-05	4.80E-03	4.80E-03	9.60E+00	1.38E-04	6.05E-04
Naphthalene	91203	9.0E-05	9.00E-03	9.00E-03	1.80E+01	2.59E-04	1.13E-03
Nickel	7440020	6.3E-05	6.30E-03	6.30E-03	1.26E+01	1.81E-04	7.94E-04
Perylene	198550	8.8E-09	8.80E-07	8.80E-07	1.76E-03	2.53E-08	1.11E-07

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Criteria & Air Toxics Emissions for Gas-Fired Asphalt Drum Mix Plant (point source, elev. 300 m ASL)

Phenanthrene	85018	7.6E-06	7.60E-04	7.60E-04	1.52E+00	2.19E-05	9.58E-05
Phosphorus	7723140	2.8E-05	2.80E-03	2.80E-03	5.60E+00	8.05E-05	3.53E-04
Pyrene	129000	5.4E-07	5.40E-05	5.40E-05	1.08E-01	1.55E-06	6.80E-06
Selenium	7782492	3.5E-07	3.50E-05	3.50E-05	7.00E-02	1.01E-06	4.41E-06
Silver	7440224	4.8E-07	4.80E-05	4.80E-05	9.60E-02	1.38E-06	6.05E-06
Thallium	7440280	4.1E-09	4.10E-07	4.10E-07	8.20E-04	1.18E-08	5.17E-08
Toluene	108883	1.5E-04	1.50E-02	1.50E-02	3.00E+01	4.31E-04	1.89E-03
Xylene (mixed xylenes)	1330207	2.0E-04	2.00E-02	2.00E-02	4.00E+01	5.75E-04	2.52E-03
Zinc	7440666	6.1E-05	6.10E-03	6.10E-03	1.22E+01	1.75E-04	7.69E-04

Source: SJVAPCD 2014, EPA 2004 (AP-42 Ch. 11.1), SJVAPCD Rule 4309 Table 1 (CO & NO_X limits)

Notes:

PM10 and PM2.5 emission factors are for median values from tests per AP-42 Tables 11.1-3, -4, -7, -8

TAC emission factors are from Tables 11.1-10 (pg. 21) and 11.1-12 (pg. 30) in March 2004 AP-42 Chapter 11 Mineral Products Industry, Section 1 Hot Mix Asphalt Plants.

	ROG	NO_x	CO	SO_X	PM_{10}	$PM_{2.5}$	CO_2e
	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	MT/yr
Point Source Only	3.20	1.23	7.31	0.34	1.36	1.26	2,656
Point Source + Fugitives	3.23	1.23	7.31	0.34	1.43	1.32	2,656

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Air Toxics Emissions for Asphalt Storage (volume source, elev. 300 m ASL)

Emissions Parameters	References/Remarks	Value	Units
Annual ROG emissions	1% of ROG as fugitive (99% CCE)	64	lbs/yr
Daily ROG emissions	365 day/yr	0.18	lbs/day
Hourly ROG emissions	24 hrs/day	0.01	lbs/hr

Release Parameters	References/Remarks	Value	Units
Volume side length, L	25' (Boral est.)	7.6	m
Distance from center to edge	L/2	3.8	m
Volume height, H	25' (Boral est.)	7.6	m
Initial lateral dimension, y	EPA Table 4-6	1.77	m
Initial vertical dimension, z	EPA Table 4-6	3.55	m

Toxic Air Contaminants	CAS No.	EF (lb/lb)	MHU (lb/hr)	MHC (lb/hr)	AA/MAC (lb/yr)	An. Avg. (g/sec)	Hr. Max. (g/sec)
Ethylbenzene	100414	0.0232	1.69E-04	1.69E-04	1.48E+00	2.14E-05	2.14E-05
Naphthalene	91203	0.0653	4.77E-04	4.77E-04	4.18E+00	6.01E-05	6.01E-05
O-xylene	95476	0.0373	2.73E-04	2.73E-04	2.39E+00	3.43E-05	3.43E-05
Trimethylbenzene	25551137	0.0895	6.54E-04	6.54E-04	5.73E+00	8.24E-05	8.24E-05
Toluene	108883	0.0645	4.71E-04	4.71E-04	4.13E+00	5.94E-05	5.94E-05
Xylene (mixed xylenes)	1330207	0.0856	6.25E-04	6.25E-04	5.48E+00	7.88E-05	7.88E-05

Source: SJVAPCD 2013

Notes:

The emission factors were taken from a worst case summation of CARB Speciation Profiles 715, 716

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Air Toxics Emissions for Asphalt Dust (volume source, elev. 300 m ASL)

Emissions Parameters	References/Remarks	Value	Units
Annual PM_{10} emissions	5% of PM_{10} as fugitive (95% CCE)	136	lbs/yr
Daily PM_{10} emissions	250 day/yr	0.54	lbs/day
Hourly PM_{10} emissions	8 hrs/day	0.07	lbs/hr

Release Parameters	References/Remarks	Value	Units
Volume side length, L	45' (Boral est.)	13.7	m
Distance from center to edge	L/2	6.9	m
Volume height, H	45' (Boral est.)	13.7	m
Initial lateral dimension, y	EPA Table 4-6	3.19	m
Initial vertical dimension, z	EPA Table 4-6	6.38	m

Toxic Air Contaminants	CAS No.	EF (lb/lb)	MHU (lb/hr)	MHC (lb/hr)	AA/MAC (lb/yr)	An. Avg. (g/sec)	Hr. Max. (g/sec)
PM_{10}	85101	1.00E+00	6.80E-02	6.80E-02	1.36E+02	1.96E-03	8.57E-03
$PM_{2.5}$	88101	9.26E-01	6.30E-02	6.30E-02	1.26E+02	1.81E-03	7.94E-03
Aluminum	7429905	1.10E-01	7.51E-03	7.51E-03	1.50E+01	2.16E-04	9.46E-04
Ammonia	7664417	3.39E-04	2.31E-05	2.31E-05	4.61E-02	6.63E-07	2.90E-06
Antimony	7440360	1.00E-04	6.80E-06	6.80E-06	1.36E-02	1.96E-07	8.57E-07
Barium	7440393	9.97E-04	6.78E-05	6.78E-05	1.36E-01	1.95E-06	8.54E-06
Bromine	7726956	2.10E-05	1.43E-06	1.43E-06	2.86E-03	4.11E-08	1.80E-07
Chlorine	7782505	8.61E-04	5.85E-05	5.85E-05	1.17E-01	1.68E-06	7.38E-06
Chromium	7440473	5.60E-05	3.81E-06	3.81E-06	7.62E-03	1.10E-07	4.80E-07
Copper	7440508	6.60E-05	4.49E-06	4.49E-06	8.98E-03	1.29E-07	5.65E-07
Hexavalent Chromium	18540299	2.80E-06	1.90E-07	1.90E-07	3.81E-04	5.48E-09	2.40E-08
Lead	7439921	8.00E-06	5.44E-07	5.44E-07	1.09E-03	1.56E-08	6.85E-08
Manganese	7439965	6.62E-04	4.50E-05	4.50E-05	9.00E-02	1.29E-06	5.67E-06
Mercury	7439976	7.00E-06	4.76E-07	4.76E-07	9.52E-04	1.37E-08	6.00E-08
Nickel	7440020	1.70E-05	1.16E-06	1.16E-06	2.31E-03	3.33E-08	1.46E-07
Phosphorus	7723140	1.13E-03	7.68E-05	7.68E-05	1.54E-01	2.21E-06	9.68E-06
Selenium	7782492	2.00E-06	1.36E-07	1.36E-07	2.72E-04	3.91E-09	1.71E-08
Silica, Cyrstalline	1175	2.64E-01	1.79E-02	1.79E-02	3.58E+01	5.16E-04	2.26E-03
Sulfates	9960	2.18E-03	1.48E-04	1.48E-04	2.97E-01	4.27E-06	1.87E-05
Thallium	7440280	1.30E-05	8.84E-07	8.84E-07	1.77E-03	2.54E-08	1.11E-07
Vanadium	7440622	1.80E-05	1.22E-06	1.22E-06	2.45E-03	3.52E-08	1.54E-07
Zinc	7440666	5.60E-05	3.81E-06	3.81E-06	7.62E-03	1.10E-07	4.80E-07

Source: SJVAPCD 2014

Notes:

Emission factors are derived from a 1997 asphalt dust profile from the EPA's speciation program. http://cfpub.epa.gov/si/Speciate/ehpa_speciate_browse_details.cfm?ptype=P&pnumber=4082

All Silicon is assumed to be Crystalline Silica. Since this assumption is extremely conservative, any decisions based on this assumption must be carefully considered.

5% of Chromium considered Hexavalent Chromium (District Policy)

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Baking/Curing Oven Emissions Calculations (steady-state point source, elev. 300 m ASL)

Project Characteristics

Process Equipment Description	Natural gas fired oven, 4.1 mmBTU/hr, steady-state	
Rated Size Range (pull-down)	<10	mmBTU/hr (this selects EFs)

Constants	**References/Remarks**	**Value**	**Units**
Fuel Gas HHV	EPA default	1020	BTU/cf
Standard Molar Volume	EPA Method 19 (68°F, 20°C)	385.3	dscf/lb-mole
Dry Fd Factor	EPA Method 19 (68°F, 20°C)	8710	dscf/mmBTU
Wet Fw Factor	EPA Method 19 (68°F, 20°C)	10610	wscf/mmBTU

Emissions Parameters	**References/Remarks**	**Value**	**Units**
Hourly Heat Input	1200 kW thermal power	4.10	mmBTU/hr
Daily Heat Input	Calculated for estimating	65.6	mmBTU/day
Annual Heat Input	Calculated for estimating	16400	mmBTU/yr
Daily Schedule (hours)	Assume 2 shifts	16	hrs/day
Annual Schedule (days)	Client specified	250	days/yr
Annual Schedule (hours)	Calculated for estimating	4000	hrs/yr
Monthly Schedule (days)	Client specified	30	days/mo

Release Parameters	**References/Remarks**	**Value**	**Units**	
Stack Exit Temperature		140	°F	Thermal oxidizer for 95% VOC control, with heat recovery
Stack Exit Temperature	**Calculated for modeling**	**333**	**°K**	
Stack Gas Oxygen Content	Typical	19.00	percent O_2	Rule 4309 Section 3.20
Stack Flowrate, wet standard	Calculated for percent O_2	7975	wscf/min	
Stack Flowrate, actual	Calculated for stack temp	9063	wacf/min	
Stack Flowrate, actual	Calculated for modeling	4.28	wacm/sec	
Stack Height	Typical	26.00	feet	
Stack Height	**Calculated for modeling**	**7.92**	**meters**	
Stack Diameter	Typical	36.00	inches	
Stack Diameter	**Calculated for modeling**	**0.91**	**meters**	
Stack Velocity	**Calculated for modeling**	**6.51**	**meters/sec**	
Stack Velocity	Informational	1282	feet/min	

ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$	CO_2e
tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	MT/yr
0.04	0.40	2.40	0.01	0.06	0.06	871

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Baking/Curing Oven Emissions Calculations (steady-state point source, elev. 300 m ASL)

Criteria & Toxic Air Contaminants	CAS No.	Reference/Remarks	Emission Factors			AHU	AHC	MHU	MHC	MDU	MDC	AA/MAC	30DA	An. Avg.	Hr. Max.
			lb/mmcf	ppmv @19%	lb/mmBTU	lb/hr	lb/hr	lb/hr	lb/hr	lb/day	lb/day	lb/yr	lb/day	g/sec	g/sec
CO	630080	Rule 4309 Table 1	–	42.0	0.29243	0.55	0.55	1.20	1.20	19.18	19.18	4796	19.18	6.90E-02	1.51E-01
NO_x	10102440	Rule 4309 Table 1	–	4.3	0.04919	0.09	0.09	0.20	0.20	3.23	3.23	807	3.23	1.16E-02	2.54E-02
PM_{10}	85101	EPA 1998	7.60	–	0.00745	0.01	0.01	0.03	0.03	0.49	0.49	122	0.49	1.76E-03	3.85E-03
$PM_{2.5}$	88101	EPA 1998, SCAQMD 2006	7.52	–	0.00738	0.01	0.01	0.03	0.03	0.48	0.48	121	0.48	1.74E-03	3.81E-03
VOC	43104	EPA 1998	5.50	–	0.00539	0.01	0.01	0.02	0.02	0.35	0.35	88	0.35	1.27E-03	2.78E-03
SO_x	7446095	EPA 1998	0.66	–	0.00065	0.00	0.00	0.00	0.00	0.04	0.04	11	0.04	1.53E-04	3.36E-04
CO_2	124389	40 CFR 98 Table C-1	53.06	kg/mmBTU	116.98	219	219	480	480	7,674	7,674	1,918,408	7,674	–	–
CH_4	74828	40 CFR 98 Table C-2	0.001	kg/mmBTU	0.0022	0.00	0.00	0.01	0.01	0.14	0.14	36.16	0.14	–	–
N_2O	10024972	40 CFR 98 Table C-2	0.0001	kg/mmBTU	0.0002	0.00	0.00	0.00	0.00	0.01	0.01	3.62	0.01	–	–
CO_2e	124389	40 CFR 98 Table A-1	53.11	kg/mmBTU	117.10	219	219	480	480	7,682	7,682	1,920,389	7,682	–	–
Acetaldehyde	75070	VCAPCD 2001	0.0043	–	4.22E-06	–	–	1.73E-05	1.73E-05	–	–	0.07	–	9.94E-07	2.18E-06
Acrolein	107028	VCAPCD 2001	0.0027	–	2.65E-06	–	–	1.09E-05	1.09E-05	–	–	0.04	–	6.24E-07	1.37E-06
Benzene	71432	VCAPCD 2001	0.0080	–	7.84E-06	–	–	3.22E-05	3.22E-05	–	–	0.13	–	1.85E-06	4.05E-06
Ethylbenzene	100414	VCAPCD 2001	0.0095	–	9.31E-06	–	–	3.82E-05	3.82E-05	–	–	0.15	–	2.20E-06	4.81E-06
Formaldehyde	50000	VCAPCD 2001	0.0170	–	1.67E-05	–	–	6.83E-05	6.83E-05	–	–	0.27	–	3.93E-06	8.61E-06
Hexane	110543	VCAPCD 2001	0.0063	–	6.18E-06	–	–	2.53E-05	2.53E-05	–	–	0.10	–	1.46E-06	3.19E-06
Naphthalene	91203	VCAPCD 2001	0.0003	–	2.94E-07	–	–	1.21E-06	1.21E-06	–	–	0.00	–	6.94E-08	1.52E-07
PAH's (excl. naphthalene)	1151	VCAPCD 2001	0.0001	–	9.80E-08	–	–	4.02E-07	4.02E-07	–	–	0.00	–	2.31E-08	5.06E-08
Propylene	115071	VCAPCD 2001	0.7310	–	7.17E-04	–	–	2.94E-03	2.94E-03	–	–	11.75	–	1.69E-04	3.70E-04
Toluene	108883	VCAPCD 2001	0.0366	–	3.59E-05	–	–	1.47E-04	1.47E-04	–	–	0.59	–	8.46E-06	1.85E-05
Xylenes (mixed)	1330207	VCAPCD 2001	0.0272	–	2.67E-05	–	–	1.09E-04	1.09E-04	–	–	0.44	–	6.29E-06	1.38E-05

Table 3: Rules 404 & 409 Compliance Evaluation

Particulate Matter Emissions	Value	Units
Particulate Matter Concentration	0.0005	gr/dscf
Stack Flowrate, dry standard	6547	dscf/min
Rule 404 Limit - Table 404(a)	0.0930	gr/dscf
Rule 404 Evaluation	Pass	
Rule 409 Limit	0.1000	gr/dscf
Rule 409 Evaluation	Pass	

Table 1: Criteria Pollutants Emissions Summary

Criteria Pollutants	AHU (lb/hr)	AHC (lb/hr)	MHU (lb/hr)	MHC (lb/hr)	MDU (lb/day)	MDC (lb/day)	AA (lb/yr)	30DA (lb/day)
CO	0.55	0.55	1.20	1.20	19.18	19.18	4,796	19.18
NO_x	0.09	0.09	0.20	0.20	3.23	3.23	807	3.23
PM_{10}	0.01	0.01	0.03	0.03	0.49	0.49	122	0.49
$PM_{2.5}$	0.01	0.01	0.03	0.03	0.48	0.48	121	0.48
VOC	0.01	0.01	0.02	0.02	0.35	0.35	88	0.35
SO_x	0.00	0.00	0.00	0.00	0.04	0.04	11	0.04

Table 2: Toxic Air Contaminants Emissions Summary

Toxic Air Contaminants	MHU (lb/hr)	MHC (lb/hr)	MAC (lb/yr)
Acetaldehyde	1.73E-05	1.73E-05	0.07
Acrolein	1.09E-05	1.09E-05	0.04
Benzene	3.22E-05	3.22E-05	0.13
Ethylbenzene	3.82E-05	3.82E-05	0.15
Formaldehyde	6.83E-05	6.83E-05	0.27
Hexane	2.53E-05	2.53E-05	0.10
Naphthalene	1.21E-06	1.21E-06	0.00
PAH's (excl. naphthalene)	4.02E-07	4.02E-07	0.00
Propylene	2.94E-03	2.94E-03	11.75
Toluene	1.47E-04	1.47E-04	0.59
Xylenes (mixed)	1.09E-04	1.09E-04	0.44

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Air Toxics Emissions for Bakey Oven (point source, elev. 300 m ASL)

Emissions Parameters	References/Remarks	Value	Units
Annual ROG Emissions	50 tpd @ 12 lb VOC/ton	7500	lbs/yr
Daily ROG Emissions	250 days/yr	30.00	lbs/day
Hourly ROG Emissions	16 hrs/day	1.88	lbs/hr

Thermal oxidizer for 95% VOC control

Release Parameters	References/Remarks	Value	Units
Stack height	bakery oven	7.92	m
Stack diameter	bakery oven	0.91	m
Stack exit temperature	bakery oven	333	°K
Stack exit velocity	bakery oven	6.51	m/sec

Toxic Air Contaminants	CAS No.	EF (lb/lb)	MHU (lb/hr)	MHC (lb/hr)	AA/MAC (lb/yr)	An. Avg. (g/sec)	Hr. Max. (g/sec)
Acetaldehyde	75070	1.40E-02	0.0263	0.0263	105.00	1.51E-03	3.31E-03

Source: SJVAPCD 2014

Notes:

Baking emission factors were derived from the 1994 testing of the Fornaca bakery by the SDAPCD

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Estimated VOC Emissions from POTWs

Publicly Owned Treatment Works	Wastewater Flow Rate	Ducted Headworks	Nonaerated Grit Removal	Secondary Treatment	Aerobic Sludge Digestion	Sludge Drying Beds	Chlorination	Composite Emission Factor	VOC Emissions as Methane	
	mgd	Emission Factors (lb VOC/yr/mgd as methane)							lb/yr	tons/yr
Tejon-Castaic Water District	0.4	86.37	0.60	185.75	—	—	0.91	273.63	146	0.07
Grapevine North	1.4	86.37	0.60	185.75	10.25	13.01	0.91	296.89	554	0.28
Grapevine South	0.6	86.37	0.60	185.75	—	—	0.91	273.63	219	0.11
Totals	**2.4**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**919**	**0.46**

Source: Dudek 2015

Notes:

1. Flow rates from Wastewater Treatment Facilities Engineering Report, Erler & Kalinowski, Inc., March 2014.

2. Emission factors from SCAQMD Rule 1179 Emission Inventory Report for JEIP Participating Agencies, Table 1-7, CH2M-Hill, October 1993. All values are "average" based on a primary domestic service area with commercial and some industrial uses.

3. The VOC emission factors in the JEIP report are reported as carbon (C). The calculated emission rates are reported as methane (CH_4).

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Reproduced from SJVAPCD "Emissions from Publically Owned Treatment Works (POTW)" EET

Air Toxics Emissions for Publically Owned Treatment Works (volume source, elev. 300 m ASL)

Release Parameters	References/Remarks	Value	Units
Site area	5 acres (e.g., Montecito)	217800	sf area
Volume side length, L	sqrt(area)	142.3	m
Distance from center to edge	L/2	71.1	m
Volume height, H	misc. structures height c. 16'	5.0	m
Initial lateral dimension, y	EPA Table 4-6	33.09	m
Initial vertical dimension, z	EPA Table 4-6	2.33	m

Input Data (flowrates)		References/Remarks
Process Rate, mmgal/day	1.40	Grapevine North
Operation, hrs/yr	8,760	
Wastewater Flow, lbs/hr	4.87E+05	
Wastewater Flow, lbs/yr	4.26E+09	
Plant Parameters (Y/N)		**References/Remarks**
Primary Treatment	Y	all-new plants
Secondary Treatment	Y	all-new plants
Sludge Drying Beds	Y	all-new plants
Chlorine Contact Tank	Y	all-new plants

Formulas

Enter the process rate in Million Gallons/Day (MGD) and the hours of operation. The Wastewater flow is converted to lbs/hr and lbs/yr for use with the emission factor table below. Emissions are determined by the multiplications of the wastewater flow and the concentration of the pollutant (ppb). The General Mass Balance Method (GMBM) does not take into account the removal and air stripping mechanisms (MMBM Tables Group A-F) of the different processes while the Modified Mass Balance Method (MMBM) does. Enter a Y or N for the processes used at the plant. Typically Primary and Secondary treatment are used with Sludge drying and Chlorine being optional.

Toxic Air Contaminants	CAS No.	Wastewater Pollutant Concentration (ug/L, ppb)	GMBM (lbs/hr)	GMBM (lbs/yr)	MHC MMBM (lb/hr)	MAC MMBM (lbs/yr)	An. Avg. (g/sec)	Hr. Max. (g/sec)
Ammonia	7664417	3.00E+02	1.46E-01	1.28E+03	3.29E-02	2.88E+02	4.15E-03	4.15E-03
Benzene	71432	5.80E-01	2.82E-04	2.47E+00	7.92E-05	6.94E-01	9.98E-06	9.98E-06
Chloroform	67663	8.10E+00	3.94E-03	3.45E+01	1.13E-03	9.93E+00	1.43E-04	1.43E-04
Ethyl Benzene	100414	2.25E+00	1.09E-03	9.59E+00	3.07E-04	2.69E+00	3.87E-05	3.87E-05
Hydrogen Sulfide	7783064	1.95E+01	9.49E-03	8.31E+01	7.01E-03	6.14E+01	8.84E-04	8.84E-04
Methyl chloroform (1,1,1-Trichloroethane)	71556	2.65E+00	1.29E-03	1.13E+01	3.70E-04	3.24E+00	4.67E-05	4.67E-05
Methylene Chloride (Dichloromethane)	75092	7.80E+00	3.79E-03	3.32E+01	1.09E-03	9.55E+00	1.37E-04	1.37E-04
p-Dichlorobenzene	106467	4.65E+00	2.26E-03	1.98E+01	6.50E-04	5.69E+00	8.19E-05	8.19E-05
Phenol	108952	9.80E+00	4.77E-03	4.18E+01	3.34E-04	2.92E+00	4.21E-05	4.21E-05
Styrene	100425	5.00E+00	2.43E-03	2.13E+01	6.83E-04	5.98E+00	8.60E-05	8.60E-05
Toluene	108883	4.90E+00	2.38E-03	2.09E+01	6.69E-04	5.86E+00	8.43E-05	8.43E-05
Trichloroethylene	79016	2.60E+00	1.26E-03	1.11E+01	3.63E-04	3.18E+00	4.58E-05	4.58E-05
Xylene	1330207	5.86E+00	2.85E-03	2.50E+01	8.00E-04	7.01E+00	1.01E-04	1.01E-04

Source: SJVAPCD 2013, IPCC 2006

Notes:

District Emission Factor Report *Fugitive Air Emission Factors and (ug/L) Concentration Values for Wastewater Treatment Plants (POTWS)* November 1993.

Per IPCC: MCF = 0 for a well managed plant; some CH_4 can be emitted from settling basins and other pockets

No Entries are required on these tables

Group A

	Benzene	Ethyl Benzene	Styrene	Toluene	Xylene		Input	Removed by Process	Removal Factor	Total Removal	Air Stripping Factor	Volatized	Total Volatized
Primary Treatment	2.822E-05	1.095E-04	2.433E-04	2.384E-04	2.851E-04		1	0.4	0.4	0.4	0.1	0.1	0.1
Secondary Treatment	5.079E-05	1.970E-04	4.379E-04	4.291E-04	5.132E-04		0.6	0.564	0.94	0.964	0.3	0.18	0.28
Sludge Drying Beds	2.032E-07	7.881E-07	1.751E-06	1.716E-06	2.053E-06		0.036	0.036	1	1	0.02	0.00072	0.28072
Chlorine Contact Tank	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		0	0	1	1	0	0	0.28072
Total Lbs/hr	7.921E-05	3.073E-04	6.829E-04	6.692E-04	8.003E-04		0	1					

	Benzene	Ethyl Benzene	Styrene	Toluene	Xylene
Primary Treatment	2.472E-01	9.589E-01	2.131E+00	2.088E+00	2.497E+00
Secondary Treatment	4.449E-01	1.726E+00	3.836E+00	3.759E+00	4.495E+00
Sludge Drying Beds	1.780E-03	6.904E-03	1.534E-02	1.504E-02	1.798E-02
Chlorine Contact Tank	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Total Lbs/Yr	6.939E-01	2.692E+00	5.982E+00	5.862E+00	7.011E+00

Emissions of a pollutant at each treatment step utilized are a result of the the pollutants GMBM rate (Main worksheet) multiplied by the amount volatized. The amount volatized is determined by the product of the Air Stripping Factor and the input amount left after each treatment process has removed a portion of the pollutant (Will default to 0 if that process step is not used). The Removal factor is the portion of the pollutant removed by that particular process. The totals for each pollutant are linked to the MMBM column on the main worksheet.

No Entries are required on these tables

Group B													
	Methyl chloroform	**Methylene Chloride**	**p-Dichloro benzene**	**Trichloro ethylene**			**Input**	**Removed by Process**	**Removal Factor**	**Total Removal**	**Air Stripping Factor**	**Volatized**	**Total Volatized**
Primary Treatment	1.289E-04	3.795E-04	2.262E-04	1.265E-04			1	0.4	0.4	0.4	0.1	0.1	0.1
Secondary Treatment	2.321E-04	6.830E-04	4.072E-04	2.277E-04			0.6	0.42	0.7	0.82	0.3	0.18	0.28
Sludge Drying Beds	9.282E-06	2.732E-05	1.629E-05	9.107E-06			0.18	0.162	0.9	0.982	0.04	0.0072	0.2872
Chlorine Contact Tank	0.000E+00	0.000E+00	0.000E+00	0.000E+00			0.018	0.0162	0.9	0.9982	0	0	0.2872
Total Lbs/hr	3.703E-04	1.090E-03	6.497E-04	3.633E-04			0.0018	0.9982					
	Methyl chloroform	**Methylene Chloride**	**p-Dichloro benzene**	**Trichloro ethylene**									
Primary Treatment	1.129E+00	3.324E+00	1.982E+00	1.108E+00									
Secondary Treatment	2.033E+00	5.983E+00	3.567E+00	1.994E+00									
Sludge Drying Beds	8.131E-02	2.393E-01	1.427E-01	7.978E-02									
Chlorine Contact Tank	0.000E+00	0.000E+00	0.000E+00	0.000E+00									
Total Lbs/Yr	3.244E+00	9.547E+00	5.691E+00	3.182E+00									

No Entries are required on these tables

Group C													
	Phenol						**Input**	**Removed by Process**	**Removal Factor**	**Total Removal**	**Air Stripping Factor**	**Volatized**	**Total Volatized**
Primary Treatment	4.768E-05						1	0.4	0.4	0.4	0.01	0.01	0.01
Secondary Treatment	2.861E-04						0.6	0.444	0.74	0.844	0.1	0.06	0.07
Sludge Drying Beds	0.000E+00						0.156	0.15288	0.98	0.99688	0	0	0.07
Chlorine Contact Tank	0.000E+00						0.00312	0.0030576	0.98	0.9999376	0	0	0.07
Total Lbs/hr	3.337E-04						0.000062	0.9999376					
	Phenol												
Primary Treatment	4.177E-01												
Secondary Treatment	2.506E+00												
Sludge Drying Beds	0.000E+00												
Chlorine Contact Tank	0.000E+00												
Total Lbs/Yr	2.924E+00												

No Entries are required on these tables

Group D													
	Chloroform						**Input**	**Removed by Process**	**Removal Factor**	**Total Removal**	**Air Stripping Factor**	**Volatized**	**Total Volatized**
Primary Treatment	3.941E-04						1	0.4	0.4	0.4	0.1	0.1	0.1
Secondary Treatment	7.093E-04						0.6	0.42	0.7	0.82	0.3	0.18	0.28
Sludge Drying Beds	2.837E-05						0.18	0.162	0.9	0.982	0.04	0.0072	0.2872
Chlorine Contact Tank	1.419E-06						0.018	0.01656	0.92	0.99856	0.02	0.00036	0.28756
Total Lbs/hr	1.133E-03						0.001440	0.99856					
	Chloroform												
Primary Treatment	3.452E+00												
Secondary Treatment	6.214E+00												
Sludge Drying Beds	2.485E-01												
Chlorine Contact Tank	1.243E-02												
Total Lbs/Yr	9.927E+00												

No Entries are required on these tables

Group E													
	Ammonia						**Input**	**Removed by Process**	**Removal Factor**	**Total Removal**	**Air Stripping Factor**	**Volatized**	**Total Volatized**
Primary Treatment	0.000E+00						1	0	0	0	0	0	0
Secondary Treatment	1.457E-02						1	0.1	0.1	0.1	0.1	0.1	0.1
Sludge Drying Beds	1.311E-02						0.9	0.18	0.2	0.28	0.1	0.09	0.19
Chlorine Contact Tank	5.245E-03						0.72	0.18	0.25	0.46	0.05	0.036	0.226
Total Lbs/hr	3.293E-02						0.540000	0.46					
	Ammonia												
Primary Treatment	0.000E+00												
Secondary Treatment	1.276E+02												
Sludge Drying Beds	1.149E+02												
Chlorine Contact Tank	4.595E+01												
Total Lbs/Yr	2.885E+02												

No Entries are required on these tables

Group F													
	Hydrogen Sulfide						**Input**	**Removed by Process**	**Removal Factor**	**Total Removal**	**Air Stripping Factor**	**Volatized**	**Total Volatized**
Primary Treatment	6.641E-03						1	0.7	0.7	0.7	0.7	0.7	0.7
Secondary Treatment	2.846E-04						0.3	0.24	0.8	0.94	0.1	0.03	0.73
Sludge Drying Beds	8.538E-05						0.06	0.057	0.95	0.997	0.15	0.009	0.739
Chlorine Contact Tank	1.423E-06						0.003	0.003	1	1	0.05	0.00015	0.73915
Total Lbs/hr	7.012E-03						0.000000	1					
	Hydrogen Sulfide												
Primary Treatment	5.817E+01												
Secondary Treatment	2.493E+00												
Sludge Drying Beds	7.479E-01												
Chlorine Contact Tank	1.247E-02												
Total Lbs/Yr	6.143E+01												

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Criteria & Air Toxics Emissions for a 500 kW (706 BHP) Diesel Emergency Generator (point source, elev. 300 m ASL)

Emissions Parameters	References/Remarks	Value	Units
Annual thoughput	50 hrs ATCM maint & test	50	hrs/yr
Daily throughput	maximum	24	hrs/day
Hourly throughput	maximum	1	hrs/hr

Constants	References/Remarks	Value	Units
Diesel Fuel HHV	EPA default	19300	BTU/lb
Diesel Fuel HHV	EPA default	137030	BTU/gal
Heat Rate	EPA default	7000	BTU/BHP-hr
Standard Molar Volume	EPA Method 19 (68°F, 20°C)	385.3	dscf/lb-mole
Dry Fd Factor	EPA Method 19 (68°F, 20°C)	9190	dscf/mmBTU
Wet Fw Factor	EPA Method 19 (68°F, 20°C)	10320	wscf/mmBTU

Release Parameters	References/Remarks	Value	Units
Engine Rating	Client specified	706	BHP
Hourly Heat Input	Standard	4.94	mmBTU/hr
Stack Exit Temperature	Typical	800	°F
Stack Exit Temperature	**Calculated for modeling**	**700**	**°K**
Stack Gas Oxygen Content	Standard	15.00	percent O_2
Stack Flowrate, wet standard	Calculated for percent O_2	3011	wscf/min
Stack Flowrate, actual	Calculated for stack temp	7186	wacf/min
Stack Flowrate, actual	Calculated for modeling	3.39	wacm/sec
Stack Height	Typical	15.00	feet
Stack Height	**Calculated for modeling**	**4.57**	**meters**
Stack Diameter	Typical	12.00	inches
Stack Diameter	**Calculated for modeling**	**0.30**	**meters**
Stack Velocity	**Calculated for modeling**	**46.48**	**meters/sec**
Stack Velocity	Informational	9149	feet/min

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Criteria & Air Toxics Emissions for a 500 kW (706 BHP) Diesel Emergency Generator (point source, elev. 300 m ASL)

Criteria & Toxic Air Contaminants	CAS No.	EF (lb/hr)	MHU (lb/hr)	MHC (lb/hr)	AA/MAC (lb/yr)	An. Avg. (g/sec)	Hr. Max. (g/sec)
CO (1-hr)	630080.1	2.031	2.03	2.03	101.6	1.46E-03	2.56E-01
CO (8-hr)	630080	4.062	4.06	4.06	203.1	2.92E-03	5.12E-01
NO_x (1-hr)	10102440.1	2.041	2.04	2.04	102.1	1.47E-03	2.57E-01
NO_x (annual)	10102440	4.082	4.08	4.08	204.1	2.94E-03	5.14E-01
PM_{10}	85101	0.233	0.23	0.23	11.7	1.68E-04	2.94E-02
$PM_{2.5}$	88101	0.231	0.23	0.23	11.6	1.66E-04	2.91E-02
VOC	43104	0.557	0.56	0.56	27.9	4.01E-04	7.02E-02
SO_x	7446095	0.008	0.01	0.01	0.4	5.75E-06	1.01E-03
Diesel Particulate Matter (DPM)	9901	0.233	0.23	0.23	11.7	1.68E-04	2.94E-02
Diesel Total Organic Gas (TOG)	9902	0.612	0.61	0.61	30.6	4.40E-04	7.71E-02
CO_2	124389	805.8	806	806	40,291	—	—
CH_4	74828	0.033	0.03	0.03	1.65	—	—
N_2O	10024972	0.007	0.01	0.01	0.35	—	—
CO_2e	124389	808.6	809	809	40,429	—	—

Source: 40 CFR 1039.101, 17 CCR 93115

Notes:

Assumes DPM = PM10; TOG = VOC/0.91 (AP-42 Ch. 3.4)

ROG	NO_x	CO	SO_X	PM_{10}	$PM_{2.5}$	CO_2e
tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	MT/yr
0.01	0.05	0.05	0.000	0.006	0.006	18.34

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Criteria & Air Toxics Emissions for a 500 kW (706 BHP) Diesel Emergency Generator (point source, elev. 300 m ASL)

Tier 3 for a 706 BHP Genset	g/BHP-hr	lb/hr
CO	2.610	4.062
NO_x	2.622	4.082
PM_{10}	0.150	0.233
$PM_{2.5}$	0.149	0.231
VOC	0.358	0.557
SO_x	0.005	0.008
DPM	0.150	0.233
TOG	0.393	0.612
CO_2	517.720	805.8
CH_4	0.021	0.033
N_2O	0.004	0.007
CO_2e	519.497	808.6

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Air Toxics Emissions for General Manufacturing (point source A, elev. 300 m ASL)

Emissions Parameters	References/Remarks	Value	Units	
Annual ROG Emissions	90th% of 129 facility sample	3300	lbs/yr	50% from point source, 50% as TACs
Daily ROG Emissions	250 days/yr	13.20	lbs/day	
Hourly ROG Emissions	8 hrs/day	1.65	lbs/hr	

Release Parameters	References/Remarks	Value	Units	
Vent height	30' + 6' = 36'	11.0	m	
Vent diameter	30" (e.g., Dayton)	0.76	m	
Vent exit temperature	100 °F (37 °C)	311	°K	heated drying/curing cycles
Vent exit velocity	12,000 cfm (e.g., Dayton)	12.4	m/sec	

Criteria & Toxic Air Contaminants	CAS No.	EF (lb/lb)	MHU (lb/hr)	MHC (lb/hr)	AA/MAC (lb/yr)	An. Avg. (g/sec)	Hr. Max. (g/sec)
PM_{10}	85101	0.0303	0.050	0.050	100	1.44E-03	6.30E-03
$PM_{2.5}$	88101	0.0303	0.050	0.050	100	1.44E-03	6.30E-03
Ethylene glycol monobutyl ether	111762	0.07	0.116	0.116	231	3.32E-03	1.46E-02
Formaldehyde	50000	0.01	0.017	0.017	33	4.75E-04	2.08E-03
Hexane	110543	0.07	0.116	0.116	231	3.32E-03	1.46E-02
Isopropyl alcohol	67630	0.07	0.116	0.116	231	3.32E-03	1.46E-02
Methyl ethyl ketone {2-Butanone}	78933	0.07	0.116	0.116	231	3.32E-03	1.46E-02
Styrene	100425	0.07	0.116	0.116	231	3.32E-03	1.46E-02
Toluene	108883	0.07	0.116	0.116	231	3.32E-03	1.46E-02
Xylene (mixed xylenes)	1330207	0.07	0.116	0.116	231	3.32E-03	1.46E-02
TAC Totals Check		**0.50**	**0.83**	**0.83**	**1650**		

Source: Dudek 2015, SJVAPCD 2007, SJVAPCD 2014

Notes:

ROG emissions based on 90th percentile of a 129 facility sample

TAC species profiles are for common coatings & solvents (general estimates)

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Air Toxics Emissions for General Manufacturing (volume source B, elev. 300 m ASL)

Emissions Parameters	References/Remarks	Value	Units	
Annual ROG Emissions	90th% of 129 facility sample	3300	lbs/yr	50% from volume sources, 50% as TACs
Daily ROG Emissions	250 days/yr	13.20	lbs/day	
Hourly ROG Emissions	8 hrs/day	1.65	lbs/hr	

Release Parameters	References/Remarks	Value	Units
Site area	10 acres	435600	sf area
Volume side length, L	sqrt(area)	201.2	m
Distance from center to edge	L/2	100.6	m
Volume height, H	30' + 6' = 36'	11.0	m
Initial lateral dimension, y	EPA Table 4-6	46.80	m
Initial vertical dimension, z	EPA Table 4-6	5.10	m

Criteria & Toxic Air Contaminants	CAS No.	EF (lb/lb)	MHU (lb/hr)	MHC (lb/hr)	AA/MAC (lb/yr)	An. Avg. (g/sec)	Hr. Max. (g/sec)
PM_{10}	85101	0.0303	0.050	0.050	100	1.44E-03	6.30E-03
$PM_{2.5}$	88101	0.0303	0.050	0.050	100	1.44E-03	6.30E-03
Ethylene glycol monobutyl ether	111762	0.07	0.116	0.116	231	3.32E-03	1.46E-02
Formaldehyde	50000	0.01	0.017	0.017	33	4.75E-04	2.08E-03
Hexane	110543	0.07	0.116	0.116	231	3.32E-03	1.46E-02
Isopropyl alcohol	67630	0.07	0.116	0.116	231	3.32E-03	1.46E-02
Methyl ethyl ketone {2-Butanone}	78933	0.07	0.116	0.116	231	3.32E-03	1.46E-02
Styrene	100425	0.07	0.116	0.116	231	3.32E-03	1.46E-02
Toluene	108883	0.07	0.116	0.116	231	3.32E-03	1.46E-02
Xylene (mixed xylenes)	1330207	0.07	0.116	0.116	231	3.32E-03	1.46E-02
TAC Totals Check		**0.50**	**0.83**	**0.83**	**1650**		

Source: Dudek 2015, SJVAPCD 2007, SJVAPCD 2014

Notes:

ROG emissions based on 90th percentile of a 129 facility sample

TAC species profiles are for common coatings & solvents (general estimates)

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Grapevine Project Stationary Source Impacts Data

Stationary Sources	Source Characteristics	Distance to Maximum	UTM X Coordinates	UTM Y Coordinates	AERMOD/AERSCREEN Maximum Impact X/Q, (ug/m^3)/(g/s)				
					Maximum	Scaled	Scaled	Scaled	Scaled
		meters	meters	meters	1-hour	3-hour	8-hour	24-hour	Annual
Cannery/food processing (boiler)	Point source (stack)	—	324055.20	3873166.17	37.4	37.4	33.6	22.4	3.7
Auto service stations (6)	Point source (receiving, vents)	—	323955.20	3873266.17	4036.4	4036.4	3632.8	2421.9	403.6
	Volume source (dispensing, canopy)	—	323955.20	3873266.17	3537.5	3537.5	3183.7	2122.5	353.7
Green waste composting	Volume source (40 acres)	—	324155.20	3873666.17	149.0	149.0	134.1	89.4	14.9
Asphaltic concrete plant (drum mix)	Point source (stack)	—	323955.20	3873366.17	47.3	47.3	42.6	28.4	4.7
	Volume source (asphalt storage tanks)	—	323955.20	3873266.17	2291.6	2291.6	2062.4	1374.9	229.2
	Volume source (process fugitive dusts)	—	323955.20	3873266.17	951.6	951.6	856.4	570.9	95.2
Bakery (ovens & off-gassing)	Point source (stack)	—	324055.20	3873266.17	172.2	172.2	155.0	103.3	17.2
Publicly Owned Treatment Works (3)	Volume source (5 acres)	—	324155.20	3873366.17	641.8	641.8	577.6	385.1	64.2
POTW & WTP emergency generators (4)	Point source (stack)	—	323955.20	3873366.17	271.2	271.2	244.1	162.7	27.1
General manufacturing	Point source A (50%, process vent)	—	324155.20	3873366.17	218.5	218.5	196.7	131.1	21.9
	Volume source B (50%, 10 acres)	—	324055.20	3873166.17	376.5	376.5	338.9	225.9	37.7

Notes:

UTM - Universal Transverse Mercator

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HARP2 Tier 2 Screening Health Risk Assessment Ground Level Concentrations Tool

Toxics Air Contaminants	CAS No.	Emission Rates		AERMOD/AERSCREEN Results for Receptors				Calculated GLCs for HARP2			
		An. Avg.	Hr. Max.	Resident X/Q		Worker X/Q		Resident X ug/m^3		Worker X ug/m^3	
		g/sec	g/sec	Annual	Hourly	Annual	Hourly	Annual	Hourly	Annual	Hourly
Cannery/food processing (boiler)											
aAmmonia slip (SCR)	7664417	4.87E-03	1.48E-02	3.736	**37.4**	3.736	**37.4**	1.82E-02	5.54E-01	1.82E-02	5.54E-01
Acetaldehyde	75070	6.61E-06	2.01E-05	3.736	37.4	3.736	37.4	2.47E-05	7.51E-04	2.47E-05	7.51E-04
Acrolein	107028	5.76E-06	1.75E-05	3.736	37.4	3.736	37.4	2.15E-05	6.54E-04	2.15E-05	6.54E-04
Benzene	71432	1.24E-05	3.76E-05	3.736	37.4	3.736	37.4	4.62E-05	1.41E-03	4.62E-05	1.41E-03
Ethylbenzene	100414	1.47E-05	4.47E-05	3.736	37.4	3.736	37.4	5.50E-05	1.67E-03	5.50E-05	1.67E-03
Formaldehyde	50000	2.62E-05	7.98E-05	3.736	37.4	3.736	37.4	9.80E-05	2.98E-03	9.80E-05	2.98E-03
Hexane	110543	9.81E-06	2.98E-05	3.736	37.4	3.736	37.4	3.66E-05	1.11E-03	3.66E-05	1.11E-03
Naphthalene	91203	6.40E-07	1.95E-06	3.736	37.4	3.736	37.4	2.39E-06	7.27E-05	2.39E-06	7.27E-05
PAH's (excl. naphthalene)	1151	2.13E-07	6.48E-07	3.736	37.4	3.736	37.4	7.96E-07	2.42E-05	7.96E-07	2.42E-05
Propylene	115071	1.13E-03	3.44E-03	3.736	37.4	3.736	37.4	4.22E-03	1.28E-01	4.22E-03	1.28E-01
Toluene	108883	5.65E-05	1.72E-04	3.736	37.4	3.736	37.4	2.11E-04	6.42E-03	2.11E-04	6.42E-03
Xylenes (mixed)	1330207	4.20E-05	1.28E-04	3.736	37.4	3.736	37.4	1.57E-04	4.77E-03	1.57E-04	4.77E-03
Auto service stations (8)											
Benzene	71432	1.74E-05	7.69E-04	403.644	**4036.4**	403.644	**4036.4**	7.02E-03	3.10E+00	7.02E-03	3.10E+00
Toluene	108883	2.48E-05	1.10E-03	403.644	4036.4	403.644	4036.4	1.00E-02	4.43E+00	1.00E-02	4.43E+00
Xylenes (mixed)	1330207	2.48E-05	1.10E-03	403.644	4036.4	403.644	4036.4	1.00E-02	4.43E+00	1.00E-02	4.43E+00
Benzene	71432	1.85E-04	3.17E-04	353.748	**3537.5**	353.748	**3537.5**	6.54E-02	1.12E+00	6.54E-02	1.12E+00
Toluene	108883	2.64E-04	4.53E-04	353.748	3537.5	353.748	3537.5	9.35E-02	1.60E+00	9.35E-02	1.60E+00
Xylenes (mixed)	1330207	2.64E-04	4.53E-04	353.748	3537.5	353.748	3537.5	9.35E-02	1.60E+00	9.35E-02	1.60E+00
Green waste composting											
Ammonia	7664417	3.28E-02	3.28E-02	14.895	**149.0**	14.895	**149.0**	4.88E-01	4.88E+00	4.88E-01	4.88E+00
Acetaldehyde	75070	2.39E-04	2.39E-04	14.895	149.0	14.895	149.0	3.56E-03	3.56E-02	3.56E-03	3.56E-02
Methanol	67561	2.19E-02	2.19E-02	14.895	149.0	14.895	149.0	3.26E-01	3.26E+00	3.26E-01	3.26E+00
Naphthalene	91203	8.54E-04	8.54E-04	14.895	149.0	14.895	149.0	1.27E-02	1.27E-01	1.27E-02	1.27E-01
Propylene	115071	3.76E-04	3.76E-04	14.895	149.0	14.895	149.0	5.60E-03	5.60E-02	5.60E-03	5.60E-02
sec-Butyl alcohol	78922	6.66E-04	6.66E-04	14.895	149.0	14.895	149.0	9.93E-03	9.93E-02	9.93E-03	9.93E-02
Asphaltic concrete plant (drum mix)											
2,2,4-Trimethylpentane	540841	1.15E-04	5.04E-04	4.733	**47.3**	4.733	**47.3**	5.45E-04	2.39E-02	5.45E-04	2.39E-02
2-Methyl naphthalene	91576	2.13E-04	9.32E-04	4.733	47.3	4.733	47.3	1.01E-03	4.41E-02	1.01E-03	4.41E-02
Acenaphthene	83329	4.03E-06	1.76E-05	4.733	47.3	4.733	47.3	1.91E-05	8.35E-04	1.91E-05	8.35E-04
Acenaphthylene	208968	2.47E-05	1.08E-04	4.733	47.3	4.733	47.3	1.17E-04	5.13E-03	1.17E-04	5.13E-03
Anthracene	120127	6.33E-07	2.77E-06	4.733	47.3	4.733	47.3	3.00E-06	1.31E-04	3.00E-06	1.31E-04
Antimony	7440360	5.18E-07	2.27E-06	4.733	47.3	4.733	47.3	2.45E-06	1.07E-04	2.45E-06	1.07E-04
Arsenic	7440382	1.61E-06	7.06E-06	4.733	47.3	4.733	47.3	7.63E-06	3.34E-04	7.63E-06	3.34E-04

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Barium	7440393	1.67E-05	7.31E-05	4.733	47.3	4.733	47.3	7.90E-05	3.46E-03	7.90E-05	3.46E-03
Benzene	71432	1.12E-03	4.91E-03	4.733	47.3	4.733	47.3	5.31E-03	2.33E-01	5.31E-03	2.33E-01
Benzo(a)anthracene	56553	6.04E-07	2.65E-06	4.733	47.3	4.733	47.3	2.86E-06	1.25E-04	2.86E-06	1.25E-04
Benzo(a)pyrene	50328	2.82E-08	1.23E-07	4.733	47.3	4.733	47.3	1.33E-07	5.84E-06	1.33E-07	5.84E-06
Benzo(b)fluoranthene	205992	2.88E-07	1.26E-06	4.733	47.3	4.733	47.3	1.36E-06	5.96E-05	1.36E-06	5.96E-05
Benzo(g,h,i)perylene	191242	1.15E-07	5.04E-07	4.733	47.3	4.733	47.3	5.45E-07	2.39E-05	5.45E-07	2.39E-05
Benzo(k)fluoranthene	207089	1.18E-07	5.17E-07	4.733	47.3	4.733	47.3	5.58E-07	2.45E-05	5.58E-07	2.45E-05
Cadmium	7440439	1.18E-06	5.17E-06	4.733	47.3	4.733	47.3	5.58E-06	2.45E-04	5.58E-06	2.45E-04
Chromium	7440473	1.58E-05	6.93E-05	4.733	47.3	4.733	47.3	7.49E-05	3.28E-03	7.49E-05	3.28E-03
Chrysene	218019	5.18E-07	2.27E-06	4.733	47.3	4.733	47.3	2.45E-06	1.07E-04	2.45E-06	1.07E-04
Cobalt	7440484	7.48E-08	3.28E-07	4.733	47.3	4.733	47.3	3.54E-07	1.55E-05	3.54E-07	1.55E-05
Copper	7440508	8.92E-06	3.91E-05	4.733	47.3	4.733	47.3	4.22E-05	1.85E-03	4.22E-05	1.85E-03
Ethylbenzene	100414	6.90E-04	3.02E-03	4.733	47.3	4.733	47.3	3.27E-03	1.43E-01	3.27E-03	1.43E-01
Ethylene	74851	2.01E-02	8.82E-02	4.733	47.3	4.733	47.3	9.53E-02	4.17E+00	9.53E-02	4.17E+00
Fluorene	86737	1.09E-05	4.79E-05	4.733	47.3	4.733	47.3	5.17E-05	2.27E-03	5.17E-05	2.27E-03
Fluoranthene	206440	1.75E-06	7.69E-06	4.733	47.3	4.733	47.3	8.31E-06	3.64E-04	8.31E-06	3.64E-04
Formaldehyde	50000	8.92E-03	3.91E-02	4.733	47.3	4.733	47.3	4.22E-02	1.85E+00	4.22E-02	1.85E+00
Hexane	110543	2.65E-03	1.16E-02	4.733	47.3	4.733	47.3	1.25E-02	5.49E-01	1.25E-02	5.49E-01
Hexvalent Chromium	18540299	1.29E-06	5.67E-06	4.733	47.3	4.733	47.3	6.13E-06	2.68E-04	6.13E-06	2.68E-04
Indeno(1,2,3-cd)pyrene	193395	2.01E-08	8.82E-08	4.733	47.3	4.733	47.3	9.53E-08	4.17E-06	9.53E-08	4.17E-06
Lead	7439921	1.78E-06	7.81E-06	4.733	47.3	4.733	47.3	8.44E-06	3.70E-04	8.44E-06	3.70E-04
Manganese	7439965	2.22E-05	9.70E-05	4.733	47.3	4.733	47.3	1.05E-04	4.59E-03	1.05E-04	4.59E-03
Mercury	7439976	6.90E-07	3.02E-06	4.733	47.3	4.733	47.3	3.27E-06	1.43E-04	3.27E-06	1.43E-04
Methyl Chloroform	71556	1.38E-04	6.05E-04	4.733	47.3	4.733	47.3	6.54E-04	2.86E-02	6.54E-04	2.86E-02
Naphthalene	91203	2.59E-04	1.13E-03	4.733	47.3	4.733	47.3	1.23E-03	5.37E-02	1.23E-03	5.37E-02
Nickel	7440020	1.81E-04	7.94E-04	4.733	47.3	4.733	47.3	8.58E-04	3.76E-02	8.58E-04	3.76E-02
Perylene	198550	2.53E-08	1.11E-07	4.733	47.3	4.733	47.3	1.20E-07	5.25E-06	1.20E-07	5.25E-06
Phenanthrene	85018	2.19E-05	9.58E-05	4.733	47.3	4.733	47.3	1.03E-04	4.53E-03	1.03E-04	4.53E-03
Phosphorus	7723140	8.05E-05	3.53E-04	4.733	47.3	4.733	47.3	3.81E-04	1.67E-02	3.81E-04	1.67E-02
Pyrene	129000	1.55E-06	6.80E-06	4.733	47.3	4.733	47.3	7.35E-06	3.22E-04	7.35E-06	3.22E-04
Selenium	7782492	1.01E-06	4.41E-06	4.733	47.3	4.733	47.3	4.77E-06	2.09E-04	4.77E-06	2.09E-04
Silver	7440224	1.38E-06	6.05E-06	4.733	47.3	4.733	47.3	6.54E-06	2.86E-04	6.54E-06	2.86E-04
Thallium	7440280	1.18E-08	5.17E-08	4.733	47.3	4.733	47.3	5.58E-08	2.45E-06	5.58E-08	2.45E-06
Toluene	108883	4.31E-04	1.89E-03	4.733	47.3	4.733	47.3	2.04E-03	8.95E-02	2.04E-03	8.95E-02
Xylene (mixed xylenes)	1330207	5.75E-04	2.52E-03	4.733	47.3	4.733	47.3	2.72E-03	1.19E-01	2.72E-03	1.19E-01
Zinc	7440666	1.75E-04	7.69E-04	4.733	47.3	4.733	47.3	8.31E-04	3.64E-02	8.31E-04	3.64E-02
Ethylbenzene	100414	2.14E-05	2.14E-05	229.156	**2291.6**	229.156	**2291.6**	4.89E-03	4.89E-02	4.89E-03	4.89E-02
Naphthalene	91203	6.01E-05	6.01E-05	229.156	2291.6	229.156	2291.6	1.38E-02	1.38E-01	1.38E-02	1.38E-01

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O-xylene	95476	3.43E-05	3.43E-05	229.156	2291.6	229.156	2291.6	7.87E-03	7.87E-02	7.87E-03	7.87E-02
Trimethylbenzene	25551137	8.24E-05	8.24E-05	229.156	2291.6	229.156	2291.6	1.89E-02	1.89E-01	1.89E-02	1.89E-01
Toluene	108883	5.94E-05	5.94E-05	229.156	2291.6	229.156	2291.6	1.36E-02	1.36E-01	1.36E-02	1.36E-01
Xylene (mixed xylenes)	1330207	7.88E-05	7.88E-05	229.156	2291.6	229.156	2291.6	1.81E-02	1.81E-01	1.81E-02	1.81E-01
Aluminum	7429905	2.16E-04	9.46E-04	95.157	**951.6**	95.157	**951.6**	2.05E-02	9.00E-01	2.05E-02	9.00E-01
Ammonia	7664417	6.63E-07	2.90E-06	95.157	951.6	95.157	951.6	6.31E-05	2.76E-03	6.31E-05	2.76E-03
Antimony	7440360	1.96E-07	8.57E-07	95.157	951.6	95.157	951.6	1.86E-05	8.15E-04	1.86E-05	8.15E-04
Barium	7440393	1.95E-06	8.54E-06	95.157	951.6	95.157	951.6	1.86E-04	8.13E-03	1.86E-04	8.13E-03
Bromine	7726956	4.11E-08	1.80E-07	95.157	951.6	95.157	951.6	3.91E-06	1.71E-04	3.91E-06	1.71E-04
Chlorine	7782505	1.68E-06	7.38E-06	95.157	951.6	95.157	951.6	1.60E-04	7.02E-03	1.60E-04	7.02E-03
Chromium	7440473	1.10E-07	4.80E-07	95.157	951.6	95.157	951.6	1.04E-05	4.57E-04	1.04E-05	4.57E-04
Copper	7440508	1.29E-07	5.65E-07	95.157	951.6	95.157	951.6	1.23E-05	5.38E-04	1.23E-05	5.38E-04
Hexavalent Chromium	18540299	5.48E-09	2.40E-08	95.157	951.6	95.157	951.6	5.21E-07	2.28E-05	5.21E-07	2.28E-05
Lead	7439921	1.56E-08	6.85E-08	95.157	951.6	95.157	951.6	1.49E-06	6.52E-05	1.49E-06	6.52E-05
Manganese	7439965	1.29E-06	5.67E-06	95.157	951.6	95.157	951.6	1.23E-04	5.40E-03	1.23E-04	5.40E-03
Mercury	7439976	1.37E-08	6.00E-08	95.157	951.6	95.157	951.6	1.30E-06	5.71E-05	1.30E-06	5.71E-05
Nickel	7440020	3.33E-08	1.46E-07	95.157	951.6	95.157	951.6	3.16E-06	1.39E-04	3.16E-06	1.39E-04
Phosphorus	7723140	2.21E-06	9.68E-06	95.157	951.6	95.157	951.6	2.10E-04	9.21E-03	2.10E-04	9.21E-03
Selenium	7782492	3.91E-09	1.71E-08	95.157	951.6	95.157	951.6	3.72E-07	1.63E-05	3.72E-07	1.63E-05
Silica, Cyrstalline	1175	5.16E-04	2.26E-03	95.157	951.6	95.157	951.6	4.91E-02	2.15E+00	4.91E-02	2.15E+00
Sulfates	9960	4.27E-06	1.87E-05	95.157	951.6	95.157	951.6	4.06E-04	1.78E-02	4.06E-04	1.78E-02
Thallium	7440280	2.54E-08	1.11E-07	95.157	951.6	95.157	951.6	2.42E-06	1.06E-04	2.42E-06	1.06E-04
Vanadium	7440622	3.52E-08	1.54E-07	95.157	951.6	95.157	951.6	3.35E-06	1.47E-04	3.35E-06	1.47E-04
Zinc	7440666	1.10E-07	4.80E-07	95.157	951.6	95.157	951.6	1.04E-05	4.57E-04	1.04E-05	4.57E-04
Bakery (oven & off-gassing)											
Acetaldehyde	75070	1.51E-03	3.31E-03	17.221	**172.2**	17.221	**172.2**	2.60E-02	5.70E-01	2.60E-02	5.70E-01
Acetaldehyde	75070	9.94E-07	2.18E-06	17.221	172.2	17.221	172.2	1.71E-05	3.75E-04	1.71E-05	3.75E-04
Acrolein	107028	6.24E-07	1.37E-06	17.221	172.2	17.221	172.2	1.08E-05	2.35E-04	1.08E-05	2.35E-04
Benzene	71432	1.85E-06	4.05E-06	17.221	172.2	17.221	172.2	3.19E-05	6.98E-04	3.19E-05	6.98E-04
Ethylbenzene	100414	2.20E-06	4.81E-06	17.221	172.2	17.221	172.2	3.78E-05	8.29E-04	3.78E-05	8.29E-04
Formaldehyde	50000	3.93E-06	8.61E-06	17.221	172.2	17.221	172.2	6.77E-05	1.48E-03	6.77E-05	1.48E-03
Hexane	110543	1.46E-06	3.19E-06	17.221	172.2	17.221	172.2	2.51E-05	5.49E-04	2.51E-05	5.49E-04
Naphthalene	91203	6.94E-08	1.52E-07	17.221	172.2	17.221	172.2	1.19E-06	2.62E-05	1.19E-06	2.62E-05
PAH's (excl. naphthalene)	1151	2.31E-08	5.06E-08	17.221	172.2	17.221	172.2	3.98E-07	8.72E-06	3.98E-07	8.72E-06
Propylene	115071	1.69E-04	3.70E-04	17.221	172.2	17.221	172.2	2.91E-03	6.38E-02	2.91E-03	6.38E-02
Toluene	108883	8.46E-06	1.85E-05	17.221	172.2	17.221	172.2	1.46E-04	3.19E-03	1.46E-04	3.19E-03
Xylenes (mixed)	1330207	6.29E-06	1.38E-05	17.221	172.2	17.221	172.2	1.08E-04	2.37E-03	1.08E-04	2.37E-03
Publicly Owned Treatment Works (3)											

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HARP2 Tier 2 Screening Health Risk Assessment Ground Level Concentrations Tool

Ammonia	7664417	4.15E-03	4.15E-03	64.183	**641.8**	64.183	**641.8**	2.66E-01	2.66E+00	2.66E-01	2.66E+00
Benzene	71432	9.98E-06	9.98E-06	64.183	641.8	64.183	641.8	6.41E-04	6.41E-03	6.41E-04	6.41E-03
Chloroform	67663	1.43E-04	1.43E-04	64.183	641.8	64.183	641.8	9.16E-03	9.16E-02	9.16E-03	9.16E-02
Ethyl Benzene	100414	3.87E-05	3.87E-05	64.183	641.8	64.183	641.8	2.48E-03	2.48E-02	2.48E-03	2.48E-02
Hydrogen Sulfide	7783064	8.84E-04	8.84E-04	64.183	641.8	64.183	641.8	5.67E-02	5.67E-01	5.67E-02	5.67E-01
Methyl chloroform (1,1,1-Trichloroethane)	71556	4.67E-05	4.67E-05	64.183	641.8	64.183	641.8	2.99E-03	2.99E-02	2.99E-03	2.99E-02
Methylene Chloride (Dichloromethane)	75092	1.37E-04	1.37E-04	64.183	641.8	64.183	641.8	8.81E-03	8.81E-02	8.81E-03	8.81E-02
p-Dichlorobenzene	106467	8.19E-05	8.19E-05	64.183	641.8	64.183	641.8	5.25E-03	5.25E-02	5.25E-03	5.25E-02
Phenol	108952	4.21E-05	4.21E-05	64.183	641.8	64.183	641.8	2.70E-03	2.70E-02	2.70E-03	2.70E-02
Styrene	100425	8.60E-05	8.60E-05	64.183	641.8	64.183	641.8	5.52E-03	5.52E-02	5.52E-03	5.52E-02
Toluene	108883	8.43E-05	8.43E-05	64.183	641.8	64.183	641.8	5.41E-03	5.41E-02	5.41E-03	5.41E-02
Trichloroethylene	79016	4.58E-05	4.58E-05	64.183	641.8	64.183	641.8	2.94E-03	2.94E-02	2.94E-03	2.94E-02
Xylene	1330207	1.01E-04	1.01E-04	64.183	641.8	64.183	641.8	6.47E-03	6.47E-02	6.47E-03	6.47E-02
POTW emergency generators (3)											
Diesel Particulate Matter (DPM)	9901	1.68E-04	2.94E-02	27.122	**271.2**	27.122	**271.2**	4.54E-03	7.96E+00	4.54E-03	7.96E+00
Diesel Total Organic Gas (TOG)	9902	4.40E-04	7.71E-02	27.122	271.2	27.122	271.2	1.19E-02	2.09E+01	1.19E-02	2.09E+01
WTP emergency generator											
Diesel Particulate Matter (DPM)	9901	1.68E-04	2.94E-02	27.122	**271.2**	27.122	**271.2**	4.54E-03	7.96E+00	4.54E-03	7.96E+00
Diesel Total Organic Gas (TOG)	9902	4.40E-04	7.71E-02	27.122	271.2	27.122	271.2	1.19E-02	2.09E+01	1.19E-02	2.09E+01
General manufacturing A (point)											
Ethylene glycol monobutyl ether	111762	3.32E-03	1.46E-02	21.853	**218.5**	21.853	**218.5**	7.26E-02	3.18E+00	7.26E-02	3.18E+00
Formaldehyde	50000	4.75E-04	2.08E-03	21.853	218.5	21.853	218.5	1.04E-02	4.54E-01	1.04E-02	4.54E-01
Hexane	110543	3.32E-03	1.46E-02	21.853	218.5	21.853	218.5	7.26E-02	3.18E+00	7.26E-02	3.18E+00
Isopropyl alcohol	67630	3.32E-03	1.46E-02	21.853	218.5	21.853	218.5	7.26E-02	3.18E+00	7.26E-02	3.18E+00
Methyl ethyl ketone {2-Butanone}	78933	3.32E-03	1.46E-02	21.853	218.5	21.853	218.5	7.26E-02	3.18E+00	7.26E-02	3.18E+00
Styrene	100425	3.32E-03	1.46E-02	21.853	218.5	21.853	218.5	7.26E-02	3.18E+00	7.26E-02	3.18E+00
Toluene	108883	3.32E-03	1.46E-02	21.853	218.5	21.853	218.5	7.26E-02	3.18E+00	7.26E-02	3.18E+00
Xylene (mixed xylenes)	1330207	3.32E-03	1.46E-02	21.853	218.5	21.853	218.5	7.26E-02	3.18E+00	7.26E-02	3.18E+00
General manufacturing B (volume)											
Ethylene glycol monobutyl ether	111762	3.32E-03	1.46E-02	37.652	**376.5**	37.652	**376.5**	1.25E-01	5.48E+00	1.25E-01	5.48E+00
Formaldehyde	50000	4.75E-04	2.08E-03	37.652	376.5	37.652	376.5	1.79E-02	7.83E-01	1.79E-02	7.83E-01
Hexane	110543	3.32E-03	1.46E-02	37.652	376.5	37.652	376.5	1.25E-01	5.48E+00	1.25E-01	5.48E+00
Isopropyl alcohol	67630	3.32E-03	1.46E-02	37.652	376.5	37.652	376.5	1.25E-01	5.48E+00	1.25E-01	5.48E+00
Methyl ethyl ketone {2-Butanone}	78933	3.32E-03	1.46E-02	37.652	376.5	37.652	376.5	1.25E-01	5.48E+00	1.25E-01	5.48E+00
Styrene	100425	3.32E-03	1.46E-02	37.652	376.5	37.652	376.5	1.25E-01	5.48E+00	1.25E-01	5.48E+00
Toluene	108883	3.32E-03	1.46E-02	37.652	376.5	37.652	376.5	1.25E-01	5.48E+00	1.25E-01	5.48E+00
Xylene (mixed xylenes)	1330207	3.32E-03	1.46E-02	37.652	376.5	37.652	376.5	1.25E-01	5.48E+00	1.25E-01	5.48E+00

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Index	Group1	Group2	POLID/CAS	Pollutant Name	Ave Conc	Max Hr Conc for Acute	Pasture	Fish	Water
User comments:	this field is optional (blank), see user's guide	this field is optional (blank), see user's guide	CAS no. is the lookup reference ID in HARP2 (not AQMD IDs)	HARP2 names differ from names on other lists, e.g., 1401, AB 2588 (see HARP2 TAC list)	annual maximum concentration (permitted PTE)	hourly maximum concentration (equipment rating)	for the mandatory minimum multipathway analysis these pathway receptors are set to zeros in the format (pathways not used)		
Cannery/food processing (boiler)	**(optional)**	**(optional)**	**(CAS No.)**	**(HARP2 Name)**	**max_{ann} ug/m^3**	**max_{hr} ug/m^3**	**ug/m^3**	**ug/m^3**	**ug/m^3**
1			7664417	NH3	1.82E-02	5.54E-01	0	0	0
2			75070	Acetaldehyde	2.47E-05	7.51E-04	0	0	0
3			107028	Acrolein	2.15E-05	6.54E-04	0	0	0
4			71432	Benzene	4.62E-05	1.41E-03	0	0	0
5			100414	Ethyl Benzene	5.50E-05	1.67E-03	0	0	0
6			50000	Formaldehyde	9.80E-05	2.98E-03	0	0	0
7			110543	Hexane	3.66E-05	1.11E-03	0	0	0
8			91203	Naphthalene	2.39E-06	7.27E-05	0	0	0
9			1151	PAHs-w/o	7.96E-07	2.42E-05	0	0	0
10			115071	Propylene	4.22E-03	1.28E-01	0	0	0
11			108883	Toluene	2.11E-04	6.42E-03	0	0	0
12			1330207	Xylenes	1.57E-04	4.77E-03	0	0	0
Auto service stations (8)	**(optional)**	**(optional)**	**(CAS No.)**	**(HARP2 Name)**	**max_{ann} ug/m^3**	**max_{hr} ug/m^3**	**ug/m^3**	**ug/m^3**	**ug/m^3**
1	A		71432	Benzene	7.02E-03	3.10E+00	0	0	0
2	A		108883	Toluene	1.00E-02	4.43E+00	0	0	0
3	A		1330207	Xylenes	1.00E-02	4.43E+00	0	0	0
4	B		71432	Benzene	6.54E-02	1.12E+00	0	0	0
5	B		108883	Toluene	9.35E-02	1.60E+00	0	0	0
6	B		1330207	Xylenes	9.35E-02	1.60E+00	0	0	0
Green waste composting	**(optional)**	**(optional)**	**(CAS No.)**	**(HARP2 Name)**	**max_{ann} ug/m^3**	**max_{hr} ug/m^3**	**ug/m^3**	**ug/m^3**	**ug/m^3**
1			7664417	NH3	4.88E-01	4.88E+00	0	0	0
2			75070	Acetaldehyde	3.56E-03	3.56E-02	0	0	0
3			67561	Methanol	3.26E-01	3.26E+00	0	0	0
4			91203	Naphthalene	1.27E-02	1.27E-01	0	0	0
5			115071	Propylene	5.60E-03	5.60E-02	0	0	0
6			78922	sec-Butyl Alcoh	9.93E-03	9.93E-02	0	0	0
Asphaltic concrete plant (drum mix)	**(optional)**	**(optional)**	**(CAS No.)**	**(HARP2 Name)**	**max_{ann} ug/m^3**	**max_{hr} ug/m^3**	**ug/m^3**	**ug/m^3**	**ug/m^3**
1	A		540841	2,2,4TriMePentn	5.45E-04	2.39E-02	0	0	0
2	A		91576	2MeNaphthalene	1.01E-03	4.41E-02	0	0	0
3	A		83329	Acenaphthene	1.91E-05	8.35E-04	0	0	0
4	A		208968	Acenaphthylene	1.17E-04	5.13E-03	0	0	0

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5	A		120127	Anthracene	3.00E-06	1.31E-04	0	0	0
6	A		7440360	Antimony	2.45E-06	1.07E-04	0	0	0
7	A		7440382	Arsenic	7.63E-06	3.34E-04	0	0	0
8	A		7440393	Barium	7.90E-05	3.46E-03	0	0	0
9	A		71432	Benzene	5.31E-03	2.33E-01	0	0	0
10	A		56553	B[a]anthracene	2.86E-06	1.25E-04	0	0	0
11	A		50328	B[a]P	1.33E-07	5.84E-06	0	0	0
12	A		205992	B[b]fluoranthen	1.36E-06	5.96E-05	0	0	0
13	A		191242	B[g,h,i]perylen	5.45E-07	2.39E-05	0	0	0
14	A		207089	B[k]fluoranthen	5.58E-07	2.45E-05	0	0	0
15	A		7440439	Cadmium	5.58E-06	2.45E-04	0	0	0
16	A		7440473	Chromium	7.49E-05	3.28E-03	0	0	0
17	A		218019	Chrysene	2.45E-06	1.07E-04	0	0	0
18	A		7440484	Cobalt	3.54E-07	1.55E-05	0	0	0
19	A		7440508	Copper	4.22E-05	1.85E-03	0	0	0
20	A		100414	Ethyl Benzene	3.27E-03	1.43E-01	0	0	0
21	A		74851	Ethylene	9.53E-02	4.17E+00	0	0	0
22	A		86737	Fluorene	5.17E-05	2.27E-03	0	0	0
23	A		206440	Fluoranthene	8.31E-06	3.64E-04	0	0	0
24	A		50000	Formaldehyde	4.22E-02	1.85E+00	0	0	0
25	A		110543	Hexane	1.25E-02	5.49E-01	0	0	0
26	A		18540299	Cr(VI)	6.13E-06	2.68E-04	0	0	0
27	A		193395	In[1,2,3-cd]pyr	9.53E-08	4.17E-06	0	0	0
28	A		7439921	Lead	8.44E-06	3.70E-04	0	0	0
29	A		7439965	Manganese	1.05E-04	4.59E-03	0	0	0
30	A		7439976	Mercury	3.27E-06	1.43E-04	0	0	0
31	A		71556	1,1,1-TCA	6.54E-04	2.86E-02	0	0	0
32	A		91203	Naphthalene	1.23E-03	5.37E-02	0	0	0
33	A		7440020	Nickel	8.58E-04	3.76E-02	0	0	0
34	A		198550	Perylene	1.20E-07	5.25E-06	0	0	0
35	A		85018	Phenanthrene	1.03E-04	4.53E-03	0	0	0
36	A		7723140	Phosphorus	3.81E-04	1.67E-02	0	0	0

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37	A		129000	Pyrene	7.35E-06	3.22E-04	0	0	0
38	A		7782492	Selenium	4.77E-06	2.09E-04	0	0	0
39	A		7440224	Silver	6.54E-06	2.86E-04	0	0	0
40	A		7440280	Thallium	5.58E-08	2.45E-06	0	0	0
41	A		108883	Toluene	2.04E-03	8.95E-02	0	0	0
42	A		1330207	Xylenes	2.72E-03	1.19E-01	0	0	0
43	A		7440666	Zinc	8.31E-04	3.64E-02	0	0	0
44	B		100414	Ethyl Benzene	4.89E-03	4.89E-02	0	0	0
45	B		91203	Naphthalene	1.38E-02	1.38E-01	0	0	0
46	B		95476	o-Xylene	7.87E-03	7.87E-02	0	0	0
47	B		25551137	TriMeBenzns	1.89E-02	1.89E-01	0	0	0
48	B		108883	Toluene	1.36E-02	1.36E-01	0	0	0
49	B		1330207	Xylenes	1.81E-02	1.81E-01	0	0	0
50	C		7429905	Aluminum	2.05E-02	9.00E-01	0	0	0
51	C		7664417	NH3	6.31E-05	2.76E-03	0	0	0
52	C		7440360	Antimony	1.86E-05	8.15E-04	0	0	0
53	C		7440393	Barium	1.86E-04	8.13E-03	0	0	0
54	C		7726956	Bromine	3.91E-06	1.71E-04	0	0	0
55	C		7782505	Chlorine	1.60E-04	7.02E-03	0	0	0
56	C		7440473	Chromium	1.04E-05	4.57E-04	0	0	0
57	C		7440508	Copper	1.23E-05	5.38E-04	0	0	0
58	C		18540299	Cr(VI)	5.21E-07	2.28E-05	0	0	0
59	C		7439921	Lead	1.49E-06	6.52E-05	0	0	0
60	C		7439965	Manganese	1.23E-04	5.40E-03	0	0	0
61	C		7439976	Mercury	1.30E-06	5.71E-05	0	0	0
62	C		7440020	Nickel	3.16E-06	1.39E-04	0	0	0
63	C		7723140	Phosphorus	2.10E-04	9.21E-03	0	0	0
64	C		7782492	Selenium	3.72E-07	1.63E-05	0	0	0
65	C		1175	Silica, Crystln	4.91E-02	2.15E+00	0	0	0
66	C		9960	SULFATES	4.06E-04	1.78E-02	0	0	0
67	C		7440280	Thallium	2.42E-06	1.06E-04	0	0	0
68	C		7440622	Vanadium	3.35E-06	1.47E-04	0	0	0

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69	C		7440666	Zinc	1.04E-05	4.57E-04	0	0	0
Bakery (oven & off-gassing)	**(optional)**	**(optional)**	**(CAS No.)**	**(HARP2 Name)**	**max_{ann} ug/m^3**	**max_{hr} ug/m^3**	**ug/m^3**	**ug/m^3**	**ug/m^3**
1	A		75070	Acetaldehyde	2.60E-02	5.70E-01	0	0	0
2	B		75070	Acetaldehyde	1.71E-05	3.75E-04	0	0	0
3	B		107028	Acrolein	1.08E-05	2.35E-04	0	0	0
4	B		71432	Benzene	3.19E-05	6.98E-04	0	0	0
5	B		100414	Ethyl Benzene	3.78E-05	8.29E-04	0	0	0
6	B		50000	Formaldehyde	6.77E-05	1.48E-03	0	0	0
7	B		110543	Hexane	2.51E-05	5.49E-04	0	0	0
8	B		91203	Naphthalene	1.19E-06	2.62E-05	0	0	0
9	B		1151	PAHs-w/o	3.98E-07	8.72E-06	0	0	0
10	B		115071	Propylene	2.91E-03	6.38E-02	0	0	0
11	B		108883	Toluene	1.46E-04	3.19E-03	0	0	0
12	B		1330207	Xylenes	1.08E-04	2.37E-03	0	0	0
Publicly Owned Treatment Works (3)	**(optional)**	**(optional)**	**(CAS No.)**	**(HARP2 Name)**	**max_{ann} ug/m^3**	**max_{hr} ug/m^3**	**ug/m^3**	**ug/m^3**	**ug/m^3**
1			7664417	NH3	2.66E-01	2.66E+00	0	0	0
2			71432	Benzene	6.41E-04	6.41E-03	0	0	0
3			67663	Chloroform	9.16E-03	9.16E-02	0	0	0
4			100414	Ethyl Benzene	2.48E-03	2.48E-02	0	0	0
5			7783064	H2S	5.67E-02	5.67E-01	0	0	0
6			71556	1,1,1-TCA	2.99E-03	2.99E-02	0	0	0
7			75092	Methylene Chlor	8.81E-03	8.81E-02	0	0	0
8			106467	p-DiClBenzene	5.25E-03	5.25E-02	0	0	0
9			108952	Phenol	2.70E-03	2.70E-02	0	0	0
10			100425	Styrene	5.52E-03	5.52E-02	0	0	0
11			108883	Toluene	5.41E-03	5.41E-02	0	0	0
12			79016	TCE	2.94E-03	2.94E-02	0	0	0
13			1330207	Xylenes	6.47E-03	6.47E-02	0	0	0
POTW emergency generators (3)	**(optional)**	**(optional)**	**(CAS No.)**	**(HARP2 Name)**	**max_{ann} ug/m^3**	**max_{hr} ug/m^3**	**ug/m^3**	**ug/m^3**	**ug/m^3**
1			9901	DieselExhPM	4.54E-03	7.96E+00	0	0	0
2			9902	DieselExhTOG	1.19E-02	2.09E+01	0	0	0
WTP emergency generator	**(optional)**	**(optional)**	**(CAS No.)**	**(HARP2 Name)**	**max_{ann} ug/m^3**	**max_{hr} ug/m^3**	**ug/m^3**	**ug/m^3**	**ug/m^3**

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1			9901	DieselExhPM	4.54E-03	7.96E+00	0	0	0
2			9902	DieselExhTOG	1.19E-02	2.09E+01	0	0	0
General manufacturing A (point)	**(optional)**	**(optional)**	**(CAS No.)**	**(HARP2 Name)**	**max_{ann} ug/m^3**	**max_{hr} ug/m^3**	**ug/m^3**	**ug/m^3**	**ug/m^3**
1			111762	EGBE	7.26E-02	3.18E+00	0	0	0
2			50000	Formaldehyde	1.04E-02	4.54E-01	0	0	0
3			110543	Hexane	7.26E-02	3.18E+00	0	0	0
4			67630	Isopropyl Alcoh	7.26E-02	3.18E+00	0	0	0
5			78933	MEK	7.26E-02	3.18E+00	0	0	0
6			100425	Styrene	7.26E-02	3.18E+00	0	0	0
7			108883	Toluene	7.26E-02	3.18E+00	0	0	0
8			1330207	Xylenes	7.26E-02	3.18E+00	0	0	0
General manufacturing B (volume)	**(optional)**	**(optional)**	**(CAS No.)**	**(HARP2 Name)**	**max_{ann} ug/m^3**	**max_{hr} ug/m^3**	**ug/m^3**	**ug/m^3**	**ug/m^3**
1			111762	EGBE	1.25E-01	5.48E+00	0	0	0
2			50000	Formaldehyde	1.79E-02	7.83E-01	0	0	0
3			110543	Hexane	1.25E-01	5.48E+00	0	0	0
4			67630	Isopropyl Alcoh	1.25E-01	5.48E+00	0	0	0
5			78933	MEK	1.25E-01	5.48E+00	0	0	0
6			100425	Styrene	1.25E-01	5.48E+00	0	0	0
7			108883	Toluene	1.25E-01	5.48E+00	0	0	0
8			1330207	Xylenes	1.25E-01	5.48E+00	0	0	0

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User comments:	this field is optional (blank), see user's guide	this field is optional (blank), see user's guide	CAS no. is the lookup reference ID in HARP2 (not AQMD IDs)	HARP2 names differ from names on other lists, e.g., 1401, AB 2588 (see HARP2 TAC list)	annual maximum concentration (permitted PTE)	hourly maximum concentration (equipment rating)	for the mandatory minimum multipathway analysis these pathway receptors are set to zeros in the format (pathways not used)		
Cannery/food processing (boiler)	**(optional)**	**(optional)**	**(CAS No.)**	**(HARP2 Name)**	**max_{ann} ug/m^3**	**max_{hr} ug/m^3**	**ug/m^3**	**ug/m^3**	**ug/m^3**
1			7664417	NH3	1.82E-02	5.54E-01	0	0	0
2			75070	Acetaldehyde	2.47E-05	7.51E-04	0	0	0
3			107028	Acrolein	2.15E-05	6.54E-04	0	0	0
4			71432	Benzene	4.62E-05	1.41E-03	0	0	0
5			100414	Ethyl Benzene	5.50E-05	1.67E-03	0	0	0
6			50000	Formaldehyde	9.80E-05	2.98E-03	0	0	0
7			110543	Hexane	3.66E-05	1.11E-03	0	0	0
8			91203	Naphthalene	2.39E-06	7.27E-05	0	0	0
9			1151	PAHs-w/o	7.96E-07	2.42E-05	0	0	0
10			115071	Propylene	4.22E-03	1.28E-01	0	0	0
11			108883	Toluene	2.11E-04	6.42E-03	0	0	0
12			1330207	Xylenes	1.57E-04	4.77E-03	0	0	0
Auto service stations (8)	**(optional)**	**(optional)**	**(CAS No.)**	**(HARP2 Name)**	**max_{ann} ug/m^3**	**max_{hr} ug/m^3**	**ug/m^3**	**ug/m^3**	**ug/m^3**
1	A		71432	Benzene	7.02E-03	3.10E+00	0	0	0
2	A		108883	Toluene	1.00E-02	4.43E+00	0	0	0
3	A		1330207	Xylenes	1.00E-02	4.43E+00	0	0	0
4	B		71432	Benzene	6.54E-02	1.12E+00	0	0	0
5	B		108883	Toluene	9.35E-02	1.60E+00	0	0	0
6	B		1330207	Xylenes	9.35E-02	1.60E+00	0	0	0
Green waste composting	**(optional)**	**(optional)**	**(CAS No.)**	**(HARP2 Name)**	**max_{ann} ug/m^3**	**max_{hr} ug/m^3**	**ug/m^3**	**ug/m^3**	**ug/m^3**
1			7664417	NH3	4.88E-01	4.88E+00	0	0	0
2			75070	Acetaldehyde	3.56E-03	3.56E-02	0	0	0
3			67561	Methanol	3.26E-01	3.26E+00	0	0	0
4			91203	Naphthalene	1.27E-02	1.27E-01	0	0	0
5			115071	Propylene	5.60E-03	5.60E-02	0	0	0
6			78922	sec-Butyl Alcoh	9.93E-03	9.93E-02	0	0	0
Asphaltic concrete plant (drum mix)	**(optional)**	**(optional)**	**(CAS No.)**	**(HARP2 Name)**	**max_{ann} ug/m^3**	**max_{hr} ug/m^3**	**ug/m^3**	**ug/m^3**	**ug/m^3**
1	A		540841	2,2,4TriMePentn	5.45E-04	2.39E-02	0	0	0
2	A		91576	2MeNaphthalene	1.01E-03	4.41E-02	0	0	0
3	A		83329	Acenaphthene	1.91E-05	8.35E-04	0	0	0
4	A		208968	Acenaphthylene	1.17E-04	5.13E-03	0	0	0

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5	A		120127	Anthracene	3.00E-06	1.31E-04	0	0	0
6	A		7440360	Antimony	2.45E-06	1.07E-04	0	0	0
7	A		7440382	Arsenic	7.63E-06	3.34E-04	0	0	0
8	A		7440393	Barium	7.90E-05	3.46E-03	0	0	0
9	A		71432	Benzene	5.31E-03	2.33E-01	0	0	0
10	A		56553	B[a]anthracene	2.86E-06	1.25E-04	0	0	0
11	A		50328	B[a]P	1.33E-07	5.84E-06	0	0	0
12	A		205992	B[b]fluoranthen	1.36E-06	5.96E-05	0	0	0
13	A		191242	B[g,h,i]perylen	5.45E-07	2.39E-05	0	0	0
14	A		207089	B[k]fluoranthen	5.58E-07	2.45E-05	0	0	0
15	A		7440439	Cadmium	5.58E-06	2.45E-04	0	0	0
16	A		7440473	Chromium	7.49E-05	3.28E-03	0	0	0
17	A		218019	Chrysene	2.45E-06	1.07E-04	0	0	0
18	A		7440484	Cobalt	3.54E-07	1.55E-05	0	0	0
19	A		7440508	Copper	4.22E-05	1.85E-03	0	0	0
20	A		100414	Ethyl Benzene	3.27E-03	1.43E-01	0	0	0
21	A		74851	Ethylene	9.53E-02	4.17E+00	0	0	0
22	A		86737	Fluorene	5.17E-05	2.27E-03	0	0	0
23	A		206440	Fluoranthene	8.31E-06	3.64E-04	0	0	0
24	A		50000	Formaldehyde	4.22E-02	1.85E+00	0	0	0
25	A		110543	Hexane	1.25E-02	5.49E-01	0	0	0
26	A		18540299	Cr(VI)	6.13E-06	2.68E-04	0	0	0
27	A		193395	In[1,2,3-cd]pyr	9.53E-08	4.17E-06	0	0	0
28	A		7439921	Lead	8.44E-06	3.70E-04	0	0	0
29	A		7439965	Manganese	1.05E-04	4.59E-03	0	0	0
30	A		7439976	Mercury	3.27E-06	1.43E-04	0	0	0
31	A		71556	1,1,1-TCA	6.54E-04	2.86E-02	0	0	0
32	A		91203	Naphthalene	1.23E-03	5.37E-02	0	0	0
33	A		7440020	Nickel	8.58E-04	3.76E-02	0	0	0
34	A		198550	Perylene	1.20E-07	5.25E-06	0	0	0
35	A		85018	Phenanthrene	1.03E-04	4.53E-03	0	0	0
36	A		7723140	Phosphorus	3.81E-04	1.67E-02	0	0	0

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37	A		129000	Pyrene	7.35E-06	3.22E-04	0	0	0
38	A		7782492	Selenium	4.77E-06	2.09E-04	0	0	0
39	A		7440224	Silver	6.54E-06	2.86E-04	0	0	0
40	A		7440280	Thallium	5.58E-08	2.45E-06	0	0	0
41	A		108883	Toluene	2.04E-03	8.95E-02	0	0	0
42	A		1330207	Xylenes	2.72E-03	1.19E-01	0	0	0
43	A		7440666	Zinc	8.31E-04	3.64E-02	0	0	0
44	B		100414	Ethyl Benzene	4.89E-03	4.89E-02	0	0	0
45	B		91203	Naphthalene	1.38E-02	1.38E-01	0	0	0
46	B		95476	o-Xylene	7.87E-03	7.87E-02	0	0	0
47	B		25551137	TriMeBenzns	1.89E-02	1.89E-01	0	0	0
48	B		108883	Toluene	1.36E-02	1.36E-01	0	0	0
49	B		1330207	Xylenes	1.81E-02	1.81E-01	0	0	0
50	C		7429905	Aluminum	2.05E-02	9.00E-01	0	0	0
51	C		7664417	NH3	6.31E-05	2.76E-03	0	0	0
52	C		7440360	Antimony	1.86E-05	8.15E-04	0	0	0
53	C		7440393	Barium	1.86E-04	8.13E-03	0	0	0
54	C		7726956	Bromine	3.91E-06	1.71E-04	0	0	0
55	C		7782505	Chlorine	1.60E-04	7.02E-03	0	0	0
56	C		7440473	Chromium	1.04E-05	4.57E-04	0	0	0
57	C		7440508	Copper	1.23E-05	5.38E-04	0	0	0
58	C		18540299	Cr(VI)	5.21E-07	2.28E-05	0	0	0
59	C		7439921	Lead	1.49E-06	6.52E-05	0	0	0
60	C		7439965	Manganese	1.23E-04	5.40E-03	0	0	0
61	C		7439976	Mercury	1.30E-06	5.71E-05	0	0	0
62	C		7440020	Nickel	3.16E-06	1.39E-04	0	0	0
63	C		7723140	Phosphorus	2.10E-04	9.21E-03	0	0	0
64	C		7782492	Selenium	3.72E-07	1.63E-05	0	0	0
65	C		1175	Silica, Crystln	4.91E-02	2.15E+00	0	0	0
66	C		9960	SULFATES	4.06E-04	1.78E-02	0	0	0
67	C		7440280	Thallium	2.42E-06	1.06E-04	0	0	0
68	C		7440622	Vanadium	3.35E-06	1.47E-04	0	0	0

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69	C		7440666	Zinc	1.04E-05	4.57E-04	0	0	0
Bakery (oven & off-gassing)	**(optional)**	**(optional)**	**(CAS No.)**	**(HARP2 Name)**	**max_{ann} ug/m^3**	**max_{hr} ug/m^3**	**ug/m^3**	**ug/m^3**	**ug/m^3**
1	A		75070	Acetaldehyde	2.60E-02	5.70E-01	0	0	0
2	B		75070	Acetaldehyde	1.71E-05	3.75E-04	0	0	0
3	B		107028	Acrolein	1.08E-05	2.35E-04	0	0	0
4	B		71432	Benzene	3.19E-05	6.98E-04	0	0	0
5	B		100414	Ethyl Benzene	3.78E-05	8.29E-04	0	0	0
6	B		50000	Formaldehyde	6.77E-05	1.48E-03	0	0	0
7	B		110543	Hexane	2.51E-05	5.49E-04	0	0	0
8	B		91203	Naphthalene	1.19E-06	2.62E-05	0	0	0
9	B		1151	PAHs-w/o	3.98E-07	8.72E-06	0	0	0
10	B		115071	Propylene	2.91E-03	6.38E-02	0	0	0
11	B		108883	Toluene	1.46E-04	3.19E-03	0	0	0
12	B		1330207	Xylenes	1.08E-04	2.37E-03	0	0	0
Publicly Owned Treatment Works (3)	**(optional)**	**(optional)**	**(CAS No.)**	**(HARP2 Name)**	**max_{ann} ug/m^3**	**max_{hr} ug/m^3**	**ug/m^3**	**ug/m^3**	**ug/m^3**
1			7664417	NH3	2.66E-01	2.66E+00	0	0	0
2			71432	Benzene	6.41E-04	6.41E-03	0	0	0
3			67663	Chloroform	9.16E-03	9.16E-02	0	0	0
4			100414	Ethyl Benzene	2.48E-03	2.48E-02	0	0	0
5			7783064	H2S	5.67E-02	5.67E-01	0	0	0
6			71556	1,1,1-TCA	2.99E-03	2.99E-02	0	0	0
7			75092	Methylene Chlor	8.81E-03	8.81E-02	0	0	0
8			106467	p-DiClBenzene	5.25E-03	5.25E-02	0	0	0
9			108952	Phenol	2.70E-03	2.70E-02	0	0	0
10			100425	Styrene	5.52E-03	5.52E-02	0	0	0
11			108883	Toluene	5.41E-03	5.41E-02	0	0	0
12			79016	TCE	2.94E-03	2.94E-02	0	0	0
13			1330207	Xylenes	6.47E-03	6.47E-02	0	0	0
POTW emergency generators (3)	**(optional)**	**(optional)**	**(CAS No.)**	**(HARP2 Name)**	**max_{ann} ug/m^3**	**max_{hr} ug/m^3**	**ug/m^3**	**ug/m^3**	**ug/m^3**
1			9901	DieselExhPM	4.54E-03	7.96E+00	0	0	0
2			9902	DieselExhTOG	1.19E-02	2.09E+01	0	0	0
WTP emergency generator	**(optional)**	**(optional)**	**(CAS No.)**	**(HARP2 Name)**	**max_{ann} ug/m^3**	**max_{hr} ug/m^3**	**ug/m^3**	**ug/m^3**	**ug/m^3**

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1			9901	DieselExhPM	4.54E-03	7.96E+00	0	0	0
2			9902	DieselExhTOG	1.19E-02	2.09E+01	0	0	0
General manufacturing A (point)	**(optional)**	**(optional)**	**(CAS No.)**	**(HARP2 Name)**	**max_{ann} ug/m^3**	**max_{hr} ug/m^3**	**ug/m^3**	**ug/m^3**	**ug/m^3**
1			111762	EGBE	7.26E-02	3.18E+00	0	0	0
2			50000	Formaldehyde	1.04E-02	4.54E-01	0	0	0
3			110543	Hexane	7.26E-02	3.18E+00	0	0	0
4			67630	Isopropyl Alcoh	7.26E-02	3.18E+00	0	0	0
5			78933	MEK	7.26E-02	3.18E+00	0	0	0
6			100425	Styrene	7.26E-02	3.18E+00	0	0	0
7			108883	Toluene	7.26E-02	3.18E+00	0	0	0
8			1330207	Xylenes	7.26E-02	3.18E+00	0	0	0
General manufacturing B (volume)	**(optional)**	**(optional)**	**(CAS No.)**	**(HARP2 Name)**	**max_{ann} ug/m^3**	**max_{hr} ug/m^3**	**ug/m^3**	**ug/m^3**	**ug/m^3**
1			111762	EGBE	1.25E-01	5.48E+00	0	0	0
2			50000	Formaldehyde	1.79E-02	7.83E-01	0	0	0
3			110543	Hexane	1.25E-01	5.48E+00	0	0	0
4			67630	Isopropyl Alcoh	1.25E-01	5.48E+00	0	0	0
5			78933	MEK	1.25E-01	5.48E+00	0	0	0
6			100425	Styrene	1.25E-01	5.48E+00	0	0	0
7			108883	Toluene	1.25E-01	5.48E+00	0	0	0
8			1330207	Xylenes	1.25E-01	5.48E+00	0	0	0

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Air Toxics Emission Factors for Natural Gas External Combustion

Toxic Air Contaminants	CAS No.	<10 mmBTU/hr	10-100 mmBTU/hr	>100 mmBTU/hr	Flare
		lb/mmcf	lb/mmcf	lb/mmcf	lb/mmcf
Acetaldehyde	75070	0.0043	0.0031	0.0009	0.0430
Acrolein	107028	0.0027	0.0027	0.0008	0.0100
Benzene	71432	0.0080	0.0058	0.0017	0.1590
Ethylbenzene	100414	0.0095	0.0069	0.0020	1.4440
Formaldehyde	50000	0.0170	0.0123	0.0036	1.1690
Hexane	110543	0.0063	0.0046	0.0013	0.0290
Naphthalene	91203	0.0003	0.0003	0.0003	0.0110
PAH's (excl. naphthalene)	1151	0.0001	0.0001	0.0001	0.0030
Propylene	115071	0.7310	0.5300	0.0155	2.4400
Toluene	108883	0.0366	0.0265	0.0078	0.0580
Xylenes (mixed)	1330207	0.0272	0.0197	0.0058	0.0290

Source: VCAPCD 2001, SJVAPCD 2015

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EPA/CARB Nonroad Diesel Tiered Emissions Standards in g/kW-hr

Rated Power	Engine Tier	Model Year	NMHC	NMHC + NO_X	NO_X	PM	CO
kW			g/kW-hr	g/kW-hr	g/kW-hr	g/kW-hr	g/kW-hr
kW < 8	1	2000-2004	-	10.50	-	1.00	8.00
	2	2005-2007	-	7.50	-	0.80	8.00
	4	2008+	-	7.50	-	0.40	8.00
8 ≤ kW < 19	1	2000-2004	-	9.50	-	0.80	6.60
	2	2005-2007	-	7.50	-	0.80	6.60
	4	2008+	-	7.50	-	0.40	6.60
19 ≤ kW < 37	1	1999-2003	-	9.50	-	0.80	5.50
	2	2004-2007	-	7.50	-	0.60	5.50
	4	2008-2012	-	7.50	-	0.30	5.50
		2013+	-	4.70	-	0.03	5.50
37 ≤ kW < 56	1	1998-2003	-	-	9.20	-	-
	2	2004-2007	-	7.50	-	0.40	5.00
	3[f]	2008-2011	-	4.70	-	0.40	5.00
	4 (Option 1)[g]	2008-2012	-	4.70	-	0.30	5.00
	4 (Option 2)[g]	2012	-	4.70	-	0.03	5.00
	4	2013+	-	4.70	-	0.03	5.00
56 ≤ kW < 75	1	1998-2003	-	-	9.20	-	-
	2	2004-2007	-	7.50	-	0.40	5.00
	3	2008-2011	-	4.70	-	0.40	5.00
	4	2012-2013[h]	-	4.70	-	0.02	5.00
		2014+[i]	0.19	-	0.40	0.02	5.00
75 ≤ kW < 130	1	1997-2002	-	-	9.20	-	-
	2	2003-2006	-	6.60	-	0.30	5.00
	3	2007-2011	-	4.00	-	0.30	5.00
	4	2012-2013[h]	-	4.00	-	0.02	5.00
		2014+	0.19	-	0.40	0.02	5.00
130 ≤ kW < 225	1	1996-2002	1.30	-	9.20	0.54	11.40
	2	2003-2005	-	6.60	-	0.20	3.50
	3	2006-2010	-	4.00	-	0.20	3.50
	4	2011-2013[h]	-	4.00	-	0.02	3.50
		2014+[i]	0.19	-	0.40	0.02	3.50
225 ≤ kW < 450	1	1996-2000	1.30	-	9.20	0.54	11.40
	2	2001-2005	-	6.40	-	0.20	3.50
	3	2006-2010	-	4.00	-	0.20	3.50
	4	2011-2013[h]	-	4.00	-	0.02	3.50
		2014+[i]	0.19	-	0.40	0.02	3.50
450 ≤ kW < 560	1	1996-2001	1.30	-	9.20	0.54	11.40
	2	2002-2005	-	6.40	-	0.20	3.50
	3	2006-2010	-	4.00	-	0.20	3.50
	4	2011-2013[h]	-	4.00	-	0.02	3.50
		2014+[i]	0.19	-	0.40	0.02	3.50
560 ≤ kW < 900	1	2000-2005	1.30	-	9.20	0.54	11.40
	2	2006-2010	-	6.40	-	0.20	3.50
	4	2011-2014	0.40	-	3.50	0.10	3.50
		2015+[i]	0.19	-	3.50	0.04	3.50
		Gensets	0.19	-	0.67	0.03	3.50
kW > 900	1	2000-2005	1.30	-	9.20	0.54	11.40
	2	2006-2010	-	6.40	-	0.20	3.50
	4	2011-2014	0.40	-	3.50	0.10	3.50
		2015+[i]	0.19	-	3.50	0.04	3.50
		Gensets	0.19	-	0.67	0.03	3.50

Source: http://www.epa.gov/otaq/standards/nonroad/nonroadci.htm

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EPA/CARB Nonroad Diesel Tiered Emissions Standards in g/BHP-hr

Rated Power BHP	Engine Tier	Model Year	NMHC g/BHP-hr	NMHC + NO_X g/BHP-hr	NO_X g/BHP-hr	PM g/BHP-hr	CO g/BHP-hr
BHP < 11	1	2000-2004	-	7.83	-	0.75	5.97
	2	2005-2007	-	5.59	-	0.60	5.97
	4	2008+	-	5.59	-	0.30	5.97
11 ≤ BHP < 25	1	2000-2004	-	7.08	-	0.60	4.92
	2	2005-2007	-	5.59	-	0.60	4.92
	4	2008+	-	5.59	-	0.30	4.92
25 ≤ BHP < 50	1	1999-2003	-	7.08	-	0.60	4.10
	2	2004-2007	-	5.59	-	0.45	4.10
	4	2008-2012	-	5.59	-	0.22	4.10
		2013+	-	3.50	-	0.02	4.10
50 ≤ BHP < 75	1	1998-2003	-	-	6.86	-	-
	2	2004-2007	-	5.59	-	0.30	3.73
	3[f]	2008-2011	-	3.50	-	0.30	3.73
	4 (Option 1)[g]	2008-2012	-	3.50	-	0.22	3.73
	4 (Option 2)[g]	2012	-	3.50	-	0.02	3.73
	4	2013+	-	3.50	-	0.02	3.73
75 ≤ BHP < 100	1	1998-2003	-	-	6.86	-	-
	2	2004-2007	-	5.59	-	0.30	3.73
	3	2008-2011	-	3.50	-	0.30	3.73
	4	2012-2013[h]	-	3.50	-	0.01	3.73
		2014+[i]	0.14	-	0.30	0.01	3.73
100 ≤ BHP < 175	1	1997-2002	-	-	6.86	-	-
	2	2003-2006	-	4.92	-	0.22	3.73
	3	2007-2011	-	2.98	-	0.22	3.73
	4	2012-2013[h]	-	2.98	-	0.01	3.73
		2014+	0.14	-	0.30	0.01	3.73
175 ≤ BHP < 300	1	1996-2002	0.97	-	6.86	0.40	8.50
	2	2003-2005	-	4.92	-	0.15	2.61
	3	2006-2010	-	2.98	-	0.15	2.61
	4	2011-2013[h]	-	2.98	-	0.01	2.61
		2014+[i]	0.14	-	0.30	0.01	2.61
300 ≤ BHP < 600	1	1996-2000	0.97	-	6.86	0.40	8.50
	2	2001-2005	-	4.77	-	0.15	2.61
	3	2006-2010	-	2.98	-	0.15	2.61
	4	2011-2013[h]	-	2.98	-	0.01	2.61
		2014+[i]	0.14	-	0.30	0.01	2.61
600 ≤ BHP < 750	1	1996-2001	0.97	-	6.86	0.40	8.50
	2	2002-2005	-	4.77	-	0.15	2.61
	3	2006-2010	-	2.98	-	0.15	2.61
	4	2011-2013[h]	-	2.98	-	0.01	2.61
		2014+[i]	0.14	-	0.30	0.01	2.61
750 ≤ BHP < 1200	1	2000-2005	0.97	-	6.86	0.40	8.50
	2	2006-2010	-	4.77	-	0.15	2.61
	4	2011-2014	0.30	-	2.61	0.07	2.61
		2015+[i]	0.14	-	2.61	0.03	2.61
		Gensets	0.14	-	0.50	0.02	2.61
BHP > 1200	1	2000-2005	0.97	-	6.86	0.40	8.50
	2	2006-2010	-	4.77	-	0.15	2.61
	4	2011-2014	0.30	-	2.61	0.07	2.61
		2015+[i]	0.14	-	2.61	0.03	2.61
		Gensets	0.14	-	0.50	0.02	2.61

Source: http://www.epa.gov/otaq/standards/nonroad/nonroadci.htm

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EPA/CARB Nonroad Diesel Tiered Emissions Standards in lb/BHP-hr

Rated Power BHP	Engine Tier	Model Year	NMHC lb/BHP-hr	NMHC + NO_X lb/BHP-hr	NO_X lb/BHP-hr	PM lb/BHP-hr	CO lb/BHP-hr
BHP < 11	1	2000-2004	-	1.73E-02	-	1.64E-03	1.32E-02
	2	2005-2007	-	1.23E-02	-	1.32E-03	1.32E-02
	4	2008+	-	1.23E-02	-	6.58E-04	1.32E-02
11 ≤ BHP < 25	1	2000-2004	-	1.56E-02	-	1.32E-03	1.09E-02
	2	2005-2007	-	1.23E-02	-	1.32E-03	1.09E-02
	4	2008+	-	1.23E-02	-	6.58E-04	1.09E-02
25 ≤ BHP < 50	1	1999-2003	-	1.56E-02	-	1.32E-03	9.04E-03
	2	2004-2007	-	1.23E-02	-	9.86E-04	9.04E-03
	4	2008-2012	-	1.23E-02	-	4.93E-04	9.04E-03
		2013+	-	7.73E-03	-	4.90E-05	9.04E-03
50 ≤ BHP < 75	1	1998-2003	-	-	1.51E-02	-	-
	2	2004-2007	-	1.23E-02	-	6.58E-04	8.22E-03
	3[f]	2008-2011	-	7.73E-03	-	6.58E-04	8.22E-03
	4 (Option 1)[g]	2008-2012	-	7.73E-03	-	4.93E-04	8.22E-03
	4 (Option 2)[g]	2012	-	7.73E-03	-	4.90E-05	8.22E-03
	4	2013+	-	7.73E-03	-	4.90E-05	8.22E-03
75 ≤ BHP < 100	1	1998-2003	-	-	1.51E-02	-	-
	2	2004-2007	-	1.23E-02	-	6.58E-04	8.22E-03
	3	2008-2011	-	7.73E-03	-	6.58E-04	8.22E-03
	4	2012-2013[h]	-	7.73E-03	-	3.30E-05	8.22E-03
		2014+[i]	3.12E-04	-	6.58E-04	3.30E-05	8.22E-03
100 ≤ BHP < 175	1	1997-2002	-	-	1.51E-02	-	-
	2	2003-2006	-	1.09E-02	-	4.93E-04	8.22E-03
	3	2007-2011	-	6.58E-03	-	4.93E-04	8.22E-03
	4	2012-2013[h]	-	6.58E-03	-	3.30E-05	8.22E-03
		2014+	3.12E-04	-	6.58E-04	3.30E-05	8.22E-03
175 ≤ BHP < 300	1	1996-2002	2.14E-03	-	1.51E-02	8.88E-04	1.87E-02
	2	2003-2005	-	1.09E-02	-	3.29E-04	5.75E-03
	3	2006-2010	-	6.58E-03	-	3.29E-04	5.75E-03
	4	2011-2013[h]	-	6.58E-03	-	3.30E-05	5.75E-03
		2014+[i]	3.12E-04	-	6.58E-04	3.30E-05	5.75E-03
300 ≤ BHP < 600	1	1996-2000	2.14E-03	-	1.51E-02	8.88E-04	1.87E-02
	2	2001-2005	-	1.05E-02	-	3.29E-04	5.75E-03
	3	2006-2010	-	6.58E-03	-	3.29E-04	5.75E-03
	4	2011-2013[h]	-	6.58E-03	-	3.30E-05	5.75E-03
		2014+[i]	3.12E-04	-	6.58E-04	3.30E-05	5.75E-03
600 ≤ BHP < 750	1	1996-2001	2.14E-03	-	1.51E-02	8.88E-04	1.87E-02
	2	2002-2005	-	1.05E-02	-	3.29E-04	5.75E-03
	3	2006-2010	-	6.58E-03	-	3.29E-04	5.75E-03
	4	2011-2013[h]	-	6.58E-03	-	3.30E-05	5.75E-03
		2014+[i]	3.12E-04	-	6.58E-04	3.30E-05	5.75E-03
750 ≤ BHP < 1200	1	2000-2005	2.14E-03	-	1.51E-02	8.88E-04	1.87E-02
	2	2006-2010	-	1.05E-02	-	3.29E-04	5.75E-03
	4	2011-2014	6.58E-04	-	5.75E-03	1.64E-04	5.75E-03
		2015+[i]	3.12E-04	-	5.75E-03	6.60E-05	5.75E-03
		Gensets	3.12E-04	-	1.10E-03	4.90E-05	5.75E-03
BHP > 1200	1	2000-2005	2.14E-03	-	1.51E-02	8.88E-04	1.87E-02
	2	2006-2010	-	1.05E-02	-	3.29E-04	5.75E-03
	4	2011-2014	6.58E-04	-	5.75E-03	1.64E-04	5.75E-03
		2015+[i]	3.12E-04	-	5.75E-03	6.60E-05	5.75E-03
		Gensets	3.12E-04	-	1.10E-03	4.90E-05	5.75E-03

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HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
67641	[D] Acetone [Deleted/Obsolete Emittent ID]	[D] Acetone
1073	[D] Cyanide compounds [Deleted/Obsolete Emittent ID]	[D] Cyanide cmp
13909096	1-(2-Chloroethyl)-3-(4-methylcyclohexyl)-1-nitrosourea {Methyl CCNU}	1(2ClEt)MeCCNU
13010474	1-(2-Chloroethyl)-3-cyclohexyl-1-nitrosourea {CCNU}	1(2ClEt)CCNU
811972	1,1,1,2-Tetrafluoroethane {HFC-134a}	TetraFluorEthan
79345	1,1,2,2-Tetrachloroethane	TetraClEthane
79005	1,1,2-Trichloroethane	1,1,2TriClEthan
75343	1,1-Dichloroethane	1,1-DiClEthane
75376	1,1-Difluoroethane {Freon 152a}	DiFluoroEthane
57147	1,1-Dimethylhydrazine	1,1-DiMeHydrzn
39001020	1,2,3,4,6,7,8,9-Octachlorodibenzofuran	1-8OctaCDF
3268879	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	1-8OctaCDD
67562394	1,2,3,4,6,7,8-Heptachlorodibenzofuran	1-4,6-8HpCDF
35822469	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	1-4,6-8HpCDD
55673897	1,2,3,4,7,8,9-Heptachlorodibenzofuran	1-4,7-9HpCDF
70648269	1,2,3,4,7,8-Hexachlorodibenzofuran	1-4,7,8HxCDF
39227286	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	1-4,7,8HxCDD
57117449	1,2,3,6,7,8-Hexachlorodibenzofuran	1-3,6-8HxCDF
57653857	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	1-3,6-8HxCDD
72918219	1,2,3,7,8,9-Hexachlorodibenzofuran	1-3,7-9HxCDF
19408743	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	1-3,7-9HxCDD
57117416	1,2,3,7,8-Pentachlorodibenzofuran	1-3,7,8PeCDF
40321764	1,2,3,7,8-Pentachlorodibenzo-p-dioxin	1-3,7,8PeCDD
96184	1,2,3-Trichloropropane	1,2,3TriClPropn
120821	1,2,4-Trichlorobenzene	1,2,4TriClBenz
95636	1,2,4-Trimethylbenzene	1,2,4TriMeBenze
96128	1,2-Dibromo-3-chloropropane	DBCP

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Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
95501	1,2-Dichlorobenzene	1,2-DiClBenzene
540590	1,2-Dichloroethylene	1,2-DiClEthylen
78875	1,2-Dichloropropane	1,2-DiClPropane
1615801	1,2-Diethylhydrazine	1,2-DiEthHydraz
540738	1,2-Dimethylhydrazine	1,2-DiMeHydrazi
122667	1,2-Diphenylhydrazine {Hydrazobenzene}	1,2-DiPhenyHydr
106887	1,2-Epoxybutane	1,2-EpoxyButane
106990	1,3-Butadiene	1,3-Butadiene
541731	1,3-Dichlorobenzene	1,3-DiClBenzene
542756	1,3-Dichloropropene	1,3-DiClPropene
1120714	1,3-Propane sultone	1,3-PropSultone
55981	1,4-Butanediol dimethanesulfonate	ButanDiol MeSul
764410	1,4-Dichloro-2-butene	1,4-DiCl2Butene
123911	1,4-Dioxane	1,4-Dioxane
42397648	1,6-Dinitropyrene	1,6-DiNPyrene
42397659	1,8-Dinitropyrene	1,8-DiNPyrene
555840	1-[(5-Nitrofurfurylidene)amino]-2-imidazolidinone	1(5NiFur)Idinon
82280	1-Amino-2-methylanthraquinone	1-AminMeAnthrqn
134327	1-Naphthylamine	1-NaphthylAmine
5522430	1-Nitropyrene	1-Nitropyrene
3570750	2-(2-Formylhydrazino)-4-(5-nitro-2-furyl)thiazole	2(2FormHyd)Thia
540841	2,2,4-Trimethylpentane	2,2,4TriMePentn
39635319	2,3,3',4,4',5,5'-Heptachlorobiphenyl {PCB 189}	PCB 189
38380084	2,3,3',4,4',5-Hexachlorobiphenyl {PCB 156}	PCB 156
69782907	2,3,3',4,4',5'-Hexachlorobiphenyl {PCB 157}	PCB 157
32598144	2,3,3',4,4'-Pentachlorobiphenyl {PCB 105}	PCB 105
52663726	2,3',4,4',5,5'-Hexachlorobiphenyl {PCB 167}	PCB 167

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31508006	2,3',4,4',5-Pentachlorobiphenyl	PCB 118
74472370	2,3,4,4',5-Pentachlorobiphenyl {PCB 114}	PCB 114
65510443	2,3',4,4',5'-Pentachlorobiphenyl {PCB 123}	PCB 123
60851345	2,3,4,6,7,8-Hexachlorodibenzofuran	2-4,6-8HxCDF
58902	2,3,4,6-Tetrachlorophenol	2,3,4,6TetrClPh
57117314	2,3,4,7,8-Pentachlorodibenzofuran	2-4,7,8PeCDF
51207319	2,3,7,8-Tetrachlorodibenzofuran	2,3,7,8-TCDF
1746016	2,3,7,8-Tetrachlorodibenzo-p-dioxin	2,3,7,8-TCDD
96139	2,3-Dibromo-1-propanol	2,3DiBr1Propnol
78886	2,3-Dichloropropene	2,3-DiClPropene
95954	2,4,5-Trichlorophenol	2,4,5TriClPhenl
88062	2,4,6-Trichlorophenol	2,4,6TriClPhenl
615054	2,4-Diaminoanisole	2,4-DiAminAniso
39156417	2,4-Diaminoanisole sulfate	2,4-DiAmAnisSul
95807	2,4-Diaminotoluene	2,4-DiAminTolue
120832	2,4-Dichlorophenol	2,4-DiClPhenol
105679	2,4-Dimethylphenol {2,4-Xylenol}	2,4-DiMePhenol
51285	2,4-Dinitrophenol	2,4-DiNPhenol
121142	2,4-Dinitrotoluene	2,4-DiNitToluen
606202	2,6-Dinitrotoluene	2,6-DiNitToluen
87627	2,6-Xylidene	2,6-Xylidene
53963	2-Acetylaminofluorene	2-AcetylAmFluor
68006837	2-Amino-3-methyl-9H-pyrido(2,3-b) indole {MeA-alpha-C}	MeA-alpha-C
712685	2-Amino-5-(5-nitro-2-furyl)-1,3,4-thiadiazole	2-Amin(NiFur)Th
117793	2-Aminoanthraquinone	2-Aminoanthrqn
532274	2-Chloroacetophenone	2-ClAcetPhenone
95578	2-Chlorophenol	2-Chlorophenol

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HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
91576	2-Methyl naphthalene	2MeNaphthalene
129157	2-Methyl-1-nitroanthraquinone (uncertain purity)	2-MeNitAnthrqn
75558	2-Methylaziridine {1,2-Propyleneimine}	2-MeAziridine
75865	2-Methyllactonitrile {Acetone cyanohydrin}	2MeLacotnitrile
109068	2-Methylpyridine	2MethylPyridine
91598	2-Naphthylamine	2-NaphthylAmine
607578	2-Nitrofluorene	2-Nitrofluorene
88755	2-Nitrophenol	2-NitroPhenol
79469	2-Nitropropane	2-Nitropropane
90437	2-Phenylphenol	2-Phenylphenol
60153493	3-(N-Nitrosomethylamino)propionitrile	3(N-NitMeAm)Prp
32774166	3,3',4,4',5,5'-Hexachlorobiphenyl {PCB 169}	PCB 169
57465288	3,3',4,4',5-Pentachlorobiphenyl {PCB 126}	PCB 126
32598133	3,3',4,4'-Tetrachlorobiphenyl {PCB 77}	PCB 77
28434868	3,3'-Dichloro-4,4'-diaminodiphenyl ether	3,3'DiClDAmPhEt
91941	3,3'-Dichlorobenzidine	3,3'DiClBenzidn
119904	3,3'-Dimethoxybenzidine	3,3'DMethoxBnz
20325400	3,3'-Dimethoxybenzidine dihydrochloride	3,3'DiMeBenziHC
119937	3,3'-Dimethylbenzidine {o-Tolidine}	3,3'DiMeBenzidn
70362504	3,4,4',5-Tetrachlorobiphenyl {PCB 81}	PCB 81
6109973	3-Amino-9-ethylcarbazole hydrochloride	3-Amino9ECarbz
563473	3-Chloro-2-methylpropene	3-Cl-2MePropene
56495	3-Methylcholanthrene	3-MeCholanthren
64091914	4-(N-Nitrosomethylamino)-1-(3-pyridyl)-1-butanone {NNK}	4(N-NiMeAm)Buta
101804	4,4'-Diaminodiphenyl ether	4,4DiAminPhEthr
80057	4,4'-Isopropylidenediphenol	4,4'IsoprDiPhen
101611	4,4'-Methylene bis (N,N-dimethyl) benzenamine	4,4'MeBisBenzAm

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HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
838880	4,4'-Methylene bis(2-methylaniline)	4,4'MeBis2MeAni
101779	4,4'-Methylenedianiline (and its dichloride)	4,4'-MeDianilin
139651	4,4'-Thiodianiline	4,4'Thiodianili
534521	4,6-Dinitro-o-cresol (and salts)	4,6-DiNiCresol
101144	4-4-Methylene bis(2-chloroaniline) {MOCA}	MOCA: 4,4'MeBis
92671	4-Aminobiphenyl	4-Aminobiphenyl
95830	4-Chloro-o-phenylenediamine	4-ClPhenDiamine
60117	4-Dimethylaminoazobenzene	4-DiMeAmAzoBnz
92933	4-Nitrobiphenyl	4-Nitrobiphenyl
100027	4-Nitrophenol	4-Nitrophenol
57835924	4-Nitropyrene	4-Nitropyrene
106876	4-Vinyl-1-cyclohexene diepoxide	4VinylCyclHxEpx
100403	4-Vinylcyclohexene	4VinylCyclohexe
139913	5-(Morpholinomethyl)-3-[(5-nitrofurfurylidene)amino]-2-oxazolidinone	5-MorphMeNiFur
484208	5-Methoxypsoralen	5-MethoxPsoral
3697243	5-Methylchrysene	5-MeChrysene
602879	5-Nitroacenaphthene	5-NitroaceNapht
99592	5-Nitro-o-anisidine	5-Nitr-o-Anisid
7496028	6-Nitrochrysene	6-Nitrochrysene
57976	7,12-Dimethylbenz[a]anthracene	7,12-DB[a]anthr
194592	7H-Dibenzo[c,g]carbazole	7H-D[c,g]carb
26148685	A-alpha-C {2-Amino-9H-pyrido[2,3-b]indole}	A-alpha-C
83329	Acenaphthene	Acenaphthene
208968	Acenaphthylene	Acenaphthylene
75070	Acetaldehyde	Acetaldehyde
60355	Acetamide	Acetamide
34256821	Acetochlor	Acetochlor

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HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
546883	Acetohydroxamic acid	AcetohydrxAcid
75058	Acetonitrile	Acetonitrile
98862	Acetophenone	Acetophenone
62476599	Acifluorfen	Acifluorfen
107028	Acrolein	Acrolein
79061	Acrylamide	Acrylamide
79107	Acrylic acid	Acrylic acid
107131	Acrylonitrile	Acrylonitrile
50760	Actinomycin D	Actinomycin D
23214928	Adriamycin	Adriamycin
3688537	AF-2	AF-2
1000	Aflatoxins	Aflatoxins
15972608	Alachlor	Alachlor
309002	Aldrin	Aldrin
302794	all-trans-Retinoic acid	all-transRetinA
107186	Allyl alcohol	Allyl Alcohol
107051	Allyl chloride	AllylChlor
1205	alpha-chlorinated Toluenes	a-Cl-Toluenes
319846	alpha-Hexachlorocyclohexane	alphaHexClCycHx
28981977	Alprazolam	Alprazolam
7429905	Aluminum	Aluminum
1344281	Aluminum oxide (fibrous)	Alumin Oxide
39831555	Amikacin sulfate	AmikacinSulfate
125848	Aminoglutethimide	Aminoglutethimi
54626	Aminopterin	Aminopterin
61825	Amitrole	Amitrole
7664417	Ammonia	NH3

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6484522	Ammonium nitrate	Ammon Nitrate
7783202	Ammonium sulfate	Ammon Sulfate
1005	Analgesic mixtures containing phenacetin	Analgesics/phen
1010	Androgenic (anabolic) steroids	Androgenic ster
62533	Aniline	Aniline
120127	Anthracene	Anthracene
7440360	Antimony	Antimony
1309644	Antimony trioxide	Antim TriOxide
140578	Aramite	Aramite
7440382	Arsenic	Arsenic
1016	Arsenic compounds (inorganic)	As cmpd(inorg)
1017	Arsenic compounds (other than inorganic)	As cmpd(org)
7784421	Arsine	Arsine
1332214	Asbestos	Asbestos
50782	Aspirin	Aspirin
492808	Auramine	Auramine
115026	Azaserine	Azaserine
446866	Azathioprine	Azathioprine
103333	Azobenzene	Azobenzene
7440393	Barium	Barium
10294403	Barium chromate	Barium Chromate
56553	Benz[a]anthracene	B[a]anthracene
98873	Benzal chloride	Benzal chloride
55210	Benzamide	Benzamide
71432	Benzene	Benzene
92875	Benzidine (and its salts)	Benzidine
1020	Benzidine-based dyes	Benzi dyes

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50328	Benzo[a]pyrene	B[a]P
205992	Benzo[b]fluoranthene	B[b]fluoranthen
192972	Benzo[e]pyrene	B[e]pyrene
191242	Benzo[g,h,i]perylene	B[g,h,i]perylen
205823	Benzo[j]fluoranthene	B[j]fluoranthen
207089	Benzo[k]fluoranthene	B[k]fluoranthen
271896	Benzofuran	Benzofuran
98077	Benzoic trichloride	Benzoic TriCl
98884	Benzoyl chloride	Benzoyl Chlorid
94360	Benzoyl peroxide	Benzoyl Peroxid
5411223	Benzphetamine hydrochloride	Benzphetam HCl
100447	Benzyl chloride	Benzyl Chloride
1694093	Benzyl violet 4B	BenzylViolet4B
7440417	Beryllium	Beryllium
3068880	beta-Butyrolactone	beta-Butyrolact
319857	beta-Hexachlorocyclohexane	betaHexClCycHx
57578	beta-Propiolactone	beta-Propiolact
1025	Betel quid with tobacco	Betel quid
92524	Biphenyl	Biphenyl
108601	Bis(2-chloro-1-methylethyl) ether	Bis(2ClMeE)Ethr
111444	Bis(2-chloroethyl) ether {DCEE}	Bis(2ClEth)Ethr
103231	Bis(2-ethylhexyl) adipate	Bis(2EHx)Adipat
542881	Bis(chloromethyl) ether	Bis(ClMe)Ether
154938	Bischloroethyl nitrosourea	BisClEthNitUrea
1030	Bitumens, extracts of steam-refined and air-refined bitumens	Bitumens
1035	Bleomycins	Bleomycins
7726956	Bromine	Bromine

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7789302	Bromine pentafluoride	BrominPentFlrid
75274	Bromodichloromethane	BromoDiClMethan
75252	Bromoform	Bromoform
1689845	Bromoxynil	Bromoxynil
141322	Butyl acrylate	Butyl Acrylate
85687	Butyl benzyl phthalate	ButylBenzPhthal
25013165	Butylated hydroxyanisole {BHA}	BHA
123728	Butyraldehyde	Butyraldehyde
4680788	C. I. Acid Green 3	CI Acid Grn 3
569642	C. I. Basic Green 4	CI BasicGrn 4
989388	C. I. Basic Red 1	CI BasicRed 1
569619	C. I. Basic Red 9 monohydrochloride	CI BasicRed 9
2832408	C. I. Disperse Yellow 3	CI DispYellw3
7440439	Cadmium	Cadmium
13765190	Calcium chromate	CalciumChromate
156627	Calcium cyanamide	CalciumCyanamid
105602	Caprolactam	Caprolactam
2425061	Captafol	Captafol
133062	Captan	Captan
63252	Carbaryl	Carbaryl
1050	Carbon black extracts	CarbonBlackExtr
124389	Carbon dioxide	CO2
75150	Carbon disulfide	CS2
630080	Carbon monoxide	Carbon Monoxide
42101	Carbon Monoxide [Criteria Pollutant]	CO
56235	Carbon tetrachloride	CCl4
75730	Carbon tetrafluoride	Carbon Tetraflu

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463581	Carbonyl sulfide	CarbonylSulfide
41575944	Carboplatin	Carboplatin
1055	Carrageenan (degraded)	Carrageenan
120809	Catechol	Catechol
1056	Ceramic fibers (man-made)	CeramicFibers
474259	Chenodiol	Chenodiol
133904	Chloramben	Chloramben
305033	Chlorambucil	Chlorambucil
56757	Chloramphenicol	Chloramphcl
1620219	Chlorcyclizine hydrochloride	Chlorcycliz HCl
57749	Chlordane	Chlordane
143500	Chlordecone {Kepone}	Chlordecone
6164983	Chlordimeform	Chlordimeform
115286	Chlorendic acid	Chlorendic Acid
76131	Chlorinated Fluorocarbon {CFC-113} {1,1,2-Trichloro-1,2,2-trifluoroethane}	CFC-113
108171262	Chlorinated paraffins (average chain length, C12; approx. 60% Cl by weight)	ChlorParaffins
7782505	Chlorine	Chlorine
10049044	Chlorine dioxide	ChlorineDioxide
79118	Chloroacetic acid	Chloroacet Acid
108907	Chlorobenzene	Chlorobenzn
1058	Chlorobenzenes	Chlorobenzns
510156	Chlorobenzilate	Chlorobenzilate
124481	Chlorodibromomethane	ChloroDiBrMetha
75456	Chlorodifluoromethane {Freon 22}	ClDiFluorMethan
67663	Chloroform	Chloroform
107302	Chloromethyl methyl ether (technical grade)	ClMeMethEther
1060	Chlorophenols	Chlorophenols

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Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
1065	Chlorophenoxy herbicides	Cl-phenoxy herb
76062	Chloropicrin	Chloropicrin
126998	Chloroprene	Chloroprene
1897456	Chlorothalonil	Chlorothalonil
7440473	Chromium	Chromium
1333820	Chromium trioxide	ChromiumTriOxid
18540299	Chromium, hexavalent (& compounds)	Cr(VI)
218019	Chrysene	Chrysene
87296	Cinnamyl anthranilate	CinnamylAnthran
15663271	Cisplatin	Cisplatin
6358538	Citrus Red No. 2	Citrus Red 2
50419	Clomiphene citrate	ClomipheneCitra
8007452	Coal tars	Coal tars
7440484	Cobalt	Cobalt
1066	Coke oven emissions	CokeOvnEmis
1068	Conjugated estrogens	ConjugEstrogens
7440508	Copper	Copper
1070	Creosotes	Creosotes
1319773	Cresols (mixtures of) {Cresylic acid}	Cresols
4170303	Crotonaldehyde	Crotonaldehyde
98828	Cumene	Cumene
80159	Cumene hydroperoxide	Cumene HydPerOx
135206	Cupferron	Cupferron
21725462	Cyanazine	Cyanazine
57125	Cyanide compounds (inorganic)	Cyanide cmpds
14901087	Cycasin	Cycasin
110827	Cyclohexane	Cyclohexane

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108930	Cyclohexanol	Cyclohexanol
66819	Cycloheximide	Cycloheximide
50180	Cyclophosphamide	Cyclophosphamid
13121705	Cyhexatin	Cyhexatin
147944	Cytarabine	Cytarabine
3468631	D and C Orange No. 17	D&C Orange 17
81889	D and C Red No. 19	D&C Red 19
2092560	D and C Red No. 8	D&C Red 8
5160021	D and C Red No. 9	D&C Red 9
4342034	Dacarbazine	Dacarbazine
1596845	Daminozide	Daminozide
17230885	Danazol	Danazol
20830813	Daunomycin	Daunomycin
23541506	Daunorubicin hydrochloride	Daunorubic HCl
50293	DDT {1,1,1-Trichloro-2,2-bis(p-chlorophenyl)ethane}	DDT
1163195	Decabromodiphenyl oxide	DecaBrDiPhenOx
117817	Di(2-ethylhexyl) phthalate	Di2-EthHxPhthal
1075	Dialkylnitrosamines	DialkNitrosamin
2303164	Diallate	Diallate
1078	Diaminotoluenes (mixed isomers)	Diaminotoluenes
334883	Diazomethane	Diazomethane
226368	Dibenz[a,h]acridine	D[a,h]acridine
53703	Dibenz[a,h]anthracene	D[a,h]anthracen
224420	Dibenz[a,j]acridine	D[a,j]acridine
192654	Dibenzo[a,e]pyrene	D[a,e]pyrene
189640	Dibenzo[a,h]pyrene	D[a,h]pyrene
189559	Dibenzo[a,i]pyrene	D[a,i]pyrene

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Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
191300	Dibenzo[a,l]pyrene	D[a,l]pyrene
132649	Dibenzofuran	Dibenzofuran
1080	Dibenzofurans (chlorinated) {PCDFs} [Treated as 2378TCDD for HRA]	DiBenFurans(Cl)
84742	Dibutyl phthalate	DiButyl Phthal
25321226	Dichlorobenzenes (mixed isomers)	DiClBenzenes
75718	Dichlorodifluoromethane {Freon 12}	DiClDiFlmethane
72548	Dichlorodiphenyldichloroethane {DDD}	DDD
72559	Dichlorodiphenyldichloroethylene {DDE}	DiClDiPhEthylen
75434	Dichlorofluoromethane {Freon 21}	DiClFluorMethan
94757	Dichlorophenoxyacetic acid, salts and esters {2,4-D}	2,4-D
62737	Dichlorovos {DDVP}	Dichlorovos
115322	Dicofol	Dicofol
60571	Dieldrin	Dieldrin
84173	Dienestrol	Dienestrol
1464535	Diepoxybutane	DiEpoxyButane
9901	Diesel engine exhaust, particulate matter (Diesel PM)	DieselExhPM
9902	Diesel engine exhaust, total organic gas	DieselExhTOG
111422	Diethanolamine	Diethanolamine
84662	Diethyl phthalate	DiethylPhthalat
64675	Diethyl sulfate	DiethylSulfate
111466	Diethylene glycol	DEGlycol
111966	Diethylene glycol dimethyl ether	DEGDME
112345	Diethylene glycol monobutyl ether	DEGBE
111900	Diethylene glycol monoethyl ether	DEGEE
111773	Diethylene glycol monomethyl ether	DEGME
56531	Diethylstilbestrol	DES
101906	Diglycidyl resorcinol ether {DGRE}	DGRE

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Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
94586	Dihydrosafrole	Dihydrosafrole
79447	Dimethyl carbamoyl chloride	DiMeCarbamyCl
68122	Dimethyl formamide	DMF
131113	Dimethyl phthalate	DimethylPhthala
77781	Dimethyl sulfate	DiMeSulfate
513371	Dimethylvinylchloride {DMVC}	DiMeVinylCl
25154545	Dinitrobenzenes (mixtures of)	DinitroBenz(mix
25321146	Dinitrotoluenes (mixed isomers)	DiNitroToluenes
39300453	Dinocap	Dinocap
88857	Dinoseb	Dinoseb
1086	Dioxins, total, w/o individ. isomers reported {PCDDs} [Treat as 2378TCDD for HR	Dioxins-w/o
1085	Dioxins, total, with individ. isomers also reported {PCDDs}	Dioxins-w/
630933	Diphenylhydantoin	DiPhenylHydant
25265718	Dipropylene glycol	DPG
34590948	Dipropylene glycol monomethyl ether	DPGME
1937377	Direct Black 38	DirBlack38
2602462	Direct Blue 6	DirBlue6
16071866	Direct Brown 95 (technical grade)	DirBrown95
2475458	Disperse Blue 1	DisperseBlue1
564250	Doxycycline	Doxycycline
1090	Environmental Tobacco Smoke	ETS
106898	Epichlorohydrin	Epichlorohydrin
1091	Epoxy resins	Epoxy resins
379793	Ergotamine tartrate	ErgotamineTartr
12510428	Erionite	Erionite
50282	Estradiol 17 beta	Estradiol 17bet
1095	Estrogens, non-steroidal	Estrogns,non-st

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Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
1100	Estrogens, steroidal	Estrogens,ster
53167	Estrone	Estrone
57636	Ethinyl estradiol	EthinylEstrdiol
140885	Ethyl acrylate	Ethyl Acrylate
100414	Ethyl benzene	Ethyl Benzene
75003	Ethyl chloride {Chlorethane}	Ethyl Chloride
541413	Ethyl chloroformate	Ethyl ClFormate
62500	Ethyl methanesulfonate	EthMeSulfonate
74851	Ethylene	Ethylene
106934	Ethylene dibromide {EDB}	EDB
107062	Ethylene dichloride {EDC}	EDC
107211	Ethylene glycol	Ethylene Glycol
629141	Ethylene glycol diethyl ether	EGDEE
110714	Ethylene glycol dimethyl ether	EGDME
111762	Ethylene glycol monobutyl ether	EGBE
110805	Ethylene glycol monoethyl ether	EGEE
111159	Ethylene glycol monoethyl ether acetate	EGEEA
109864	Ethylene glycol monomethyl ether	EGME
110496	Ethylene glycol monomethyl ether acetate	EGMEA
2807309	Ethylene glycol monopropyl ether	EGPE
75218	Ethylene oxide	EtO
96457	Ethylene thiourea	EthylenThiourea
151564	Ethyleneimine {Aziridine}	Ethyleneimine
33419420	Etoposide	Etoposide
54350480	Etretinate	Etretinate
2164172	Fluometuron	Fluometuron
206440	Fluoranthene	Fluoranthene

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86737	Fluorene	Fluorene
1101	Fluorides and compounds	Fluorides&cmpds
1103	Fluorocarbons (brominated)	Fluorocarb(Br)
1104	Fluorocarbons (chlorinated)	Fluorocarb(Cl)
51218	Fluorouracil	Fluorouracil
76437	Fluoxymesterone	Fluoxymesterone
13311847	Flutamide	Flutamide
133073	Folpet	Folpet
50000	Formaldehyde	Formaldehyde
110009	Furan	Furan
67458	Furazolidone	Furazolidone
60568050	Furmecyclox	Furmecyclox
9910	Gasoline engine exhaust, particulate matter	GasolExhPM
9911	Gasoline engine exhaust, total organic gas	GasolExhTOG
1110	Gasoline vapors	Gasol vapors
1111	Glasswool (man-made fibers)	Glasswool
67730114	Glu-P-1 {2-Amino-6-methyldipyrido[1,2-a:3',2'-d]imidazole}	Glu-P-1
67730103	Glu-P-2 {2-Aminodipyrido[1,2-a:3',2'-d]imidazole}	Glu-P-2
111308	Glutaraldehyde	Glutaraldhyd
765344	Glycidaldehyde	Glycidaldehyde
556525	Glycidol	Glycidol
1115	Glycol ethers (and their acetates)	Glycol Ethers
126078	Griseofulvin	Griseofulvin
16568028	Gyromitrin	Gyromitrin
23092173	Halazepam	Halazepam
2784943	HC Blue 1	HC Blue 1
76448	Heptachlor	Heptachlor

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1024573	Heptachlor epoxide	HeptachloEpoxid
118741	Hexachlorobenzene	HexaClBenzene
87683	Hexachlorobutadiene	HexaClButadiene
608731	Hexachlorocyclohexanes (mixed or technical grade)	HexClCycHexanes
77474	Hexachlorocyclopentadiene	HexClCycPentadi
67721	Hexachloroethane	HexaClEthane
1335871	Hexachloronaphthalene	HexaClNaphthale
822060	Hexamethylene-1,6-diisocyanate	HexaMeDiisocyan
680319	Hexamethylphosphoramide	HexaMePhosAmide
110543	Hexane	Hexane
302012	Hydrazine	Hydrazine
10034932	Hydrazine sulfate	HydrazineSulfat
7647010	Hydrochloric acid	HCl
74908	Hydrocyanic acid	HCN
10035106	Hydrogen bromide	HydrogBromide
7664393	Hydrogen fluoride	HF
7783075	Hydrogen selenide	HydrogSelenide
7783064	Hydrogen sulfide	H2S
123319	Hydroquinone	Hydroquinone
3778732	Ifosfamide	Ifosfamide
193395	Indeno[1,2,3-cd]pyrene	In[1,2,3-cd]pyr
24267569	Iodine-131	Iodine-131
76180966	IQ {2-Amino-3-methylimidazo[4,5-f]quinoline}	IQ
9004664	Iron dextran complex	Iron Dextran Cm
13463406	Iron pentacarbonyl	IronPentaCrbnyl
78842	Isobutyraldehyde	Isobutyraldehyd
1125	Isocyanates	Isocyanates

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78591	Isophorone	Isophorone
78795	Isoprene, except from vegetative emission sources	Isoprene
67630	Isopropyl alcohol	Isopropyl Alcoh
120581	Isosafrole	Isosafrole
4759482	Isotretinoin	Isotretinoin
77501634	Lactofen	Lactofen
303344	Lasiocarpine	Lasiocarpine
7439921	Lead	Lead
301042	Lead acetate	Lead Acetate
7758976	Lead chromate	Lead Chromate
1128	Lead compounds (inorganic)	Lead cmp(inorg)
1129	Lead compounds (other than inorganic)	Lead cmpd(org)
7446277	Lead phosphate	Lead Phosphate
1335326	Lead subacetate	Lead Subacetate
58899	Lindane {gamma-Hexachlorocyclohexane}	Lindane
554132	Lithium carbonate	LithiumCarbonat
919164	Lithium citrate	LithiumCitrate
846491	Lorazepam	Lorazepam
1131	Lubricant base oils and derived products	LubricntBaseOil
108316	Maleic anhydride	Maleic Anhydrid
8018017	Mancozeb	Mancozeb
12427382	Maneb	Maneb
7439965	Manganese	Manganese
108394	m-Cresol	m-Cresol
99650	m-Dinitrobenzene	m-DinitroBenzen
71589	Medroxyprogesterone acetate	Medroxypro acet
595335	Megestrol acetate	Megestrol Aceta

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Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
148823	Melphalan	Melphalan
9002680	Menotropins	Menotropins
6112761	Mercaptopurine	Mercaptopurine
7487947	Mercuric chloride	Mercuric Cl
7439976	Mercury	Mercury
531760	Merphalan	Merphalan
72333	Mestranol	Mestranol
3963959	Methacycline hydrochloride	Methacyclin HCl
74828	Methane	CH4
67561	Methanol	Methanol
60560	Methimazole	Methimazole
59052	Methotrexate	Methotrexate
15475566	Methotrexate sodium	MethotrexateSod
72435	Methoxychlor	Methoxychlor
96333	Methyl acrylate	Methyl Acrylate
74839	Methyl bromide {Bromomethane}	Methyl Bromide
74873	Methyl chloride {Chloromethane}	Methyl Chloride
71556	Methyl chloroform {1,1,1-Trichloroethane}	1,1,1-TCA
78933	Methyl ethyl ketone {2-Butanone}	MEK
60344	Methyl hydrazine	Methyl Hydrazin
74884	Methyl iodide {Iodomethane}	Methyl Iodide
108101	Methyl isobutyl ketone {Hexone}	MIBK
624839	Methyl isocyanate	Methyl Isocyana
593748	Methyl mercury	Methyl Mercury
80626	Methyl methacrylate	Methyl Methacry
66273	Methyl methanesulfonate	MeMethSulfonate
1634044	Methyl tert-butyl ether	Me t-ButylEther

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590965	Methylazoxymethanol	MeAzoMethnl
592621	Methylazoxymethanol acetate	MeAzoMethnlAcet
74953	Methylene bromide	MethyleneBromid
75092	Methylene chloride {Dichloromethane}	Methylene Chlor
101688	Methylene diphenyl diisocyanate {MDI}	MeDiphenDiisocy
58184	Methyltestosterone	Methyltestoster
56042	Methylthiouracil	MeThioUracil
9006422	Metiram	Metiram
443481	Metronidazole	Metronidazole
90948	Michler's ketone	Michler'sKetone
59467968	Midazolam hydrochloride	Midazolam HCl
1136	Mineral fibers (fine: man-made)	MinrlFibr(fine)
1135	Mineral fibers (other than man-made)	MinrlFibr(othr)
1140	Mineral oils (untreated and mildly treated oils)	Mineral oils
2385855	Mirex	Mirex
62015398	Misoprostol	Misoprostol
50077	Mitomycin C	Mitomycin C
70476823	Mitoxantrone hydrochloride	MitoxantroneHCl
1313275	Molybdenum trioxide	Molybd TriOxide
315220	Monocrotaline	Monocrotaline
505602	Mustard gas	Mustard gas
108383	m-Xylene	m-Xylene
613354	N,N'-Diacetylbenzidine	NN'DiAceBenzdin
121697	N,N-Dimethylaniline	N,N-DiMeAniline
531828	N-[4-(5-Nitro-2-furyl)-2-thiazolyl]acetamide	NNiFurylThiazAc
86220420	Nafarelin acetate	Nafarelin Aceta
3771195	Nafenopin	Nafenopin

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HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
91203	Naphthalene	Naphthalene
71363	n-Butyl alcohol	n-Butyl Alcohol
117840	n-Dioctyl phthalate	n-DiOctylPhthal
1405103	Neomycin sulfate	NeomycinSulfate
56391572	Netilmicin sulfate	NetilmicinSulfa
7440020	Nickel	Nickel
373024	Nickel acetate	Ni Acetate
3333673	Nickel carbonate	Ni Carbonate
13463393	Nickel carbonyl	Ni Carbonyl
12054487	Nickel hydroxide	Ni Hydroxide
1313991	Nickel oxide	Ni Oxide
1146	Nickel refinery dust from the pyrometallurgical process	Ni RefineryDust
12035722	Nickel subsulfide	Ni Subsulfide
1271289	Nickelocene	Nickelocene
54115	Nicotine	Nicotine
61574	Niridazole	Niridazole
7697372	Nitric acid	Nitric Acid
139139	Nitrilotriacetic acid	NitrilTriAc Aci
1148	Nitrilotriacetic acid (salts)	NitrTriA(salts)
18662538	Nitrilotriacetic acid, trisodium salt monohydrate	NitrTriAc,tri-s
98953	Nitrobenzene	Nitrobenzene
1836755	Nitrofen (technical grade)	Nitrofen(tech)
67209	Nitrofurantoin	Nitrofurantoin
59870	Nitrofurazone	Nitrofurazone
10102440	NITROGEN DIOXIDE	NITROGEN DIOXID
51752	Nitrogen mustard	NitrogenMustard
55867	Nitrogen mustard hydrochloride	NitrMustardHCl

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HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
302705	Nitrogen mustard N-oxide	NitrMustardN-Ox
55630	Nitroglycerin	Nitroglycerin
10024972	Nitrous oxide	Nitrogen oxide
70257	N-Methyl-N'-nitro-N-nitrosoguanidine	N-Me-NitrGuanid
924425	N-Methyloacrylamide	N-MethyloAcryla
494031	N-N-Bis(2-chloroethyl)-2-naphthylamine {Chlornaphazine}	NNBisChlNaph
1116547	N-Nitrosodiethanolamine	N-NitrosEthnlAm
55185	N-Nitrosodiethylamine	N-NitrosDEA
62759	N-Nitrosodimethylamine	N-NitrosDMA
924163	N-Nitrosodi-n-butylamine	N-NitrosDBuAmin
621647	N-Nitrosodi-n-propylamine	N-NitrosDPrAmin
86306	N-Nitrosodiphenylamine	N-NitrosDiPhAmi
10595956	N-Nitrosomethylethylamine	N-NitrosMEAmine
4549400	N-Nitrosomethylvinylamine	N-NitrosMeVAmin
59892	N-Nitrosomorpholine	N-NitrosMorphol
759739	N-Nitroso-N-ethylurea	N-NitrosNEtUrea
684935	N-Nitroso-N-methylurea	N-NitrosNMeUrea
615532	N-Nitroso-N-methylurethane	N-NitrosMUretha
16543558	N-Nitrosonornicotine	N-NitrosNornico
100754	N-Nitrosopiperidine	N-NitrosPiperid
930552	N-Nitrosopyrrolidine	N-NitrosPyrroli
13256229	N-Nitrososarcosine	N-NitrosSarcosi
68224	Norethisterone	Norethisterone
6533002	Norgestrel	Norgestrel
97563	o-Aminoazotoluene	o-Aminoazotolue
90040	o-Anisidine	o-Anisidine
134292	o-Anisidine hydrochloride	o-Anisidine HCl

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HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
303479	Ochratoxin A	Ochratoxin A
95487	o-Cresol	o-Cresol
2234131	Octachloronaphthalene	OctaClNaphthal
528290	o-Dinitrobenzene	o-DinitroBenzen
2646175	Oil Orange SS	Oil Orange SS
8014957	Oleum	Oleum
20816120	Osmium tetroxide	OsmiumTetraOxid
95534	o-Toluidine	o-Toluidine
636215	o-Toluidine hydrochloride	o-Toluid HCl
42603	Oxides of Nitrogen	NOX
42401	Oxides of sulfur	SOX
95476	o-Xylene	o-Xylene
434071	Oxymetholone	Oxymetholone
79572	Oxytetracycline	Oxytetracycline
10028156	OZONE	OZONE
1151	PAHs, total, w/o individ. components reported [Treated as B(a)P for HRA]	PAHs-w/o
1150	PAHs, total, with individ. components also reported	PAHs-w/
5216251	p-alpha,alpha,alpha-Tetrachlorotoluene	p-alphaTetClTol
60093	p-Aminoazobenzene	p-Aminoazobenz
794934	Panfuran S	Panfuran S
104949	p-Anisidine	p-Anisidine
115673	Paramethadione	Paramethadione
56382	Parathion	Parathion
11101	Particulate Matter	PM
85101	Particulate Matter 10 Microns or Less	PM10
88101	Particulate Matter 2.5 Microns or Less	PM25
1336363	PCBs {Polychlorinated biphenyls}	PCBs

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Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
106478	p-Chloroaniline	p-Chloroaniline
95692	p-Chloro-o-toluidine	pCl-Toluidine
1059	p-Chloro-o-toluidine (strong acid salts)	pCl-Tolui/salts
120718	p-Cresidine	p-Cresidine
106445	p-Cresol	p-Cresol
106467	p-Dichlorobenzene	p-DiClBenzene
100254	p-Dinitrobenzene	p-DinitroBenzen
52675	Penicillamine	Penicillamine
82688	Pentachloronitrobenzene {Quintobenzene}	PentaClNitrBenz
87865	Pentachlorophenol	PCP
57330	Pentobarbital sodium	PentobarbSodium
79210	Peracetic acid	Peracetic Acid
127184	Perchloroethylene {Tetrachloroethene}	Perc
2795393	Perfluorooctanoic acid {PFOA} (and its salts, esters, and sulfonates)	PFOA
198550	Perylene	Perylene
63989	Phenacemide	Phenacemide
62442	Phenacetin	Phenacetin
85018	Phenanthrene	Phenanthrene
94780	Phenazopyridine hydrochloride	PhenazoPyri HCl
3546109	Phenesterin	Phenesterin
50066	Phenobarbital	Phenobarbital
108952	Phenol	Phenol
59961	Phenoxybenzamine	PhenoxyBenzamin
63923	Phenoxybenzimide hydrochloride	PhenoxBenzamHCl
122601	Phenyl glycidyl ether	PhenylGlycEther
57410	Phenytoin	Phenytoin
75445	Phosgene	Phosgene

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HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
7803512	Phosphine	Phosphine
7664382	Phosphoric acid	Phosphoric Acid
7723140	Phosphorus	Phosphorus
10025873	Phosphorus oxychloride	Phos OxyChlorid
10026138	Phosphorus pentachloride	Phos PentaChlor
1314563	Phosphorus pentoxide	Phos Pentoxide
7719122	Phosphorus trichloride	Phos TriChlorid
85449	Phthalic anhydride	Phthalic Anhydr
88891	Picric acid	Picric Acid
54911	Pipobroman	Pipobroman
18378897	Plicamycin	Plicamycin
156105	p-Nitrosodiphenylamine	p-NitrosDiPhAmn
1155	Polybrominated biphenyls	PBBs
2222	Polybrominated diphenyl ethers {PBDEs}	PBDEs
53973981	Polygeenan	Polygeenan
3564098	Ponceau 3R	Ponceau 3R
3761533	Ponceau MX	Ponceau MX
7758012	Potassium bromate	Potass Bromate
106503	p-Phenylenediamine	p-Phenylenediam
366701	Procarbazine hydrochloride	ProcarbazinHCl
57830	Progesterone	Progesterone
1160	Progestins	Progestins
123386	Propionaldehyde	Propionaldehyde
114261	Propoxur	Propoxur
115071	Propylene	Propylene
107982	Propylene glycol monomethyl ether	PGME
108656	Propylene glycol monomethyl ether acetate	PGMEA

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HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
75569	Propylene oxide	Propylene Oxide
51525	Propylthiouracil	Propylthiouraci
106490	p-Toluidine	p-Toluidine
106423	p-Xylene	p-Xylene
129000	Pyrene	Pyrene
110861	Pyridine	Pyridine
91225	Quinoline	Quinoline
106514	Quinone	Quinone
1165	Radionuclides	Radionuclides
1166	Radon and its decay products	Radon
16113	Reactive Organic Gas	ROG
50555	Reserpine	Reserpine
1167	Retinol/retinyl esters	Retinol/yl estr
36791045	Ribavirin	Ribavirin
1168	Rockwool (man-made fibers)	Rockwool
81072	Saccharin	Saccharin
94597	Safrole	Safrole
78922	sec-Butyl alcohol	sec-Butyl Alcoh
7782492	Selenium	Selenium
7446346	Selenium sulfide	Se Sulfide
1180	Shale oils	Shale oils
1175	Silica, crystalline (respirable)	Silica, Crystln
7440224	Silver	Silver
1181	Slagwool (man-made fibers)	Slagwool
10588019	Sodium dichromate	SodiumDichromat
1310732	Sodium hydroxide	Sodium Hydroxid
132274	Sodium o-phenylphenate	Sodium o-PhPhen

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Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
128449	Sodium saccharin	SodiumSaccharin
1185	Soots	Soots
10048132	Sterigmatocystin	Sterigmatocysti
3810740	Streptomycin sulfate	StreptomySulfat
18883664	Streptozotocin	Streptozotocin
7789062	Strontium chromate	StrontiumChrom
100425	Styrene	Styrene
96093	Styrene oxide	Styrene Oxide
95067	Sulfallate	Sulfallate
9960	SULFATES	SULFATES
7446095	SULFUR DIOXIDE	SULFUR DIOXIDE
2551624	Sulfur hexafluoride	SF6
7446719	Sulfur trioxide	Sulfur trioxide
7664939	Sulfuric acid	Sulfuric Acid
9961	SULFURIC ACID+OLEUM	SULFURIC+OLEUM
1190	Talc containing asbestiform fibers	Talc w/asbest
54965241	Tamoxifen citrate	TamoxifenCitrat
540885	t-Butyl acetate	t-Butyl acetate
846504	Temazepam	Temazepam
100210	Terephthalic acid	Terephthalic Ac
75650	tert-Butyl alcohol	t-Butyl Alcohol
58220	Testosterone and its esters	Testosteron&Est
315377	Testosterone enanthate	TestosteronEnan
25167833	Tetrachlorophenols	Tetrachloroph
961115	Tetrachlorvinphos	Tetrachlorvinph
64755	Tetracycline hydrochloride	TetracyclineHCl
509148	Tetranitromethane	TetraNitroMetha

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Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
50351	Thalidomide	Thalidomide
7440280	Thallium	Thallium
62555	Thioacetamide	Thioacetamide
154427	Thioguanine	Thioguanine
62566	Thiourea	Thiourea
1314201	Thorium dioxide	ThoriumDioxide
7550450	Titanium tetrachloride	Titanm TetraCl
1200	Tobacco products, smokeless	Tobac/smokeless
49842071	Tobramycin sulfate	TobramycinSulfa
108883	Toluene	Toluene
26471625	Toluene diisocyanates	TolueneDiisocyn
584849	Toluene-2,4-diisocyanate	T-2,4-diisocyan
91087	Toluene-2,6-diisocyanate	T-2,6-diisocyan
38998753	Total Heptachlorodibenzofuran	TotalHeptaCDF
37871004	Total Heptachlorodibenzo-p-dioxin	TotalHeptaCDD
55684941	Total Hexachlorodibenzofuran	TotalHexaCDF
34465468	Total Hexachlorodibenzo-p-dioxin	TotalHexaCDD
43101	Total Organic Gases	TOG
30402154	Total Pentachlorodibenzofuran	TotalPentaCDF
36088229	Total Pentachlorodibenzo-p-dioxin	TotalPentaCDD
55722275	Total Tetrachlorodibenzofuran	TotalTetraCDF
41903575	Total Tetrachlorodibenzo-p-dioxin	TotalTetraCDD
8001352	Toxaphene	Toxaphene
55738540	trans-2-[(Dimethylamino)methylimino]-5-[2-(5-nitro-2-furyl)vinyl-1,3,4-oxadiazo	trans-2DiMAmMIm
299752	Treosulfan	Treosulfan
28911015	Triazolam	Triazolam
126738	Tributyl phosphate	TriButylPhospha

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HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
52686	Trichlorfon	Trichlorfon
79016	Trichloroethylene	TCE
75694	Trichlorofluoromethane {Freon 11}	TriClFluorMetha
78400	Triethyl phosphine	TriEthylPhosphn
121448	Triethylamine	Triethylamine
112492	Triethylene glycol dimethyl ether	TEGDME
75467	Trifluoromethane {Freon 23}	TriFluoroMethan
1582098	Trifluralin	Trifluralin
13647353	Trilostane	Trilostane
127480	Trimethadione	Trimethadione
512561	Trimethyl phosphate	TriMethylPhosph
25551137	Trimethylbenzenes	TriMeBenzns
78308	Triorthocresyl phosphate	TriOrthCresPhos
115866	Triphenyl phosphate	TriPhPhosphate
101020	Triphenyl phosphite	TriPhPhosphite
52244	Tris(1-aziridinyl) phosphine sulfide	TrisAzirPhosphS
126727	Tris(2,3-dibromopropyl)phosphate	Tris(DiBrPr)Pho
68768	Tris(aziridinyl)-p-benzoquinone	TrisAzirQuinone
62450060	Trp-P-1 {3-Amino-1,4-dimethyl-5H-pyrido[4,3-b]indole}	Trp-P-1
62450071	Trp-P-2 {3-Amino-1-methyl-5H-pyrido[4,3-b]indole}	Trp-P-2
72571	Trypan blue	Trypan blue
66751	Uracil mustard	Uracil Mustard
51796	Urethane	Urethane
26995915	Urofollitropin	Urofollitropin
99661	Valproate	Valproate
7440622	Vanadium (fume or dust)	Vanadium
1314621	Vanadium pentoxide	Vanad pentoxd

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Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
143679	Vinblastine sulfate	VinblastineSulf
2068782	Vincristine sulfate	VincristineSulf
108054	Vinyl acetate	Vinyl Acetate
593602	Vinyl bromide	Vinyl Bromide
75014	Vinyl chloride	Vinyl Chloride
75025	Vinyl fluoride	VinylFluoride
75354	Vinylidene chloride	Vinylid Chlorid
43104	Volatile Organic Compounds (VOC)	VOC
81812	Warfarin	Warfarin
1206	Wood preservatives (containing arsenic and chromate)	Wood Preserv
1330207	Xylenes (mixed)	Xylenes
7440666	Zinc	Zinc
1314132	Zinc oxide	Zinc Oxide
12122677	Zineb	Zineb

Source: CARB 2015a

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CEQA AQIA & SHRA

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Client Contact:	Jennifer Reed
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Contact Fax:	
Contact E-mail:	Jennifer Reed <jreed@dudek.com>
Mailing Address:	853 Lincoln Way Suite 208 Auburn, CA 95603
Facility Address:	Grapevine Project Kern County, CA
Latitude, North:	34.969908°
Longitude, West:	-118.928752°
Elevation, feet ASL:	1,240
UTM Easting, m:	323922.28 m E
UTM Northing, m:	3871404.97 m N
UTM Zone:	11 S
NAICS Code:	NA
Facility ID:	NA
Author:	Brad Boyes, Eric Chan
Peer Reviewer:	Greg Wolffe
Date:	11/11/2015
Other Notes:	

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Attainment Status - San Joaquin Valley Air Basin

Criteria Pollutants	Averaging Time	State Designation	Federal Designation
Ozone (O_3)	1-hour	Nonattainment/Severe	—
	8-hour	Nonattainment	Nonattainment/Extreme[1]
Nitrogen Dioxide (NO_2)	1-hour	Attainment	Attainment/Unclassified[2]
	Annual	Attainment	Attainment
Sulfur Dioxide (SO_2)	All	Attainment	Attainment/Unclassified[2]
Carbon Monoxide (CO)	All	Attainment/Unclassified[2]	Attainment/Unclassified[2]
Particulates (as PM_{10})	24-hour	Nonattainment	Attainment
	Annual	Nonattainment	—
Particulates (as $PM_{2.5}$)	24-hour	—	Nonattainment
	Annual	Nonattainment	Nonattainment
Lead (Pb)	All	Attainment	Attainment/Unclassified[2]
Sulfates (as SO_4)	24-hour	Attainment	—
Hydrogen Sulfide (H_2S)	1-hour	Unclassified[2]	—
Vinyl Chloride (C_2H_3Cl)	24-hour	Attainment	—
Visibility	8-hour	Unclassified[2]	—

Sources: SJVAPCD 2014a, CARB 2014, EPA 2015a

Notes:

[1] The 0.08 ppmv federal 8-hour ozone standard applied until 2008; 0.075 ppmv thereafter

[2] At the time of designation, if the available data does not support a designation of attainment or nonattainment, the area is designated as unclassified

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Ambient Air Quality Standards

Criteria Pollutants	Averaging Time	California Standards		Federal Standards	
		ppmv	µg/m^3	ppmv	µg/m^3
Ozone (O_3)	1-hour	0.09	177	—	—
	8-hour	0.07	137	0.07	137
Nitrogen Dioxide (NO_2)	1-hour	0.18	338	0.100	188
	Annual	0.03	56	0.053	100
Sulfur Dioxide (SO_2)	1-hour	0.25	655	0.075	196
	3-hour Secondary	—	—	0.50	1,309
	24-hour	0.04	105	0.14	367
	Annual	—	—	0.03	79
Carbon Monoxide (CO)	1-hour	20	22,900	35	40,100
	8-hour	9	10,300	9	10,300
	Lake Tahoe (8-hr)	6	6,900	—	—
Particulates (as PM_{10})	24-hour	—	50	—	150
	Annual	—	20	—	—
Particulates (as $PM_{2.5}$)	24-hour	—	—	—	35
	Annual Primary	—	12	—	12
	Annual Secondary	—	—	—	15
Lead (Pb)	30-day	—	1.5	—	—
	3-month (rolling)	—	—	—	0.15
Sulfates (as SO_4)	24-hour	—	25	—	—
Hydrogen Sulfide (H_2S)	1-hour	0.03	42	—	—
Vinyl Chloride (C_2H_3Cl)	24-hour	0.01	26	—	—
Visibility Reducing Particles	8-hour	Extinction coefficient of 0.23 per km; visibility of 10 miles or more (0.07 to 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70%.		—	—

Source: CARB 2015c

Notes:

ppmv = parts per million by volume

µg/m^3 = micrograms per cubic meter

The 1.5 µg/m^3 federal quarterly lead standard applied until 2008; 0.15 µg/m^3 rolling 3-month average thereafter

For gases, ug/m^3 calculated from ppmv based on molecular weight and standard conditions:

Standard Temperature 25 °C for ambient air monitoring

Standard Molar Volume 24.465 liter/g-mole for ambient air monitoring

The thresholds of significance for Ambient Air Quality are based on the California Ambient Air Quality Standard (CAAQS) and National Ambient Air Quality Standard (NAAQS). A project would be considered to have a significant impact if its emissions are predicted to cause or contribute to a violation of an ambient air quality standard by exceeding any California Ambient Air Quality Standard (CAAQS) / National Ambient Air Quality Standard (NAAQS).

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SJVAPCD Significant Impact Levels

Pollutant	Averaging Period	SILs (µg/m^3)		
		Class I	Class II*	Class III
$PM_{2.5}$	24-hour	**	**	**
	Annual	**	**	**
Fugitive $PM_{2.5}$	24-hour	—	**	—
	Annual	—	**	—
PM_{10}	24-hour	0.2	5	—
	Annual	0.32	1	—
Fugitive PM_{10}	24-hour	—	10.4	—
	Annual	—	2.08	—
CO	1-hour	—	2000	—
	8-hour	—	500	—
NO_2	1-hour	—	7.5	—
	Annual	0.1	1	—
SO_2	1-hour	—	7.8	—
	3-hour	1	25	—
	24-hour	0.2	5	—
	Annual	0.08	1	—

Source: SJVAPCD APR-1925

* Only Class II SILs applicable for District use

** $PM_{2.5}$ SILs vacated by Court Order, use PM_{10} SILs as surrogate $PM_{2.5}$ SILs

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Planning Area 6A Estimated Annual Construction Emissions

Year	ROG (tons/yr)	NO_X (tons/yr)	CO (tons/yr)	SO_X (tons/yr)	PM_{10} (tons/yr)	$PM_{2.5}$ (tons/yr)
Unmitigated						
2016	12.4	34.72	34.19	0.06	10.03	2.63
2017	15.84	39.96	41.63	0.07	10.95	3.04
2018	14.9	29.93	36.15	0.07	10.19	2.55
Maximum Annual Emissions	**15.84**	**39.96**	**41.63**	**0.07**	**10.95**	**3.04**
SJVAPCD Threshold	10	10	100	27	15	15
Threshold Exceeded?	**Yes**	**Yes**	No	No	No	No
Mitigated						
2016	10.72	27.47	33.43	0.06	6.4	1.59
2017	13.98	33.63	41.54	0.07	7.25	1.95
2018	13.76	28.99	37.22	0.07	7.08	1.85
Maximum Annual Emissions	**13.98**	**33.63**	**41.54**	**0.07**	**7.25**	**1.95**
SJVAPCD Threshold	10	10	100	27	15	15
Threshold Exceeded?	**Yes**	**Yes**	No	No	No	No

Source: Dudek 2015, CalEEMod 2013.2.2

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Planning Area 2 Estimated Annual Construction Emissions

Year	ROG (tons/yr)	NO_X (tons/yr)	CO (tons/yr)	SO_X (tons/yr)	PM_{10} (tons/yr)	$PM_{2.5}$ (tons/yr)
Unmitigated						
2019	12.31	23.38	26.46	0.05	13.63	2.57
2020	17.85	28.62	36	0.08	14.91	3.09
2021	17.84	27.62	39	0.09	15.25	3.14
2022	16.56	16.59	28.05	0.06	13.56	2.41
Maximum Annual Emissions	**17.85**	**28.62**	**39**	**0.09**	**15.25**	**3.14**
SJVAPCD Threshold	10	10	100	27	15	15
Threshold Exceeded?	**Yes**	**Yes**	No	No	**Yes**	No
Mitigated						
2019	11.28	23.09	27.39	0.05	8.82	1.78
2020	16.68	30.81	37.72	0.08	10.1	2.31
2021	16.85	33.42	41.36	0.09	10.6	2.52
2022	16.1	23.01	29.87	0.06	9.44	2.02
Maximum Annual Emissions	**16.85**	**33.42**	**41.36**	**0.09**	**10.6**	**2.52**
SJVAPCD Threshold	10	10	100	27	15	15
Threshold Exceeded?	**Yes**	**Yes**	No	No	No	No

Source: Dudek 2015, CalEEMod 2013.2.2

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Planning Area 1 Estimated Annual Construction Emissions

Year	ROG (tons/yr)	NO_X (tons/yr)	CO (tons/yr)	SO_X (tons/yr)	PM_{10} (tons/yr)	$PM_{2.5}$ (tons/yr)
Unmitigated						
2023	12.52	12.7	20.07	0.05	7.77	1.53
2024	17.59	9.16	18.47	0.05	2.72	0.96
Maximum Annual Emissions	**17.59**	**12.7**	**20.07**	**0.05**	**7.77**	**1.53**
SJVAPCD Threshold	10	10	100	27	15	15
Threshold Exceeded?	**Yes**	**Yes**	No	No	No	No
Mitigated						
2023	11.88	11.38	21.9	0.05	5.47	1.3
2024	17.18	9.17	19.65	0.05	2.61	1.01
Maximum Annual Emissions	**17.18**	**11.38**	**21.9**	**0.05**	**5.47**	**1.3**
SJVAPCD Threshold	10	10	100	27	15	15
Threshold Exceeded?	**Yes**	**Yes**	No	No	No	No

Source: Dudek 2015, CalEEMod 2013.2.2

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Planning Area 3 Estimated Annual Construction Emissions

Year	ROG (tons/yr)	NO_X (tons/yr)	CO (tons/yr)	SO_X (tons/yr)	PM_{10} (tons/yr)	$PM_{2.5}$ (tons/yr)
Unmitigated						
2025	11.11	12.42	22.41	0.05	8.09	1.56
2026	14.59	15.41	28.52	0.07	8.91	1.87
2027	14.35	13.26	26.42	0.07	8.38	1.74
Maximum Annual Emissions	**14.59**	**15.41**	**28.52**	**0.07**	**8.91**	**1.87**
SJVAPCD Threshold	10	10	100	27	15	15
Threshold Exceeded?	**Yes**	**Yes**	No	No	No	No
Mitigated						
2025	10.37	11.09	24.77	0.05	5.22	0.92
2026	13.68	14.07	31.31	0.07	5.94	1.13
2027	13.61	12.78	28.56	0.07	5.8	1.12
Maximum Annual Emissions	**13.68**	**14.07**	**31.31**	**0.07**	**5.94**	**1.13**
SJVAPCD Threshold	10	10	100	27	15	15
Threshold Exceeded?	**Yes**	**Yes**	No	No	No	No

Source: Dudek 2015, CalEEMod 2013.2.2

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Planning Area 4 Estimated Annual Construction Emissions

Year	ROG (tons/yr)	NO_X (tons/yr)	CO (tons/yr)	SO_X (tons/yr)	PM_{10} (tons/yr)	$PM_{2.5}$ (tons/yr)
Unmitigated						
2028	7.94	9.34	14.57	0.03	9.36	1.41
2029	13.38	13.49	22.94	0.06	10.55	1.85
2030	13.3	7.47	22.16	0.06	10.02	1.49
2031	12.5	4.35	12.36	0.03	8.77	1.15
Maximum Annual Emissions	**13.38**	**13.49**	**22.94**	**0.06**	**10.55**	**1.85**
SJVAPCD Threshold	10	10	100	27	15	15
Threshold Exceeded?	**Yes**	**Yes**	No	No	No	No
Mitigated						
2028	7.34	8.05	16.61	0.03	5.68	0.76
2029	12.55	12.17	25.6	0.06	6.72	1.06
2030	12.51	12.21	25.28	0.06	6.55	1.01
2031	12.09	6.66	13.79	0.03	5.59	0.75
Maximum Annual Emissions	**12.55**	**12.21**	**25.6**	**0.06**	**6.72**	**1.06**
SJVAPCD Threshold	10	10	100	27	15	15
Threshold Exceeded?	**Yes**	**Yes**	No	No	No	No

Source: Dudek 2015, CalEEMod 2013.2.2

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Planning Area 6B Estimated Annual Construction Emissions

Year	ROG (tons/yr)	NO_X (tons/yr)	CO (tons/yr)	SO_X (tons/yr)	PM_{10} (tons/yr)	$PM_{2.5}$ (tons/yr)
Unmitigated						
2032	0.83	3.02	7.35	0.02	4.23	0.59
2033	0.62	1.82	5.6	0.02	0.59	0.2
2034	0.53	1.38	4.46	0.01	0.54	0.18
Maximum Annual Emissions	**0.83**	**3.02**	**7.35**	**0.02**	**4.23**	**0.59**
SJVAPCD Threshold	10	10	100	27	15	15
Threshold Exceeded?	No	No	No	No	No	No
Mitigated						
2032	0.4	1.21	8.93	0.02	2.64	0.36
2033	0.44	0.94	5.92	0.02	0.55	0.17
2034	0.42	0.85	4.72	0.01	0.52	0.16
Maximum Annual Emissions	**0.44**	**1.21**	**8.93**	**0.02**	**2.64**	**0.36**
SJVAPCD Threshold	10	10	100	27	15	15
Threshold Exceeded?	No	No	No	No	No	No

Source: Dudek 2015, CalEEMod 2013.2.2

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Planning Area 5A Estimated Annual Construction Emissions

Year	ROG (tons/yr)	NO_X (tons/yr)	CO (tons/yr)	SO_X (tons/yr)	PM_{10} (tons/yr)	$PM_{2.5}$ (tons/yr)
Unmitigated						
2032	6.68	4.78	12.72	0.03	7.49	1.01
2033	10.92	6.36	18.41	0.05	8.17	1.23
2034	11.06	7	20.71	0.05	8.36	1.29
2035	10.17	3.02	10.86	0.03	0.89	0.3
Maximum Annual Emissions	**11.06**	**7**	**20.71**	**0.05**	**8.36**	**1.29**
SJVAPCD Threshold	10	10	100	27	15	15
Threshold Exceeded?	**Yes**	No	No	No	No	No
Mitigated						
2032	6.06	2.06	14.73	0.03	5.05	0.67
2033	10.11	2.77	20.83	0.05	5.69	0.86
2034	10.19	3.13	23.32	0.05	5.88	0.92
2035	9.88	1.84	11.6	0.03	0.86	0.27
Maximum Annual Emissions	**10.19**	**3.13**	**23.32**	**0.05**	**5.88**	**0.92**
SJVAPCD Threshold	10	10	100	27	15	15
Threshold Exceeded?	**Yes**	No	No	No	No	No

Source: Dudek 2015, CalEEMod 2013.2.2

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Planning Area 6C Estimated Annual Construction Emissions

Year	ROG (tons/yr)	NO_X (tons/yr)	CO (tons/yr)	SO_X (tons/yr)	PM_{10} (tons/yr)	$PM_{2.5}$ (tons/yr)
Unmitigated						
2033	1.37	2.89	7.52	0.02	2.51	0.38
Maximum Annual Emissions	**1.37**	**2.89**	**7.52**	**0.02**	**2.51**	**0.38**
SJVAPCD Threshold	10	10	100	27	15	15
Threshold Exceeded?	No	No	No	No	No	No
Mitigated						
2033	0.9	0.86	9.06	0.02	1.51	0.2
Maximum Annual Emissions	**0.9**	**0.86**	**9.06**	**0.02**	**1.51**	**0.2**
SJVAPCD Threshold	10	10	100	27	15	15
Threshold Exceeded?	No	No	No	No	No	No

Source: Dudek 2015, CalEEMod 2013.2.2

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Planning Area 6D Estimated Annual Construction Emissions

Year	ROG (tons/yr)	NO_X (tons/yr)	CO (tons/yr)	SO_X (tons/yr)	PM_{10} (tons/yr)	$PM_{2.5}$ (tons/yr)
Unmitigated						
2034	0.94	2.63	5.95	0.02	2.32	0.35
2035	1.15	1.78	6.77	0.02	2.3	0.31
Maximum Annual Emissions	**1.15**	**2.63**	**6.77**	**0.02**	**2.32**	**0.35**
SJVAPCD Threshold	10	10	100	27	15	15
Threshold Exceeded?	No	No	No	No	No	No
Mitigated						
2034	0.5	0.77	7.56	0.02	1.4	0.19
2035	0.82	0.76	8.07	0.02	1.42	0.19
Maximum Annual Emissions	**0.82**	**0.77**	**8.07**	**0.02**	**1.42**	**0.19**
SJVAPCD Threshold	10	10	100	27	15	15
Threshold Exceeded?	No	No	No	No	No	No

Source: Dudek 2015, CalEEMod 2013.2.2

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Planning Area 6E Estimated Annual Construction Emissions

Year	ROG (tons/yr)	NO_X (tons/yr)	CO (tons/yr)	SO_X (tons/yr)	PM_{10} (tons/yr)	$PM_{2.5}$ (tons/yr)
Unmitigated						
2034	1.12	2.63	5.95	0.02	2.32	0.35
2035	1.5	1.78	6.77	0.02	2.3	0.31
Maximum Annual Emissions	**1.5**	**2.63**	**6.77**	**0.02**	**2.32**	**0.35**
SJVAPCD Threshold	10	10	100	27	15	15
Threshold Exceeded?	No	No	No	No	No	No
Mitigated						
2034	0.68	0.77	7.56	0.02	1.4	0.19
2035	1.17	0.76	8.07	0.02	1.42	0.19
Maximum Annual Emissions	**1.17**	**0.77**	**8.07**	**0.02**	**1.42**	**0.19**
SJVAPCD Threshold	10	10	100	27	15	15
Threshold Exceeded?	No	No	No	No	No	No

Source: Dudek 2015, CalEEMod 2013.2.2

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Planning Area 5B Estimated Annual Construction Emissions

Year	ROG (tons/yr)	NO_X (tons/yr)	CO (tons/yr)	SO_X (tons/yr)	PM_{10} (tons/yr)	$PM_{2.5}$ (tons/yr)
Unmitigated						
2035	1.37	2.89	7.52	0.02	2.51	0.38
Maximum Annual Emissions	**1.37**	**2.89**	**7.52**	**0.02**	**2.51**	**0.38**
SJVAPCD Threshold	10	10	100	27	15	15
Threshold Exceeded?	No	No	No	No	No	No
Mitigated						
2035	0.9	0.86	9.06	0.02	1.51	0.2
Maximum Annual Emissions	**0.9**	**0.86**	**9.06**	**0.02**	**1.51**	**0.2**
SJVAPCD Threshold	10	10	100	27	15	15
Threshold Exceeded?	No	No	No	No	No	No

Source: Dudek 2015, CalEEMod 2013.2.2

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Construction Emissions Summary - Site Preparation & Grading Intensives

Planning Area	Mitigated Annual Tons						Construction		Working Time		Site Preparation			Grading		
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$	Start	End	years	days/yr*	acres	days	ac/day	acres	days	ac/day
6A	14.0	33.6	41.5	0.07	7.3	2.0	1/1/2016	12/31/2018	3	250	586	521	1.12	586	630	0.93
2	16.9	33.4	41.4	0.09	10.6	2.5	1/1/2019	12/31/2022	4	250	930	784	1.19	930	891	1.04
1	17.2	11.4	21.9	0.05	5.5	1.3	1/1/2023	12/31/2024	2	250	479	325	1.47	479	260	1.84
3	13.7	14.1	31.3	0.07	5.9	1.1	1/1/2025	12/31/2027	3	249	909	522	1.74	909	629	1.45
4	12.6	12.2	25.6	0.06	6.7	1.1	1/1/2028	12/31/2031	4	250	707	782	0.90	707	890	0.79
6B	0.4	1.2	8.9	0.02	2.6	0.4	1/1/2032	12/31/2034	3	250	322	262	1.23	322	262	1.23
5A	10.2	3.1	23.3	0.05	5.9	0.9	1/1/2032	12/31/2035	4	250	575	782	0.74	575	782	0.74
6C	0.9	0.9	9.1	0.02	1.5	0.2	1/1/2033	12/31/2033	1	249	193	195	0.99	193	195	0.99
6D	0.8	0.8	8.1	0.02	1.4	0.2	1/1/2034	12/31/2035	2	249	179	391	0.46	179	390	0.46
6E	1.2	0.8	8.1	0.02	1.4	0.2	1/1/2034	12/31/2035	2	249	179	391	0.46	179	390	0.46
5B	0.9	0.9	9.1	0.02	1.5	0.2	1/1/2035	12/31/2035	1	249	115	65	1.77	115	86	1.34

Source: Dudek 2015, CalEEMod v2013.2.2

* assumes 11 holidays per year (10 federal + 1 floating) or 6 holidays + 5 inclement weather days per year

Table 4-1a: Mitigated Annual Project Construction Emissions

Planning Area	Mitigated Annual Tons					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
6A	14.0	33.6	41.5	0.07	7.3	2.0
2	16.9	33.4	41.4	0.09	10.6	2.5
1	17.2	11.4	21.9	0.05	5.5	1.3
3	13.7	14.1	31.3	0.07	5.9	1.1
4	12.6	12.2	25.6	0.06	6.7	1.1
6B	0.4	1.2	8.9	0.02	2.6	0.4
5A	10.2	3.1	23.3	0.05	5.9	0.9
6C	0.9	0.9	9.1	0.02	1.5	0.2
6D	0.8	0.8	8.1	0.02	1.4	0.2
6E	1.2	0.8	8.1	0.02	1.4	0.2
5B	0.9	0.9	9.1	0.02	1.5	0.2

Source: Dudek 2015, CalEEMod v2013.2.2

Notes:

PM_{10} and $PM_{2.5}$ are diesel engine exhaust PM and fugitive dust PM combined

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Table 4-1b: Mitigated Average Daily Project Construction Emissions

Planning Area	Mitigated Average Daily Pounds					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
6A	111.8	269.0	332.3	0.6	58.0	15.6
2	134.8	267.4	330.9	0.7	84.8	20.2
1	137.4	91.0	175.2	0.4	43.8	10.4
3	109.9	113.0	251.5	0.6	47.7	9.1
4	100.4	97.7	204.8	0.5	53.8	8.5
6B	3.5	9.7	71.4	0.2	21.1	2.9
5A	81.5	25.0	186.6	0.4	47.0	7.4
6C	7.2	6.9	72.8	0.2	12.1	1.6
6D	6.6	6.2	64.8	0.2	11.4	1.5
6E	9.4	6.2	64.8	0.2	11.4	1.5
5B	7.2	6.9	72.8	0.2	12.1	1.6

Source: Dudek 2015, CalEEMod v2013.2.2

Notes:

PM_{10} and $PM_{2.5}$ are diesel engine exhaust PM and fugitive dust PM combined

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Project Contribution & Significance Thresholds Analysis Worksheet - Construction PA 6A (volume source)

Distance to Maximum Impact	AERMOD/AERSCREEN Maximum Impact X/Q, (ug/m^3)/(g/s)				
	Maximum	Scaled	Scaled	Scaled	Scaled
meters	1-hour	3-hour	8-hour	24-hour	Annual
—	57.7	57.7	51.9	34.6	5.8

Impact Parameter	CAS No.	Hr. Max.	X/Q (above)	NO_X to NO_2	C_{PC}	Scaled Rate
		g/sec	(ug/m^3)/(g/s)	Conversion	ug/m^3	lbs/hr
1-hour CO	630080	6.03E-01	57.70	—	34.82	4.790
8-hour CO	630080	6.03E-01	51.93	—	31.34	4.311
1-hour NO_2	10102440	8.15E-01	57.70	80%	37.64	6.471
Annual NO_2	10102440	8.15E-01	5.77	100%	4.70	0.647
24-hour PM_{10}	85101	3.47E-02	34.62	—	1.20	0.165
Annual PM_{10}	85101	3.47E-02	5.77	—	0.20	0.028
24-hour $PM_{2.5}$	88101	2.26E-02	34.62	—	0.78	0.108
Annual $PM_{2.5}$	88101	2.26E-02	5.77	—	0.13	0.018

Sources: EPA 2015b, EPA 1992, EPA 2011

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Impact Parameter	Applicable Standard	Project Area Maximum Background Concentration		Project Contribution	Cumulative Conc.	AAQS Threshold	Step 1 Significance	Significant Impact Level	Step 2 Significance
		ppmv	ug/m^3	ug/m^3	ug/m^3	ug/m^3		ug/m^3	
1-hour CO[1]	State	2.1	2,403	34.82	2,438	22,900	PASS	2000	PASS
	Federal	2.1	2,403	34.82	2,438	40,100	PASS	2000	PASS
8-hour CO	State	1.9	2,175	31.34	2,206	10,300	PASS	500	PASS
	Federal	1.9	2,175	31.34	2,206	10,300	PASS	500	PASS
1-hour NO_2	State	0.051	96	37.64	134	338	PASS	7.5	Step 1
	Federal	0.052	98	37.64	135	188	PASS	7.5	Step 1
Annual NO_2	State	0.011	21	4.70	25	56	PASS	1	Step 1
	Federal	0.010	19	4.70	24	100	PASS	1	Step 1
24-hour PM_{10}	State	—	122	1.20	123	50	Step 2	5	PASS
	Federal	—	107	1.20	108	150	PASS	5	PASS
Annual PM_{10}	State	—	42	0.20	42	20	Step 2	1	PASS
24-hour $PM_{2.5}$	Federal	—	91	0.78	92	35	Step 2	5	PASS
Annual $PM_{2.5}$	State	—	16	0.13	16	12	Step 2	1	PASS
	Federal	—	17	0.13	17	12	Step 2	1	PASS

Sources: CARB 2015b, CARB 2015c, EPA 2015b, EPA 1992, EPA 2011, SJVAPCD APR-1925

[1] Annualized 1-hour CO summary data not available; scaled from available 8-hour summary data

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Table 5-1: Estimated Criteria Emissions for Modeling Input - Scaled Rates

Impact Parameter	PA 6A
	lbs/hr
1-hour CO	4.79
8-hour CO	4.31
1-hour NO_2	6.47
Annual NO_2	0.65
24-hour PM_{10}	0.17
Annual PM_{10}	0.03
24-hour $PM_{2.5}$	0.11
Annual $PM_{2.5}$	0.02

Source: Dudek 2015, CalEEMod v2013.2.2

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Table 5-3: Air Quality Impact Assessment Results Summary - Step 1 AAQS Basis

Impact Parameter	S/F AAQS	Construction PA 6A	
	µg/m^3	µg/m^3	Status
1-hour CO	22,900	2,438	PASS
	40,100	2,438	PASS
8-hour CO	10,300	2,206	PASS
	10,300	2,206	PASS
1-hour NO_2	338	134	PASS
	188	135	PASS
Annual NO_2	56	25	PASS
	100	24	PASS
24-hour PM_{10}	50	123	Step 2
	150	108	PASS
Annual PM_{10}	20	42	Step 2
24-hour $PM_{2.5}$	35	92	Step 2
Annual $PM_{2.5}$	12	16	Step 2
	12	17	Step 2

Sources: CARB 2015b, CARB 2015c, EPA 2015b, EPA 1992, EPA 2011, SJVAPCD APR-1925

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Table 5-4: Air Quality Impact Assessment Results Summary - Step 2 SIL Basis

Impact Parameter	Class II SILs	Construction PA 6A	
	µg/m^3	µg/m^3	Status
1-hour CO	2000	34.82	PASS
8-hour CO	500	31.34	PASS
1-hour NO_2	7.5	37.64	Step 1
Annual NO_2	1	4.70	Step 1
24-hour PM_{10}	5	1.20	PASS
Annual PM_{10}	1	0.20	PASS
24-hour $PM_{2.5}$	5	0.78	PASS
Annual $PM_{2.5}$	1	0.13	PASS

Sources: CARB 2015b, CARB 2015c, EPA 2015b, EPA 1992, EPA 2011, SJVAPCD APR-1925

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Tier 1 Screening Health Risk Assessment - Construction PA 6A (volume source)

Time and Age Weighted Toxic Air Contaminants Risks	AERMOD/HARP2 Screening Results			
	Risk	Per million	Threshold	Significance
3-year Residential MICR - Multipathway	9.7E-06	9.7	20	PASS
Residential HIC	0.06	—	1	PASS
Residential HIA	0.00	—	1	PASS

Table 5-7: Tier 1 Screening Health Risk Assessment Results Summary

Mobile Sources	Annual TACs (scaled lbs/hr)	3-year Residential MICR (MP)	Residential HIC	Residential HIA
Construction PA 6A	0.003	9.7	0.06	0.00
		PASS	PASS	PASS

Sources: SJVAPCD 2013-15, SJVAPCD APR-1906, CARB 2015a, EPA 1992, EPA 2011

Notes:

MICR - Maximum Individual Cancer Risk

HIC - Chronic Hazard Index

HIA - Acute Hazard Index

Construction equipment TAC expressed as DPM

Tier 1 Screen:

OEHHA derived method (default)

3-year activity exposure (resident)

Multipathway (MP): inhalation, soil ingestion, dermal, mother's milk, homegrown produce

Controlled deposition rate: 0.02 m/s

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Criteria & DPM Emissions for PA 6A Construction (volume source, elev. 360 m ASL)

Release Parameters	References/Remarks	Value	Units
Site area	PA 6A	586	acres
Fraction worked in a phase	3 years duration	33%	percent
Site active area		8508720	sf area
Volume side length, L	sqrt(area)	889.3	m
Distance from center to edge	L/2	444.7	m
Volume height, H	c. 50 feet	15.0	m
Initial lateral dimension, y	EPA Table 4-6	206.82	m
Initial vertical dimension, z	EPA Table 4-6	6.98	m

Criteria Pollutants & DPM/DTOG	CAS No.	EF (lb/hr)	MHU (lb/hr)	MHC (lb/hr)	AA/MAC (lb/hr)	An. Avg. (g/sec)	Hr. Max. (g/sec)
CO	630080	—	—	4.79	0.99	1.25E-01	6.03E-01
NO_x	10102440	—	—	6.47	1.35	1.71E-01	8.15E-01
Total PM_{10}	85101	—	—	0.28	0.05	6.81E-03	3.47E-02
Total $PM_{2.5}$	88101	—	—	0.18	0.04	4.65E-03	2.26E-02
VOC	43104	—	—	0.23	0.05	6.07E-03	2.93E-02
SO_x	7446095	—	—	0.01	0.00	2.13E-04	1.02E-03
Diesel Particulate Matter (DPM)	9901	—	—	0.17	0.03	4.39E-03	2.11E-02
Diesel Total Organic Gas (DTOG)	9902	—	—	0.26	0.05	6.67E-03	3.22E-02

Source: Dudek 2015, CalEEMod v2013.2.2

Notes:

Assumes DPM = PM10; DTOG = VOC/0.91 (AP-42 Ch. 3.4)

GAMAQI §8.3.5 Construction Emissions: If the initial study does not demonstrate that construction emissions would be less than significant, quantification of construction emissions is recommended. Because mitigation measures differ for mobile source and fugitive dust emissions, the District recommends that construction exhaust emissions and fugitive dust emissions be quantified separately. However, when determining significance of PM emissions, construction exhaust PM and fugitive dust PM is summed. A project would be determined to have a significant, short-term impact on air quality if any criteria pollutant exceeds its respective threshold of significance.

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CalEEMod Estimated Daily Construction Emissions for Proposed Project - Summer/Winter Maxima - PA 6A (Dudek 2015, CalEEMod v2013.2.2)

2016 Site Prep	Activity	ROG	NO_X	CO	SO_2	Fugitive PM_{10}	Exhaust PM_{10}	Total PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$	Total $PM_{2.5}$	Bio CO_2	NBio CO_2	Total CO_2	CH_4	N_2O	CO_2e
Category	days	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
Fugitive Dust	250	0.00	0.00	0.00	0.00	0.47	0.00	0.47	0.05	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	250	0.24	5.25	4.66	0.01	0.00	0.16	0.16	0.00	0.16	0.16	0.00	649.41	649.41	0.20	0.00	653.52
Total	250	0.24	5.25	4.66	0.01	0.47	0.16	0.63	0.05	0.16	0.21	0.00	649.41	649.41	0.20	0.00	653.52

2017 Site Prep	Activity	ROG	NO_X	CO	SO_2	Fugitive PM_{10}	Exhaust PM_{10}	Total PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$	Total $PM_{2.5}$	Bio CO_2	NBio CO_2	Total CO_2	CH_4	N_2O	CO_2e
Category	days	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
Fugitive Dust	250	0.00	0.00	0.00	0.00	0.47	0.00	0.47	0.05	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	250	0.24	5.25	4.66	0.01	0.00	0.16	0.16	0.00	0.16	0.16	0.00	637.60	637.60	0.20	0.00	641.70
Total	250	0.24	5.25	4.66	0.01	0.47	0.16	0.63	0.05	0.16	0.21	0.00	637.60	637.60	0.20	0.00	641.70

2016 Grading	Activity	ROG	NO_X	CO	SO_2	Fugitive PM_{10}	Exhaust PM_{10}	Total PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$	Total $PM_{2.5}$	Bio CO_2	NBio CO_2	Total CO_2	CH_4	N_2O	CO_2e
Category	days	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
Fugitive Dust	250	0.00	0.00	0.00	0.00	0.40	0.00	0.40	0.04	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	250	1.62	46.48	33.63	0.06	0.00	1.18	1.18	0.00	1.18	1.18	0.00	6048.11	6048.11	1.82	0.00	6086.42
Total	250	1.62	46.48	33.63	0.06	0.40	1.18	1.58	0.04	1.18	1.22	0.00	6048.11	6048.11	1.82	0.00	6086.42

2017 Grading	Activity	ROG	NO_X	CO	SO_2	Fugitive PM_{10}	Exhaust PM_{10}	Total PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$	Total $PM_{2.5}$	Bio CO_2	NBio CO_2	Total CO_2	CH_4	N_2O	CO_2e
Category	days	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
Fugitive Dust	210	0.00	0.00	0.00	0.00	0.40	0.00	0.40	0.04	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	210	1.62	46.48	33.63	0.06	0.00	1.18	1.18	0.00	1.18	1.18	0.00	5951.28	5951.28	1.82	0.00	5989.58
Total	210	1.62	46.48	33.63	0.06	0.40	1.18	1.58	0.04	1.18	1.22	0.00	5951.28	5951.28	1.82	0.00	5989.58

2018 Grading	Activity	ROG	NO_X	CO	SO_2	Fugitive PM_{10}	Exhaust PM_{10}	Total PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$	Total $PM_{2.5}$	Bio CO_2	NBio CO_2	Total CO_2	CH_4	N_2O	CO_2e
Category	days	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
Fugitive Dust	210	0.00	0.00	0.00	0.00	0.40	0.00	0.40	0.04	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	210	1.62	46.48	33.63	0.06	0.00	1.18	1.18	0.00	1.18	1.18	0.00	5856.35	5856.35	1.82	0.00	5894.64
Total	210	1.62	46.48	33.63	0.06	0.40	1.18	1.58	0.04	1.18	1.22	0.00	5856.35	5856.35	1.82	0.00	5894.64

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Composite Years	Activity	ROG	NO_X	CO	SO_2	Fugitive PM_{10}	Exhaust PM_{10}	Total PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$	Total $PM_{2.5}$	Bio CO_2	NBio CO_2	Total CO_2	CH_4	N_2O	CO_2e
	days	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
2016	250	1.86	51.72	38.28	0.06	0.86	1.34	2.20	0.09	1.34	1.43	0.00	6697.52	6697.52	2.02	0.00	6739.94
2017	250	1.86	51.72	38.28	0.06	0.86	1.34	2.20	0.09	1.34	1.43	0.00	6588.89	6588.89	2.02	0.00	6631.28
2018	210	1.62	46.48	33.63	0.06	0.40	1.18	1.58	0.04	1.18	1.22	0.00	5856.35	5856.35	1.82	0.00	5894.64

Composite Hourly Rates		ROG	NO_X	CO	SO_2	Fugitive PM_{10}	Exhaust PM_{10}	Total PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$	Total $PM_{2.5}$
Daily Max, lbs/day	—	1.86	51.72	38.28	0.06	0.86	1.34	2.20	0.09	1.34	1.43
Daily Max, g/sec	—	2.93E-02	8.15E-01	6.03E-01	1.02E-03	1.36E-02	2.11E-02	3.47E-02	1.48E-03	2.11E-02	2.26E-02

Composite Annual Rates		ROG	NO_X	CO	SO_2	Fugitive PM_{10}	Exhaust PM_{10}	Total PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$	Total $PM_{2.5}$
Annual Avg, lbs/day	—	1.78	49.97	36.73	0.06	0.71	1.29	1.99	0.08	1.29	1.36
Avg Working days/year	—	237	237	237	237	237	237	237	237	237	237
Annual Avg, lbs/day	—	1.16	32.45	23.85	0.04	0.46	0.84	1.30	0.05	0.84	0.89
Annual Avg, g/sec	—	6.07E-03	1.71E-01	1.25E-01	2.13E-04	2.42E-03	4.39E-03	6.81E-03	2.63E-04	4.39E-03	4.65E-03

Peak Construction Emissions for Modeling Input - PA 6A

Criteria Pollutants & DPM/DTOG	Annual Average (lbs/hr)	Hourly Maximum (lbs/hr)	Annual Average (g/sec)	Hourly Maximum (g/sec)
CO	0.99	4.79	1.25E-01	6.03E-01
NO_x	1.35	6.47	1.71E-01	8.15E-01
Fugitive PM_{10}	0.02	0.11	2.42E-03	1.36E-02
Exhaust PM_{10}	0.03	0.17	4.39E-03	2.11E-02
Total PM_{10}	0.05	0.28	6.81E-03	3.47E-02
Fugitive $PM_{2.5}$	0.00	0.01	2.63E-04	1.48E-03
Exhaust $PM_{2.5}$	0.03	0.17	4.39E-03	2.11E-02
Total $PM_{2.5}$	0.04	0.18	4.65E-03	2.26E-02
VOC	0.05	0.23	6.07E-03	2.93E-02
SO_x	0.00	0.01	2.13E-04	1.02E-03
DPM	0.03	0.17	4.39E-03	2.11E-02
DTOG	0.05	0.26	6.67E-03	3.22E-02

Source: Dudek 2015, CalEEMod v2013.2.2

Notes:

Assumes DPM = PM_{10}; DTOG = VOC/0.91 (AP-42 Ch. 3.4)

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CalEEMod Estimated Daily Construction Emissions for Proposed Project - Summer Maxima - PA 6A Totals (Dudek 2015, CalEEMod v2013.2.2)

Year	ROG	NO_X	CO	SO_2	Fugitive PM_{10}	Exhaust PM_{10}	Total PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$	Total $PM_{2.5}$	Bio CO_2	NBio CO_2	Total CO_2	CH_4	N_2O	CO_2e
	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
2016	108.5	253.3	306.5	0.5	49.0	7.1	56.0	7.7	7.0	14.7	0.0	52,055.7	52,055.7	6.8	0.0	52,198.7
2017	108.9	263.6	320.0	0.6	51.7	7.5	59.1	8.4	7.4	15.8	0.0	55,907.1	55,907.1	7.4	0.0	56,063.1
2018	108.7	270.7	322.2	0.6	96.0	7.8	103.9	13.0	7.8	20.7	0.0	57,313.4	57,313.4	7.8	0.0	57,476.6

CalEEMod Estimated Daily Construction Emissions for Proposed Project - Winter Maxima - PA 6A Totals (Dudek 2015, CalEEMod v2013.2.2)

Year	ROG	NO_X	CO	SO_2	Fugitive PM_{10}	Exhaust PM_{10}	Total PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$	Total $PM_{2.5}$	Bio CO_2	NBio CO_2	Total CO_2	CH_4	N_2O	CO_2e
	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
2016	109.4	258.5	350.3	0.5	49.0	7.1	56.1	7.7	7.0	14.7	0.0	50,161.3	50,161.3	6.8	0.0	50,304.4
2017	109.5	268.4	361.6	0.6	51.7	7.5	59.2	8.4	7.4	15.8	0.0	53,721.1	53,721.1	7.4	0.0	53,877.2
2018	109.3	275.2	363.9	0.6	96.0	7.9	103.9	13.0	7.8	20.7	0.0	55,117.5	55,117.5	7.8	0.0	55,280.8

Hourly Rates	ROG	NO_X	CO	SO_2	Fugitive PM_{10}	Exhaust PM_{10}	Total PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$	Total $PM_{2.5}$
Daily Max, lbs/day	109.5	275.2	363.9	0.6	96.0	7.9	103.9	13.0	7.8	20.7
Acres	586	586	586	586	586	586	586	586	586	586
Daily Max, lbs/day/acre	0.187	0.470	0.621	0.001	0.164	0.013	0.177	0.022	0.013	0.035
Ratio of PA 6A over PA 2	133%	165%	167%	142%	104%	153%	107%	112%	152%	128%

Annual Rates	ROG	NO_X	CO	SO_2	Fugitive PM_{10}	Exhaust PM_{10}	Total PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$	Total $PM_{2.5}$
Annual Max, lbs/day	109.1	264.9	337.4	0.6	65.6	7.5	73.0	9.7	7.4	17.1
Working days/year	250	250	250	250	250	250	250	250	250	250
Annual Avg, lbs/day	74.7	181.5	231.1	0.4	44.9	5.1	50.0	6.6	5.0	11.7
Acres	586	586	586	586	586	586	586	586	586	586
Annual Avg, lbs/day/acre	0.127	0.310	0.394	0.001	0.077	0.009	0.085	0.011	0.009	0.020
Ratio of PA 6A over PA 2	135%	174%	176%	149%	113%	160%	117%	118%	159%	133%

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CalEEMod Estimated Daily Construction Emissions for Proposed Project - Summer Maxima - PA 2 Totals (Dudek 2015, CalEEMod v2013.2.2)

Year	ROG	NO_X	CO	SO_2	Fugitive PM_{10}	Exhaust PM_{10}	Total PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$	Total $PM_{2.5}$	Bio CO_2	NBio CO_2	Total CO_2	CH_4	N_2O	CO_2e
	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
2019	126.6	215.9	259.5	0.5	69.6	6.4	76.0	10.1	6.4	16.4	0.0	46639.1	46639.1	6.6	0.0	46778.4
2020	129.8	249.9	307.8	0.7	75.1	7.6	82.7	11.6	7.6	19.1	0.0	55621.7	55621.7	8.0	0.0	55789.0
2021	130.7	262.3	322.7	0.7	76.6	8.2	84.8	11.9	8.1	20.1	0.0	58913.3	58913.3	8.5	0.0	59092.7
2022	128.2	234.7	286.9	0.6	146.0	7.4	153.4	18.5	7.3	25.8	0.0	53588.1	53588.1	7.6	0.0	53748.7

CalEEMod Estimated Daily Construction Emissions for Proposed Project - Winter Maxima - PA 2 Totals (Dudek 2015, CalEEMod v2013.2.2)

Year	ROG	NO_X	CO	SO_2	Fugitive PM_{10}	Exhaust PM_{10}	Total PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$	Total $PM_{2.5}$	Bio CO_2	NBio CO_2	Total CO_2	CH_4	N_2O	CO_2e
	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
2019	126.4	218.7	281.4	0.5	69.6	6.4	76.0	10.1	6.4	16.4	0.0	44509.4	44509.4	6.6	0.0	44648.8
2020	129.4	252.8	329.8	0.6	75.1	7.6	82.7	11.6	7.6	19.1	0.0	52882.9	52882.9	8.0	0.0	53050.2
2021	130.2	265.0	345.5	0.7	76.6	8.2	84.8	11.9	8.1	20.1	0.0	56066.6	56066.6	8.5	0.0	56246.1
2022	127.8	236.9	307.4	0.6	146.0	7.4	153.4	18.5	7.3	25.8	0.0	51037.6	51037.6	7.7	0.0	51198.2

Hourly Rates	ROG	NO_X	CO	SO_2	Fugitive PM_{10}	Exhaust PM_{10}	Total PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$	Total $PM_{2.5}$
Daily Max, lbs/day	130.7	265.0	345.5	0.7	146.0	8.2	153.4	18.5	8.1	25.8
Acres	930	930	930	930	930	930	930	930	930	930
Daily Max, lbs/day/acre	0.141	0.285	0.372	0.001	0.157	0.009	0.165	0.020	0.009	0.028

Annual Rates	ROG	NO_X	CO	SO_2	Fugitive PM_{10}	Exhaust PM_{10}	Total PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$	Total $PM_{2.5}$
Annual Max, lbs/day	128.6	242.0	305.1	0.6	91.8	7.4	99.2	13.0	7.3	20.4
Working days/year	250	250	250	250	250	250	250	250	250	250
Annual Avg, lbs/day	88.1	165.8	209.0	0.4	62.9	5.1	68.0	8.9	5.0	13.9
Acres	930	930	930	930	930	930	930	930	930	930
Annual Avg, lbs/day/acre	0.095	0.178	0.225	0.000	0.068	0.005	0.073	0.010	0.005	0.015

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Grapevine Project Construction Impacts Data

Construction Planning Area	Source Characteristics	Distance to Maximum	X Coordinates	Y Coordinates	AERMOD Maximum Impact X/Q, (ug/m^3)/(g/s)				
					Maximum	Scaled	Scaled	Scaled	Scaled
		meters	meters	meters	1-hour	3-hour	8-hour	24-hour	Annual
Construction - Planning Area 6A	Volume source	-	324140.4	3871525.4	57.702	57.702	51.932	34.621	5.770

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HARP2 Tier 2 Screening Health Risk Assessment Ground Level Concentrations Tool

Toxics Air Contaminants	CAS No.	Emission Rates		AERMOD/AERSCREEN Results for Receptors				Calculated GLCs for HARP2			
		An. Avg.	Hr. Max.	Resident X/Q		Worker X/Q		Resident X ug/m^3		Worker X ug/m^3	
		g/sec	g/sec	Annual	Hourly	Annual	Hourly	Annual	Hourly	Annual	Hourly
Construction PA 6A											
Diesel Particulate Matter (DPM)	9901	4.39E-03	2.11E-02	5.770	**57.7**	5.770	**57.7**	2.53E-02	1.22E+00	2.53E-02	1.22E+00
Diesel Total Organic Gas (DTOG)	9902	6.67E-03	3.22E-02	5.770	57.7	5.770	57.7	3.85E-02	1.86E+00	3.85E-02	1.86E+00

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HARP2 CSV Import Format Tool: projectname_GLCList.csv (copy & paste as values indexed rows & save to .csv file with no headers)

Index	Group1	Group2	POLID/CAS	Pollutant Name	Ave Conc	Max Hr Conc for Acute	Pasture	Fish	Water
User comments:	this field is optional (blank), see user's guide	this field is optional (blank), see user's guide	CAS no. is the lookup reference ID in HARP2 (not AQMD IDs)	HARP2 names differ from names on other lists, e.g., 1401, AB 2588 (see HARP2 TAC list)	annual maximum concentration (permitted PTE)	hourly maximum concentration (equipment rating)	for the mandatory minimum multipathway analysis these pathway receptors are set to zeros in the format (pathways not used)		
Construction PA 6A	**(optional)**	**(optional)**	**(CAS No.)**	**(HARP2 Name)**	**max_{ann} ug/m^3**	**max_{hr} ug/m^3**	**ug/m^3**	**ug/m^3**	**ug/m^3**
1			9901	DieselExhPM	2.53E-02	1.22E+00	0	0	0
2			9902	DieselExhTOG	3.85E-02	1.86E+00	0	0	0

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HARP2 CSV Import Format Tool: projectname_GLCList.csv (copy & paste as values indexed rows & save to .csv file with no headers)

Index	Group1	Group2	POLID/CAS	Pollutant Name	Ave Conc	Max Hr Conc for Acute	Pasture	Fish	Water
User comments:	this field is optional (blank), see user's guide	this field is optional (blank), see user's guide	CAS no. is the lookup reference ID in HARP2 (not AQMD IDs)	HARP2 names differ from names on other lists, e.g., 1401, AB 2588 (see HARP2 TAC list)	annual maximum concentration (permitted PTE)	hourly maximum concentration (equipment rating)	for the mandatory minimum multipathway analysis these pathway receptors are set to zeros in the format (pathways not used)		
Construction PA 6A	**(optional)**	**(optional)**	**(CAS No.)**	**(HARP2 Name)**	**max_{ann} ug/m^3**	**max_{hr} ug/m^3**	**ug/m^3**	**ug/m^3**	**ug/m^3**
1			9901	DieselExhPM	2.53E-02	1.22E+00	0	0	0
2			9902	DieselExhTOG	3.85E-02	1.86E+00	0	0	0

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HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
67641	[D] Acetone [Deleted/Obsolete Emittent ID]	[D] Acetone
1073	[D] Cyanide compounds [Deleted/Obsolete Emittent ID]	[D] Cyanide cmp
13909096	1-(2-Chloroethyl)-3-(4-methylcyclohexyl)-1-nitrosourea {Methyl CCNU}	1(2ClEt)MeCCNU
13010474	1-(2-Chloroethyl)-3-cyclohexyl-1-nitrosourea {CCNU}	1(2ClEt)CCNU
811972	1,1,1,2-Tetrafluoroethane {HFC-134a}	TetraFluorEthan
79345	1,1,2,2-Tetrachloroethane	TetraClEthane
79005	1,1,2-Trichloroethane	1,1,2TriClEthan
75343	1,1-Dichloroethane	1,1-DiClEthane
75376	1,1-Difluoroethane {Freon 152a}	DiFluoroEthane
57147	1,1-Dimethylhydrazine	1,1-DiMeHydrzn
39001020	1,2,3,4,6,7,8,9-Octachlorodibenzofuran	1-8OctaCDF
3268879	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	1-8OctaCDD
67562394	1,2,3,4,6,7,8-Heptachlorodibenzofuran	1-4,6-8HpCDF
35822469	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	1-4,6-8HpCDD
55673897	1,2,3,4,7,8,9-Heptachlorodibenzofuran	1-4,7-9HpCDF
70648269	1,2,3,4,7,8-Hexachlorodibenzofuran	1-4,7,8HxCDF
39227286	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	1-4,7,8HxCDD
57117449	1,2,3,6,7,8-Hexachlorodibenzofuran	1-3,6-8HxCDF
57653857	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	1-3,6-8HxCDD
72918219	1,2,3,7,8,9-Hexachlorodibenzofuran	1-3,7-9HxCDF
19408743	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	1-3,7-9HxCDD
57117416	1,2,3,7,8-Pentachlorodibenzofuran	1-3,7,8PeCDF
40321764	1,2,3,7,8-Pentachlorodibenzo-p-dioxin	1-3,7,8PeCDD
96184	1,2,3-Trichloropropane	1,2,3TriClPropn
120821	1,2,4-Trichlorobenzene	1,2,4TriClBenz
95636	1,2,4-Trimethylbenzene	1,2,4TriMeBenze
96128	1,2-Dibromo-3-chloropropane	DBCP

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95501	1,2-Dichlorobenzene	1,2-DiClBenzene
540590	1,2-Dichloroethylene	1,2-DiClEthylen
78875	1,2-Dichloropropane	1,2-DiClPropane
1615801	1,2-Diethylhydrazine	1,2-DiEthHydraz
540738	1,2-Dimethylhydrazine	1,2-DiMeHydrazi
122667	1,2-Diphenylhydrazine {Hydrazobenzene}	1,2-DiPhenyHydr
106887	1,2-Epoxybutane	1,2-EpoxyButane
106990	1,3-Butadiene	1,3-Butadiene
541731	1,3-Dichlorobenzene	1,3-DiClBenzene
542756	1,3-Dichloropropene	1,3-DiClPropene
1120714	1,3-Propane sultone	1,3-PropSultone
55981	1,4-Butanediol dimethanesulfonate	ButanDiol MeSul
764410	1,4-Dichloro-2-butene	1,4-DiCl2Butene
123911	1,4-Dioxane	1,4-Dioxane
42397648	1,6-Dinitropyrene	1,6-DiNPyrene
42397659	1,8-Dinitropyrene	1,8-DiNPyrene
555840	1-[(5-Nitrofurfurylidene)amino]-2-imidazolidinone	1(5NiFur)Idinon
82280	1-Amino-2-methylanthraquinone	1-AminMeAnthrqn
134327	1-Naphthylamine	1-NaphthylAmine
5522430	1-Nitropyrene	1-Nitropyrene
3570750	2-(2-Formylhydrazino)-4-(5-nitro-2-furyl)thiazole	2(2FormHyd)Thia
540841	2,2,4-Trimethylpentane	2,2,4TriMePentn
39635319	2,3,3',4,4',5,5'-Heptachlorobiphenyl {PCB 189}	PCB 189
38380084	2,3,3',4,4',5-Hexachlorobiphenyl {PCB 156}	PCB 156
69782907	2,3,3',4,4',5'-Hexachlorobiphenyl {PCB 157}	PCB 157
32598144	2,3,3',4,4'-Pentachlorobiphenyl {PCB 105}	PCB 105
52663726	2,3',4,4',5,5'-Hexachlorobiphenyl {PCB 167}	PCB 167

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31508006	2,3',4,4',5-Pentachlorobiphenyl	PCB 118
74472370	2,3,4,4',5-Pentachlorobiphenyl {PCB 114}	PCB 114
65510443	2,3',4,4',5'-Pentachlorobiphenyl {PCB 123}	PCB 123
60851345	2,3,4,6,7,8-Hexachlorodibenzofuran	2-4,6-8HxCDF
58902	2,3,4,6-Tetrachlorophenol	2,3,4,6TetrClPh
57117314	2,3,4,7,8-Pentachlorodibenzofuran	2-4,7,8PeCDF
51207319	2,3,7,8-Tetrachlorodibenzofuran	2,3,7,8-TCDF
1746016	2,3,7,8-Tetrachlorodibenzo-p-dioxin	2,3,7,8-TCDD
96139	2,3-Dibromo-1-propanol	2,3DiBr1Propnol
78886	2,3-Dichloropropene	2,3-DiClPropene
95954	2,4,5-Trichlorophenol	2,4,5TriClPhenl
88062	2,4,6-Trichlorophenol	2,4,6TriClPhenl
615054	2,4-Diaminoanisole	2,4-DiAminAniso
39156417	2,4-Diaminoanisole sulfate	2,4-DiAmAnisSul
95807	2,4-Diaminotoluene	2,4-DiAminTolue
120832	2,4-Dichlorophenol	2,4-DiClPhenol
105679	2,4-Dimethylphenol {2,4-Xylenol}	2,4-DiMePhenol
51285	2,4-Dinitrophenol	2,4-DiNPhenol
121142	2,4-Dinitrotoluene	2,4-DiNitToluen
606202	2,6-Dinitrotoluene	2,6-DiNitToluen
87627	2,6-Xylidene	2,6-Xylidene
53963	2-Acetylaminofluorene	2-AcetylAmFluor
68006837	2-Amino-3-methyl-9H-pyrido(2,3-b) indole {MeA-alpha-C}	MeA-alpha-C
712685	2-Amino-5-(5-nitro-2-furyl)-1,3,4-thiadiazole	2-Amin(NiFur)Th
117793	2-Aminoanthraquinone	2-Aminoanthrqn
532274	2-Chloroacetophenone	2-ClAcetPhenone
95578	2-Chlorophenol	2-Chlorophenol

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91576	2-Methyl naphthalene	2MeNaphthalene
129157	2-Methyl-1-nitroanthraquinone (uncertain purity)	2-MeNitAnthrqn
75558	2-Methylaziridine {1,2-Propyleneimine}	2-MeAziridine
75865	2-Methyllactonitrile {Acetone cyanohydrin}	2MeLacotnitrile
109068	2-Methylpyridine	2MethylPyridine
91598	2-Naphthylamine	2-NaphthylAmine
607578	2-Nitrofluorene	2-Nitrofluorene
88755	2-Nitrophenol	2-NitroPhenol
79469	2-Nitropropane	2-Nitropropane
90437	2-Phenylphenol	2-Phenylphenol
60153493	3-(N-Nitrosomethylamino)propionitrile	3(N-NitMeAm)Prp
32774166	3,3',4,4',5,5'-Hexachlorobiphenyl {PCB 169}	PCB 169
57465288	3,3',4,4',5-Pentachlorobiphenyl {PCB 126}	PCB 126
32598133	3,3',4,4'-Tetrachlorobiphenyl {PCB 77}	PCB 77
28434868	3,3'-Dichloro-4,4'-diaminodiphenyl ether	3,3'DiClDAmPhEt
91941	3,3'-Dichlorobenzidine	3,3'DiClBenzidn
119904	3,3'-Dimethoxybenzidine	3,3'DMethoxBnz
20325400	3,3'-Dimethoxybenzidine dihydrochloride	3,3'DiMeBenziHC
119937	3,3'-Dimethylbenzidine {o-Tolidine}	3,3'DiMeBenzidn
70362504	3,4,4',5-Tetrachlorobiphenyl {PCB 81}	PCB 81
6109973	3-Amino-9-ethylcarbazole hydrochloride	3-Amino9ECarbz
563473	3-Chloro-2-methylpropene	3-Cl-2MePropene
56495	3-Methylcholanthrene	3-MeCholanthren
64091914	4-(N-Nitrosomethylamino)-1-(3-pyridyl)-1-butanone {NNK}	4(N-NiMeAm)Buta
101804	4,4'-Diaminodiphenyl ether	4,4DiAminPhEthr
80057	4,4'-Isopropylidenediphenol	4,4'IsoprDiPhen
101611	4,4'-Methylene bis (N,N-dimethyl) benzenamine	4,4'MeBisBenzAm

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838880	4,4'-Methylene bis(2-methylaniline)	4,4'MeBis2MeAni
101779	4,4'-Methylenedianiline (and its dichloride)	4,4'-MeDianilin
139651	4,4'-Thiodianiline	4,4'Thiodianili
534521	4,6-Dinitro-o-cresol (and salts)	4,6-DiNiCresol
101144	4-4-Methylene bis(2-chloroaniline) {MOCA}	MOCA: 4,4'MeBis
92671	4-Aminobiphenyl	4-Aminobiphenyl
95830	4-Chloro-o-phenylenediamine	4-ClPhenDiamine
60117	4-Dimethylaminoazobenzene	4-DiMeAmAzoBnz
92933	4-Nitrobiphenyl	4-Nitrobiphenyl
100027	4-Nitrophenol	4-Nitrophenol
57835924	4-Nitropyrene	4-Nitropyrene
106876	4-Vinyl-1-cyclohexene diepoxide	4VinylCyclHxEpx
100403	4-Vinylcyclohexene	4VinylCyclohexe
139913	5-(Morpholinomethyl)-3-[(5-nitrofurfurylidene)amino]-2-oxazolidinone	5-MorphMeNiFur
484208	5-Methoxypsoralen	5-MethoxPsoral
3697243	5-Methylchrysene	5-MeChrysene
602879	5-Nitroacenaphthene	5-NitroaceNapht
99592	5-Nitro-o-anisidine	5-Nitr-o-Anisid
7496028	6-Nitrochrysene	6-Nitrochrysene
57976	7,12-Dimethylbenz[a]anthracene	7,12-DB[a]anthr
194592	7H-Dibenzo[c,g]carbazole	7H-D[c,g]carb
26148685	A-alpha-C {2-Amino-9H-pyrido[2,3-b]indole}	A-alpha-C
83329	Acenaphthene	Acenaphthene
208968	Acenaphthylene	Acenaphthylene
75070	Acetaldehyde	Acetaldehyde
60355	Acetamide	Acetamide
34256821	Acetochlor	Acetochlor

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546883	Acetohydroxamic acid	AcetohydrxAcid
75058	Acetonitrile	Acetonitrile
98862	Acetophenone	Acetophenone
62476599	Acifluorfen	Acifluorfen
107028	Acrolein	Acrolein
79061	Acrylamide	Acrylamide
79107	Acrylic acid	Acrylic acid
107131	Acrylonitrile	Acrylonitrile
50760	Actinomycin D	Actinomycin D
23214928	Adriamycin	Adriamycin
3688537	AF-2	AF-2
1000	Aflatoxins	Aflatoxins
15972608	Alachlor	Alachlor
309002	Aldrin	Aldrin
302794	all-trans-Retinoic acid	all-transRetinA
107186	Allyl alcohol	Allyl Alcohol
107051	Allyl chloride	AllylChlor
1205	alpha-chlorinated Toluenes	a-Cl-Toluenes
319846	alpha-Hexachlorocyclohexane	alphaHexClCycHx
28981977	Alprazolam	Alprazolam
7429905	Aluminum	Aluminum
1344281	Aluminum oxide (fibrous)	Alumin Oxide
39831555	Amikacin sulfate	AmikacinSulfate
125848	Aminoglutethimide	Aminoglutethimi
54626	Aminopterin	Aminopterin
61825	Amitrole	Amitrole
7664417	Ammonia	NH3

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6484522	Ammonium nitrate	Ammon Nitrate
7783202	Ammonium sulfate	Ammon Sulfate
1005	Analgesic mixtures containing phenacetin	Analgesics/phen
1010	Androgenic (anabolic) steroids	Androgenic ster
62533	Aniline	Aniline
120127	Anthracene	Anthracene
7440360	Antimony	Antimony
1309644	Antimony trioxide	Antim TriOxide
140578	Aramite	Aramite
7440382	Arsenic	Arsenic
1016	Arsenic compounds (inorganic)	As cmpd(inorg)
1017	Arsenic compounds (other than inorganic)	As cmpd(org)
7784421	Arsine	Arsine
1332214	Asbestos	Asbestos
50782	Aspirin	Aspirin
492808	Auramine	Auramine
115026	Azaserine	Azaserine
446866	Azathioprine	Azathioprine
103333	Azobenzene	Azobenzene
7440393	Barium	Barium
10294403	Barium chromate	Barium Chromate
56553	Benz[a]anthracene	B[a]anthracene
98873	Benzal chloride	Benzal chloride
55210	Benzamide	Benzamide
71432	Benzene	Benzene
92875	Benzidine (and its salts)	Benzidine
1020	Benzidine-based dyes	Benzi dyes

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50328	Benzo[a]pyrene	B[a]P
205992	Benzo[b]fluoranthene	B[b]fluoranthen
192972	Benzo[e]pyrene	B[e]pyrene
191242	Benzo[g,h,i]perylene	B[g,h,i]perylen
205823	Benzo[j]fluoranthene	B[j]fluoranthen
207089	Benzo[k]fluoranthene	B[k]fluoranthen
271896	Benzofuran	Benzofuran
98077	Benzoic trichloride	Benzoic TriCl
98884	Benzoyl chloride	Benzoyl Chlorid
94360	Benzoyl peroxide	Benzoyl Peroxid
5411223	Benzphetamine hydrochloride	Benzphetam HCl
100447	Benzyl chloride	Benzyl Chloride
1694093	Benzyl violet 4B	BenzylViolet4B
7440417	Beryllium	Beryllium
3068880	beta-Butyrolactone	beta-Butyrolact
319857	beta-Hexachlorocyclohexane	betaHexClCycHx
57578	beta-Propiolactone	beta-Propiolact
1025	Betel quid with tobacco	Betel quid
92524	Biphenyl	Biphenyl
108601	Bis(2-chloro-1-methylethyl) ether	Bis(2ClMeE)Ethr
111444	Bis(2-chloroethyl) ether {DCEE}	Bis(2ClEth)Ethr
103231	Bis(2-ethylhexyl) adipate	Bis(2EHx)Adipat
542881	Bis(chloromethyl) ether	Bis(ClMe)Ether
154938	Bischloroethyl nitrosourea	BisClEthNitUrea
1030	Bitumens, extracts of steam-refined and air-refined bitumens	Bitumens
1035	Bleomycins	Bleomycins
7726956	Bromine	Bromine

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7789302	Bromine pentafluoride	BrominPentFlrid
75274	Bromodichloromethane	BromoDiClMethan
75252	Bromoform	Bromoform
1689845	Bromoxynil	Bromoxynil
141322	Butyl acrylate	Butyl Acrylate
85687	Butyl benzyl phthalate	ButylBenzPhthal
25013165	Butylated hydroxyanisole {BHA}	BHA
123728	Butyraldehyde	Butyraldehyde
4680788	C. I. Acid Green 3	CI Acid Grn 3
569642	C. I. Basic Green 4	CI BasicGrn 4
989388	C. I. Basic Red 1	CI BasicRed 1
569619	C. I. Basic Red 9 monohydrochloride	CI BasicRed 9
2832408	C. I. Disperse Yellow 3	CI DispYellw3
7440439	Cadmium	Cadmium
13765190	Calcium chromate	CalciumChromate
156627	Calcium cyanamide	CalciumCyanamid
105602	Caprolactam	Caprolactam
2425061	Captafol	Captafol
133062	Captan	Captan
63252	Carbaryl	Carbaryl
1050	Carbon black extracts	CarbonBlackExtr
124389	Carbon dioxide	CO2
75150	Carbon disulfide	CS2
630080	Carbon monoxide	Carbon Monoxide
42101	Carbon Monoxide [Criteria Pollutant]	CO
56235	Carbon tetrachloride	CCl4
75730	Carbon tetrafluoride	Carbon Tetraflu

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463581	Carbonyl sulfide	CarbonylSulfide
41575944	Carboplatin	Carboplatin
1055	Carrageenan (degraded)	Carrageenan
120809	Catechol	Catechol
1056	Ceramic fibers (man-made)	CeramicFibers
474259	Chenodiol	Chenodiol
133904	Chloramben	Chloramben
305033	Chlorambucil	Chlorambucil
56757	Chloramphenicol	Chloramphcl
1620219	Chlorcyclizine hydrochloride	Chlorcycliz HCl
57749	Chlordane	Chlordane
143500	Chlordecone {Kepone}	Chlordecone
6164983	Chlordimeform	Chlordimeform
115286	Chlorendic acid	Chlorendic Acid
76131	Chlorinated Fluorocarbon {CFC-113} {1,1,2-Trichloro-1,2,2-trifluoroethane}	CFC-113
108171262	Chlorinated paraffins (average chain length, C12; approx. 60% Cl by weight)	ChlorParaffins
7782505	Chlorine	Chlorine
10049044	Chlorine dioxide	ChlorineDioxide
79118	Chloroacetic acid	Chloroacet Acid
108907	Chlorobenzene	Chlorobenzn
1058	Chlorobenzenes	Chlorobenzns
510156	Chlorobenzilate	Chlorobenzilate
124481	Chlorodibromomethane	ChloroDiBrMetha
75456	Chlorodifluoromethane {Freon 22}	ClDiFluorMethan
67663	Chloroform	Chloroform
107302	Chloromethyl methyl ether (technical grade)	ClMeMethEther
1060	Chlorophenols	Chlorophenols

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1065	Chlorophenoxy herbicides	Cl-phenoxy herb
76062	Chloropicrin	Chloropicrin
126998	Chloroprene	Chloroprene
1897456	Chlorothalonil	Chlorothalonil
7440473	Chromium	Chromium
1333820	Chromium trioxide	ChromiumTriOxid
18540299	Chromium, hexavalent (& compounds)	Cr(VI)
218019	Chrysene	Chrysene
87296	Cinnamyl anthranilate	CinnamylAnthran
15663271	Cisplatin	Cisplatin
6358538	Citrus Red No. 2	Citrus Red 2
50419	Clomiphene citrate	ClomipheneCitra
8007452	Coal tars	Coal tars
7440484	Cobalt	Cobalt
1066	Coke oven emissions	CokeOvnEmis
1068	Conjugated estrogens	ConjugEstrogens
7440508	Copper	Copper
1070	Creosotes	Creosotes
1319773	Cresols (mixtures of) {Cresylic acid}	Cresols
4170303	Crotonaldehyde	Crotonaldehyde
98828	Cumene	Cumene
80159	Cumene hydroperoxide	Cumene HydPerOx
135206	Cupferron	Cupferron
21725462	Cyanazine	Cyanazine
57125	Cyanide compounds (inorganic)	Cyanide cmpds
14901087	Cycasin	Cycasin
110827	Cyclohexane	Cyclohexane

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108930	Cyclohexanol	Cyclohexanol
66819	Cycloheximide	Cycloheximide
50180	Cyclophosphamide	Cyclophosphamid
13121705	Cyhexatin	Cyhexatin
147944	Cytarabine	Cytarabine
3468631	D and C Orange No. 17	D&C Orange 17
81889	D and C Red No. 19	D&C Red 19
2092560	D and C Red No. 8	D&C Red 8
5160021	D and C Red No. 9	D&C Red 9
4342034	Dacarbazine	Dacarbazine
1596845	Daminozide	Daminozide
17230885	Danazol	Danazol
20830813	Daunomycin	Daunomycin
23541506	Daunorubicin hydrochloride	Daunorubic HCl
50293	DDT {1,1,1-Trichloro-2,2-bis(p-chlorophenyl)ethane}	DDT
1163195	Decabromodiphenyl oxide	DecaBrDiPhenOx
117817	Di(2-ethylhexyl) phthalate	Di2-EthHxPhthal
1075	Dialkylnitrosamines	DialkNitrosamin
2303164	Diallate	Diallate
1078	Diaminotoluenes (mixed isomers)	Diaminotoluenes
334883	Diazomethane	Diazomethane
226368	Dibenz[a,h]acridine	D[a,h]acridine
53703	Dibenz[a,h]anthracene	D[a,h]anthracen
224420	Dibenz[a,j]acridine	D[a,j]acridine
192654	Dibenzo[a,e]pyrene	D[a,e]pyrene
189640	Dibenzo[a,h]pyrene	D[a,h]pyrene
189559	Dibenzo[a,i]pyrene	D[a,i]pyrene

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191300	Dibenzo[a,l]pyrene	D[a,l]pyrene
132649	Dibenzofuran	Dibenzofuran
1080	Dibenzofurans (chlorinated) {PCDFs} [Treated as 2378TCDD for HRA]	DiBenFurans(Cl)
84742	Dibutyl phthalate	DiButyl Phthal
25321226	Dichlorobenzenes (mixed isomers)	DiClBenzenes
75718	Dichlorodifluoromethane {Freon 12}	DiClDiFlmethane
72548	Dichlorodiphenyldichloroethane {DDD}	DDD
72559	Dichlorodiphenyldichloroethylene {DDE}	DiClDiPhEthylen
75434	Dichlorofluoromethane {Freon 21}	DiClFluorMethan
94757	Dichlorophenoxyacetic acid, salts and esters {2,4-D}	2,4-D
62737	Dichlorovos {DDVP}	Dichlorovos
115322	Dicofol	Dicofol
60571	Dieldrin	Dieldrin
84173	Dienestrol	Dienestrol
1464535	Diepoxybutane	DiEpoxyButane
9901	Diesel engine exhaust, particulate matter (Diesel PM)	DieselExhPM
9902	Diesel engine exhaust, total organic gas	DieselExhTOG
111422	Diethanolamine	Diethanolamine
84662	Diethyl phthalate	DiethylPhthalat
64675	Diethyl sulfate	DiethylSulfate
111466	Diethylene glycol	DEGlycol
111966	Diethylene glycol dimethyl ether	DEGDME
112345	Diethylene glycol monobutyl ether	DEGBE
111900	Diethylene glycol monoethyl ether	DEGEE
111773	Diethylene glycol monomethyl ether	DEGME
56531	Diethylstilbestrol	DES
101906	Diglycidyl resorcinol ether {DGRE}	DGRE

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Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
94586	Dihydrosafrole	Dihydrosafrole
79447	Dimethyl carbamoyl chloride	DiMeCarbamyCl
68122	Dimethyl formamide	DMF
131113	Dimethyl phthalate	DimethylPhthala
77781	Dimethyl sulfate	DiMeSulfate
513371	Dimethylvinylchloride {DMVC}	DiMeVinylCl
25154545	Dinitrobenzenes (mixtures of)	DinitroBenz(mix
25321146	Dinitrotoluenes (mixed isomers)	DiNitroToluenes
39300453	Dinocap	Dinocap
88857	Dinoseb	Dinoseb
1086	Dioxins, total, w/o individ. isomers reported {PCDDs} [Treat as 2378TCDD for HRA	Dioxins-w/o
1085	Dioxins, total, with individ. isomers also reported {PCDDs}	Dioxins-w/
630933	Diphenylhydantoin	DiPhenylHydant
25265718	Dipropylene glycol	DPG
34590948	Dipropylene glycol monomethyl ether	DPGME
1937377	Direct Black 38	DirBlack38
2602462	Direct Blue 6	DirBlue6
16071866	Direct Brown 95 (technical grade)	DirBrown95
2475458	Disperse Blue 1	DisperseBlue1
564250	Doxycycline	Doxycycline
1090	Environmental Tobacco Smoke	ETS
106898	Epichlorohydrin	Epichlorohydrin
1091	Epoxy resins	Epoxy resins
379793	Ergotamine tartrate	ErgotamineTartr
12510428	Erionite	Erionite
50282	Estradiol 17 beta	Estradiol 17bet
1095	Estrogens, non-steroidal	Estrogns,non-st

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Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
1100	Estrogens, steroidal	Estrogens,ster
53167	Estrone	Estrone
57636	Ethinyl estradiol	EthinylEstrdiol
140885	Ethyl acrylate	Ethyl Acrylate
100414	Ethyl benzene	Ethyl Benzene
75003	Ethyl chloride {Chlorethane}	Ethyl Chloride
541413	Ethyl chloroformate	Ethyl ClFormate
62500	Ethyl methanesulfonate	EthMeSulfonate
74851	Ethylene	Ethylene
106934	Ethylene dibromide {EDB}	EDB
107062	Ethylene dichloride {EDC}	EDC
107211	Ethylene glycol	Ethylene Glycol
629141	Ethylene glycol diethyl ether	EGDEE
110714	Ethylene glycol dimethyl ether	EGDME
111762	Ethylene glycol monobutyl ether	EGBE
110805	Ethylene glycol monoethyl ether	EGEE
111159	Ethylene glycol monoethyl ether acetate	EGEEA
109864	Ethylene glycol monomethyl ether	EGME
110496	Ethylene glycol monomethyl ether acetate	EGMEA
2807309	Ethylene glycol monopropyl ether	EGPE
75218	Ethylene oxide	EtO
96457	Ethylene thiourea	EthylenThiourea
151564	Ethyleneimine {Aziridine}	Ethyleneimine
33419420	Etoposide	Etoposide
54350480	Etretinate	Etretinate
2164172	Fluometuron	Fluometuron
206440	Fluoranthene	Fluoranthene

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Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
86737	Fluorene	Fluorene
1101	Fluorides and compounds	Fluorides&cmpds
1103	Fluorocarbons (brominated)	Fluorocarb(Br)
1104	Fluorocarbons (chlorinated)	Fluorocarb(Cl)
51218	Fluorouracil	Fluorouracil
76437	Fluoxymesterone	Fluoxymesterone
13311847	Flutamide	Flutamide
133073	Folpet	Folpet
50000	Formaldehyde	Formaldehyde
110009	Furan	Furan
67458	Furazolidone	Furazolidone
60568050	Furmecyclox	Furmecyclox
9910	Gasoline engine exhaust, particulate matter	GasolExhPM
9911	Gasoline engine exhaust, total organic gas	GasolExhTOG
1110	Gasoline vapors	Gasol vapors
1111	Glasswool (man-made fibers)	Glasswool
67730114	Glu-P-1 {2-Amino-6-methyldipyrido[1,2-a:3',2'-d]imidazole}	Glu-P-1
67730103	Glu-P-2 {2-Aminodipyrido[1,2-a:3',2'-d]imidazole}	Glu-P-2
111308	Glutaraldehyde	Glutaraldhyd
765344	Glycidaldehyde	Glycidaldehyde
556525	Glycidol	Glycidol
1115	Glycol ethers (and their acetates)	Glycol Ethers
126078	Griseofulvin	Griseofulvin
16568028	Gyromitrin	Gyromitrin
23092173	Halazepam	Halazepam
2784943	HC Blue 1	HC Blue 1
76448	Heptachlor	Heptachlor

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Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
1024573	Heptachlor epoxide	HeptachloEpoxid
118741	Hexachlorobenzene	HexaClBenzene
87683	Hexachlorobutadiene	HexaClButadiene
608731	Hexachlorocyclohexanes (mixed or technical grade)	HexClCycHexanes
77474	Hexachlorocyclopentadiene	HexClCycPentadi
67721	Hexachloroethane	HexaClEthane
1335871	Hexachloronaphthalene	HexaClNaphthale
822060	Hexamethylene-1,6-diisocyanate	HexaMeDiisocyan
680319	Hexamethylphosphoramide	HexaMePhosAmide
110543	Hexane	Hexane
302012	Hydrazine	Hydrazine
10034932	Hydrazine sulfate	HydrazineSulfat
7647010	Hydrochloric acid	HCl
74908	Hydrocyanic acid	HCN
10035106	Hydrogen bromide	HydrogBromide
7664393	Hydrogen fluoride	HF
7783075	Hydrogen selenide	HydrogSelenide
7783064	Hydrogen sulfide	H2S
123319	Hydroquinone	Hydroquinone
3778732	Ifosfamide	Ifosfamide
193395	Indeno[1,2,3-cd]pyrene	In[1,2,3-cd]pyr
24267569	Iodine-131	Iodine-131
76180966	IQ {2-Amino-3-methylimidazo[4,5-f]quinoline}	IQ
9004664	Iron dextran complex	Iron Dextran Cm
13463406	Iron pentacarbonyl	IronPentaCrbnyl
78842	Isobutyraldehyde	Isobutyraldehyd
1125	Isocyanates	Isocyanates

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Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
78591	Isophorone	Isophorone
78795	Isoprene, except from vegetative emission sources	Isoprene
67630	Isopropyl alcohol	Isopropyl Alcoh
120581	Isosafrole	Isosafrole
4759482	Isotretinoin	Isotretinoin
77501634	Lactofen	Lactofen
303344	Lasiocarpine	Lasiocarpine
7439921	Lead	Lead
301042	Lead acetate	Lead Acetate
7758976	Lead chromate	Lead Chromate
1128	Lead compounds (inorganic)	Lead cmp(inorg)
1129	Lead compounds (other than inorganic)	Lead cmpd(org)
7446277	Lead phosphate	Lead Phosphate
1335326	Lead subacetate	Lead Subacetate
58899	Lindane {gamma-Hexachlorocyclohexane}	Lindane
554132	Lithium carbonate	LithiumCarbonat
919164	Lithium citrate	LithiumCitrate
846491	Lorazepam	Lorazepam
1131	Lubricant base oils and derived products	LubricntBaseOil
108316	Maleic anhydride	Maleic Anhydrid
8018017	Mancozeb	Mancozeb
12427382	Maneb	Maneb
7439965	Manganese	Manganese
108394	m-Cresol	m-Cresol
99650	m-Dinitrobenzene	m-DinitroBenzen
71589	Medroxyprogesterone acetate	Medroxypro acet
595335	Megestrol acetate	Megestrol Aceta

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Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
148823	Melphalan	Melphalan
9002680	Menotropins	Menotropins
6112761	Mercaptopurine	Mercaptopurine
7487947	Mercuric chloride	Mercuric Cl
7439976	Mercury	Mercury
531760	Merphalan	Merphalan
72333	Mestranol	Mestranol
3963959	Methacycline hydrochloride	Methacyclin HCl
74828	Methane	CH4
67561	Methanol	Methanol
60560	Methimazole	Methimazole
59052	Methotrexate	Methotrexate
15475566	Methotrexate sodium	MethotrexateSod
72435	Methoxychlor	Methoxychlor
96333	Methyl acrylate	Methyl Acrylate
74839	Methyl bromide {Bromomethane}	Methyl Bromide
74873	Methyl chloride {Chloromethane}	Methyl Chloride
71556	Methyl chloroform {1,1,1-Trichloroethane}	1,1,1-TCA
78933	Methyl ethyl ketone {2-Butanone}	MEK
60344	Methyl hydrazine	Methyl Hydrazin
74884	Methyl iodide {Iodomethane}	Methyl Iodide
108101	Methyl isobutyl ketone {Hexone}	MIBK
624839	Methyl isocyanate	Methyl Isocyana
593748	Methyl mercury	Methyl Mercury
80626	Methyl methacrylate	Methyl Methacry
66273	Methyl methanesulfonate	MeMethSulfonate
1634044	Methyl tert-butyl ether	Me t-ButylEther

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Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
590965	Methylazoxymethanol	MeAzoMethnl
592621	Methylazoxymethanol acetate	MeAzoMethnlAcet
74953	Methylene bromide	MethyleneBromid
75092	Methylene chloride {Dichloromethane}	Methylene Chlor
101688	Methylene diphenyl diisocyanate {MDI}	MeDiphenDiisocy
58184	Methyltestosterone	Methyltestoster
56042	Methylthiouracil	MeThioUracil
9006422	Metiram	Metiram
443481	Metronidazole	Metronidazole
90948	Michler's ketone	Michler'sKetone
59467968	Midazolam hydrochloride	Midazolam HCl
1136	Mineral fibers (fine: man-made)	MinrlFibr(fine)
1135	Mineral fibers (other than man-made)	MinrlFibr(othr)
1140	Mineral oils (untreated and mildly treated oils)	Mineral oils
2385855	Mirex	Mirex
62015398	Misoprostol	Misoprostol
50077	Mitomycin C	Mitomycin C
70476823	Mitoxantrone hydrochloride	MitoxantroneHCl
1313275	Molybdenum trioxide	Molybd TriOxide
315220	Monocrotaline	Monocrotaline
505602	Mustard gas	Mustard gas
108383	m-Xylene	m-Xylene
613354	N,N'-Diacetylbenzidine	NN'DiAceBenzdin
121697	N,N-Dimethylaniline	N,N-DiMeAniline
531828	N-[4-(5-Nitro-2-furyl)-2-thiazolyl]acetamide	NNiFurylThiazAc
86220420	Nafarelin acetate	Nafarelin Aceta
3771195	Nafenopin	Nafenopin

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Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
91203	Naphthalene	Naphthalene
71363	n-Butyl alcohol	n-Butyl Alcohol
117840	n-Dioctyl phthalate	n-DiOctylPhthal
1405103	Neomycin sulfate	NeomycinSulfate
56391572	Netilmicin sulfate	NetilmicinSulfa
7440020	Nickel	Nickel
373024	Nickel acetate	Ni Acetate
3333673	Nickel carbonate	Ni Carbonate
13463393	Nickel carbonyl	Ni Carbonyl
12054487	Nickel hydroxide	Ni Hydroxide
1313991	Nickel oxide	Ni Oxide
1146	Nickel refinery dust from the pyrometallurgical process	Ni RefineryDust
12035722	Nickel subsulfide	Ni Subsulfide
1271289	Nickelocene	Nickelocene
54115	Nicotine	Nicotine
61574	Niridazole	Niridazole
7697372	Nitric acid	Nitric Acid
139139	Nitrilotriacetic acid	NitrilTriAc Aci
1148	Nitrilotriacetic acid (salts)	NitrTriA(salts)
18662538	Nitrilotriacetic acid, trisodium salt monohydrate	NitrTriAc,tri-s
98953	Nitrobenzene	Nitrobenzene
1836755	Nitrofen (technical grade)	Nitrofen(tech)
67209	Nitrofurantoin	Nitrofurantoin
59870	Nitrofurazone	Nitrofurazone
10102440	NITROGEN DIOXIDE	NITROGEN DIOXID
51752	Nitrogen mustard	NitrogenMustard
55867	Nitrogen mustard hydrochloride	NitrMustardHCl

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Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
302705	Nitrogen mustard N-oxide	NitrMustardN-Ox
55630	Nitroglycerin	Nitroglycerin
10024972	Nitrous oxide	Nitrogen oxide
70257	N-Methyl-N'-nitro-N-nitrosoguanidine	N-Me-NitrGuanid
924425	N-Methyloacrylamide	N-MethyloAcryla
494031	N-N-Bis(2-chloroethyl)-2-naphthylamine {Chlornaphazine}	NNBisChlNaph
1116547	N-Nitrosodiethanolamine	N-NitrosEthnlAm
55185	N-Nitrosodiethylamine	N-NitrosDEA
62759	N-Nitrosodimethylamine	N-NitrosDMA
924163	N-Nitrosodi-n-butylamine	N-NitrosDBuAmin
621647	N-Nitrosodi-n-propylamine	N-NitrosDPrAmin
86306	N-Nitrosodiphenylamine	N-NitrosDiPhAmi
10595956	N-Nitrosomethylethylamine	N-NitrosMEAmine
4549400	N-Nitrosomethylvinylamine	N-NitrosMeVAmin
59892	N-Nitrosomorpholine	N-NitrosMorphol
759739	N-Nitroso-N-ethylurea	N-NitrosNEtUrea
684935	N-Nitroso-N-methylurea	N-NitrosNMeUrea
615532	N-Nitroso-N-methylurethane	N-NitrosMUretha
16543558	N-Nitrosonornicotine	N-NitrosNornico
100754	N-Nitrosopiperidine	N-NitrosPiperid
930552	N-Nitrosopyrrolidine	N-NitrosPyrroli
13256229	N-Nitrososarcosine	N-NitrosSarcosi
68224	Norethisterone	Norethisterone
6533002	Norgestrel	Norgestrel
97563	o-Aminoazotoluene	o-Aminoazotolue
90040	o-Anisidine	o-Anisidine
134292	o-Anisidine hydrochloride	o-Anisidine HCl

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Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
303479	Ochratoxin A	Ochratoxin A
95487	o-Cresol	o-Cresol
2234131	Octachloronaphthalene	OctaClNaphthal
528290	o-Dinitrobenzene	o-DinitroBenzen
2646175	Oil Orange SS	Oil Orange SS
8014957	Oleum	Oleum
20816120	Osmium tetroxide	OsmiumTetraOxid
95534	o-Toluidine	o-Toluidine
636215	o-Toluidine hydrochloride	o-Toluid HCl
42603	Oxides of Nitrogen	NOX
42401	Oxides of sulfur	SOX
95476	o-Xylene	o-Xylene
434071	Oxymetholone	Oxymetholone
79572	Oxytetracycline	Oxytetracycline
10028156	OZONE	OZONE
1151	PAHs, total, w/o individ. components reported [Treated as B(a)P for HRA]	PAHs-w/o
1150	PAHs, total, with individ. components also reported	PAHs-w/
5216251	p-alpha,alpha,alpha-Tetrachlorotoluene	p-alphaTetClTol
60093	p-Aminoazobenzene	p-Aminoazobenz
794934	Panfuran S	Panfuran S
104949	p-Anisidine	p-Anisidine
115673	Paramethadione	Paramethadione
56382	Parathion	Parathion
11101	Particulate Matter	PM
85101	Particulate Matter 10 Microns or Less	PM10
88101	Particulate Matter 2.5 Microns or Less	PM25
1336363	PCBs {Polychlorinated biphenyls}	PCBs

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Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
106478	p-Chloroaniline	p-Chloroaniline
95692	p-Chloro-o-toluidine	pCl-Toluidine
1059	p-Chloro-o-toluidine (strong acid salts)	pCl-Tolui/salts
120718	p-Cresidine	p-Cresidine
106445	p-Cresol	p-Cresol
106467	p-Dichlorobenzene	p-DiClBenzene
100254	p-Dinitrobenzene	p-DinitroBenzen
52675	Penicillamine	Penicillamine
82688	Pentachloronitrobenzene {Quintobenzene}	PentaClNitrBenz
87865	Pentachlorophenol	PCP
57330	Pentobarbital sodium	PentobarbSodium
79210	Peracetic acid	Peracetic Acid
127184	Perchloroethylene {Tetrachloroethene}	Perc
2795393	Perfluorooctanoic acid {PFOA} (and its salts, esters, and sulfonates)	PFOA
198550	Perylene	Perylene
63989	Phenacemide	Phenacemide
62442	Phenacetin	Phenacetin
85018	Phenanthrene	Phenanthrene
94780	Phenazopyridine hydrochloride	PhenazoPyri HCl
3546109	Phenesterin	Phenesterin
50066	Phenobarbital	Phenobarbital
108952	Phenol	Phenol
59961	Phenoxybenzamine	PhenoxyBenzamin
63923	Phenoxybenzimide hydrochloride	PhenoxBenzamHCl
122601	Phenyl glycidyl ether	PhenylGlycEther
57410	Phenytoin	Phenytoin
75445	Phosgene	Phosgene

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Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
7803512	Phosphine	Phosphine
7664382	Phosphoric acid	Phosphoric Acid
7723140	Phosphorus	Phosphorus
10025873	Phosphorus oxychloride	Phos OxyChlorid
10026138	Phosphorus pentachloride	Phos PentaChlor
1314563	Phosphorus pentoxide	Phos Pentoxide
7719122	Phosphorus trichloride	Phos TriChlorid
85449	Phthalic anhydride	Phthalic Anhydr
88891	Picric acid	Picric Acid
54911	Pipobroman	Pipobroman
18378897	Plicamycin	Plicamycin
156105	p-Nitrosodiphenylamine	p-NitrosDiPhAmn
1155	Polybrominated biphenyls	PBBs
2222	Polybrominated diphenyl ethers {PBDEs}	PBDEs
53973981	Polygeenan	Polygeenan
3564098	Ponceau 3R	Ponceau 3R
3761533	Ponceau MX	Ponceau MX
7758012	Potassium bromate	Potass Bromate
106503	p-Phenylenediamine	p-Phenylenediam
366701	Procarbazine hydrochloride	ProcarbazinHCl
57830	Progesterone	Progesterone
1160	Progestins	Progestins
123386	Propionaldehyde	Propionaldehyde
114261	Propoxur	Propoxur
115071	Propylene	Propylene
107982	Propylene glycol monomethyl ether	PGME
108656	Propylene glycol monomethyl ether acetate	PGMEA

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Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
75569	Propylene oxide	Propylene Oxide
51525	Propylthiouracil	Propylthiouraci
106490	p-Toluidine	p-Toluidine
106423	p-Xylene	p-Xylene
129000	Pyrene	Pyrene
110861	Pyridine	Pyridine
91225	Quinoline	Quinoline
106514	Quinone	Quinone
1165	Radionuclides	Radionuclides
1166	Radon and its decay products	Radon
16113	Reactive Organic Gas	ROG
50555	Reserpine	Reserpine
1167	Retinol/retinyl esters	Retinol/yl estr
36791045	Ribavirin	Ribavirin
1168	Rockwool (man-made fibers)	Rockwool
81072	Saccharin	Saccharin
94597	Safrole	Safrole
78922	sec-Butyl alcohol	sec-Butyl Alcoh
7782492	Selenium	Selenium
7446346	Selenium sulfide	Se Sulfide
1180	Shale oils	Shale oils
1175	Silica, crystalline (respirable)	Silica, Crystln
7440224	Silver	Silver
1181	Slagwool (man-made fibers)	Slagwool
10588019	Sodium dichromate	SodiumDichromat
1310732	Sodium hydroxide	Sodium Hydroxid
132274	Sodium o-phenylphenate	Sodium o-PhPhen

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128449	Sodium saccharin	SodiumSaccharin
1185	Soots	Soots
10048132	Sterigmatocystin	Sterigmatocysti
3810740	Streptomycin sulfate	StreptomySulfat
18883664	Streptozotocin	Streptozotocin
7789062	Strontium chromate	StrontiumChrom
100425	Styrene	Styrene
96093	Styrene oxide	Styrene Oxide
95067	Sulfallate	Sulfallate
9960	SULFATES	SULFATES
7446095	SULFUR DIOXIDE	SULFUR DIOXIDE
2551624	Sulfur hexafluoride	SF6
7446719	Sulfur trioxide	Sulfur trioxide
7664939	Sulfuric acid	Sulfuric Acid
9961	SULFURIC ACID+OLEUM	SULFURIC+OLEUM
1190	Talc containing asbestiform fibers	Talc w/asbest
54965241	Tamoxifen citrate	TamoxifenCitrat
540885	t-Butyl acetate	t-Butyl acetate
846504	Temazepam	Temazepam
100210	Terephthalic acid	Terephthalic Ac
75650	tert-Butyl alcohol	t-Butyl Alcohol
58220	Testosterone and its esters	Testosteron&Est
315377	Testosterone enanthate	TestosteronEnan
25167833	Tetrachlorophenols	Tetrachloroph
961115	Tetrachlorvinphos	Tetrachlorvinph
64755	Tetracycline hydrochloride	TetracyclineHCl
509148	Tetranitromethane	TetraNitroMetha

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HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
50351	Thalidomide	Thalidomide
7440280	Thallium	Thallium
62555	Thioacetamide	Thioacetamide
154427	Thioguanine	Thioguanine
62566	Thiourea	Thiourea
1314201	Thorium dioxide	ThoriumDioxide
7550450	Titanium tetrachloride	Titanm TetraCl
1200	Tobacco products, smokeless	Tobac/smokeless
49842071	Tobramycin sulfate	TobramycinSulfa
108883	Toluene	Toluene
26471625	Toluene diisocyanates	TolueneDiisocyn
584849	Toluene-2,4-diisocyanate	T-2,4-diisocyan
91087	Toluene-2,6-diisocyanate	T-2,6-diisocyan
38998753	Total Heptachlorodibenzofuran	TotalHeptaCDF
37871004	Total Heptachlorodibenzo-p-dioxin	TotalHeptaCDD
55684941	Total Hexachlorodibenzofuran	TotalHexaCDF
34465468	Total Hexachlorodibenzo-p-dioxin	TotalHexaCDD
43101	Total Organic Gases	TOG
30402154	Total Pentachlorodibenzofuran	TotalPentaCDF
36088229	Total Pentachlorodibenzo-p-dioxin	TotalPentaCDD
55722275	Total Tetrachlorodibenzofuran	TotalTetraCDF
41903575	Total Tetrachlorodibenzo-p-dioxin	TotalTetraCDD
8001352	Toxaphene	Toxaphene
55738540	trans-2-[(Dimethylamino)methylimino]-5-[2-(5-nitro-2-furyl)vinyl-1,3,4-oxadiazol	trans-2DiMAmMIm
299752	Treosulfan	Treosulfan
28911015	Triazolam	Triazolam
126738	Tributyl phosphate	TriButylPhospha

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HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
52686	Trichlorfon	Trichlorfon
79016	Trichloroethylene	TCE
75694	Trichlorofluoromethane {Freon 11}	TriClFluorMetha
78400	Triethyl phosphine	TriEthylPhosphn
121448	Triethylamine	Triethylamine
112492	Triethylene glycol dimethyl ether	TEGDME
75467	Trifluoromethane {Freon 23}	TriFluoroMethan
1582098	Trifluralin	Trifluralin
13647353	Trilostane	Trilostane
127480	Trimethadione	Trimethadione
512561	Trimethyl phosphate	TriMethylPhosph
25551137	Trimethylbenzenes	TriMeBenzns
78308	Triorthocresyl phosphate	TriOrthCresPhos
115866	Triphenyl phosphate	TriPhPhosphate
101020	Triphenyl phosphite	TriPhPhosphite
52244	Tris(1-aziridinyl) phosphine sulfide	TrisAzirPhosphS
126727	Tris(2,3-dibromopropyl)phosphate	Tris(DiBrPr)Pho
68768	Tris(aziridinyl)-p-benzoquinone	TrisAzirQuinone
62450060	Trp-P-1 {3-Amino-1,4-dimethyl-5H-pyrido[4,3-b]indole}	Trp-P-1
62450071	Trp-P-2 {3-Amino-1-methyl-5H-pyrido[4,3-b]indole}	Trp-P-2
72571	Trypan blue	Trypan blue
66751	Uracil mustard	Uracil Mustard
51796	Urethane	Urethane
26995915	Urofollitropin	Urofollitropin
99661	Valproate	Valproate
7440622	Vanadium (fume or dust)	Vanadium
1314621	Vanadium pentoxide	Vanad pentoxd

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HARP2 Reference List of 797 Pollutant ID Numbers & Names (CARB 2015)

Pollutant ID (CAS No.)	Pollutant Name (common name)	HARP2 Name (abbrevated name)
143679	Vinblastine sulfate	VinblastineSulf
2068782	Vincristine sulfate	VincristineSulf
108054	Vinyl acetate	Vinyl Acetate
593602	Vinyl bromide	Vinyl Bromide
75014	Vinyl chloride	Vinyl Chloride
75025	Vinyl fluoride	VinylFluoride
75354	Vinylidene chloride	Vinylid Chlorid
43104	Volatile Organic Compounds (VOC)	VOC
81812	Warfarin	Warfarin
1206	Wood preservatives (containing arsenic and chromate)	Wood Preserv
1330207	Xylenes (mixed)	Xylenes
7440666	Zinc	Zinc
1314132	Zinc oxide	Zinc Oxide
12122677	Zineb	Zineb

Source: CARB 2015a

APPENDIX B – AMBIENT AIR QUALITY DATA

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Ambient Air Quality Standards

Criteria Pollutants	Averaging Time	California Standards		Federal Standards	
		ppmv	µg/m^3	ppmv	µg/m^3
Ozone (O_3)	1-hour	0.09	177	—	—
	8-hour	0.07	137	0.07	137
Nitrogen Dioxide (NO_2)	1-hour	0.18	338	0.100	188
	Annual	0.03	56	0.053	100
Sulfur Dioxide (SO_2)	1-hour	0.25	655	0.075	196
	3-hour Secondary	—	—	0.50	1,309
	24-hour	0.04	105	0.14	367
	Annual	—	—	0.03	79
Carbon Monoxide (CO)	1-hour	20	22,900	35	40,100
	8-hour	9	10,300	9	10,300
	Lake Tahoe (8-hr)	6	6,900	—	—
Particulates (as PM_{10})	24-hour	—	50	—	150
	Annual	—	20	—	—
Particulates (as $PM_{2.5}$)	24-hour	—	—	—	35
	Annual Primary	—	12	—	12
	Annual Secondary	—	—	—	15
Lead (Pb)	30-day	—	1.5	—	—
	3-month (rolling)	—	—	—	0.15
Sulfates (as SO_4)	24-hour	—	25	—	—
Hydrogen Sulfide (H_2S)	1-hour	0.03	42	—	—
Vinyl Chloride (C_2H_3Cl)	24-hour	0.01	26	—	—
Visibility Reducing Particles	8-hour	Extinction coefficient of 0.23 per km; visibility of 10 miles or more (0.07 to 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70%.		—	—

Source: CARB 2015c

Notes:

ppmv = parts per million by volume

µg/m^3 = micrograms per cubic meter

The 1.5 µg/m^3 federal quarterly lead standard applied until 2008; 0.15 µg/m^3 rolling 3-month average thereafter

For gases, ug/m^3 calculated from ppmv based on molecular weight and standard conditions:

Standard Temperature	25	°C for ambient air monitoring
Standard Molar Volume	24.465	liter/g-mole for ambient air monitoring

The thresholds of significance for Ambient Air Quality are based on the California Ambient Air Quality Standard (CAAQS) and National Ambient Air Quality Standard (NAAQS). A project would be considered to have a significant impact if its emissions are predicted to cause or contribute to a violation of an ambient air quality standard by exceeding any California Ambient Air Quality Standard (CAAQS) / National Ambient Air Quality Standard (NAAQS).

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Maximum Ambient Background Concentrations for Project Area

Impact Parameter	Applicable Standard	Standard Units	3-Year Average Maxima			Project Area Maxima		Current AAQS	
			Site A	Site B	Site C	ppmv	µg/m^3	µg/m^3	Status
1-hour O_3	State	ppmv	0.113	0.112	0.092	0.106	208	177	Exceed
8-hour O_3	State	ppmv	0.096	0.102	0.087	0.095	186	137	Exceed
	Federal	ppmv	0.095	0.101	0.086	0.094	184	137	Exceed
1-hour CO[1]	State	ppmv	—	—	—	2.1	2,403	22,900	Meet
	Federal	ppmv	—	—	—	2.1	2,403	40,100	Meet
8-hour CO	State	ppmv	1.9	—	—	1.9	2,175	10,300	Meet
	Federal	ppmv	1.9	—	—	1.9	2,175	10,300	Meet
1-hour NO_2	State	ppbv	60	43	—	0.051	96	338	Meet
	Federal	ppbv	60	43	—	0.052	98	188	Meet
Annual NO_2	State	ppbv	15	7	—	0.011	21	56	Meet
	Federal	ppbv	14	6	—	0.010	19	100	Meet
24-hour SO_2	State	ppmv	0.004	—	—	0.004	10	105	Meet
	Federal	ppmv	0.004	—	—	0.004	10	367	Meet
24-hour PM_{10}	State	µg/m^3	132	113	—	—	122	50	Exceed
	Federal	µg/m^3	106	109	—	—	107	150	Meet
Annual PM_{10}	State	µg/m^3	43	40	—	—	42	20	Exceed
24-hour $PM_{2.5}$	Federal	µg/m^3	93	89	—	—	91	35	Exceed
Annual $PM_{2.5}$	State	µg/m^3	18	15	—	—	16	12	Exceed
	Federal	µg/m^3	16	17	—	—	17	12	Exceed

Source: CARB 2015b (ADAM database: http://www.arb.ca.gov/adam/index.html)

[1] Annualized 1-hour CO summary data not available; scaled from available 8-hour summary data

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Maximum Ambient Background Concentrations for Project Area

Ozone:

a) Arvin-Di Giorgio Station

b) Bakersfield, Municipal Airport Station

c) Maricopa, Stanislaus Street Station

SO_2:

a) Fresno, 1st Street Station

CO:

a) Bakersfield, Golden State Highway Station

NO_2:

a) Bakersfield, 5558 California Avenue Station

b) Edison Station

PM_{10}:

a) Bakersfield, 5558 California Avenue Station

b) Oildale, 3311 Manor Street Station

$PM_{2.5}$:

a) Bakersfield, 5558 California Avenue Station

b) Bakersfield, 410 E Planz Road Station

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Maximum Ambient Background Concentrations for Project Area

Impact Parameter	Applicable Standard	Project Area Maxima		Current AAQS	
		ppmv	µg/m^3	µg/m^3	Status
1-hour O_3	State	0.106	208	177	Exceed
8-hour O_3	State	0.095	186	137	Exceed
	Federal	0.094	184	137	Exceed
1-hour CO[1]	State	2.1	2,403	22,900	Meet
	Federal	2.1	2,403	40,100	Meet
8-hour CO	State	1.9	2,175	10,300	Meet
	Federal	1.9	2,175	10,300	Meet
1-hour NO_2	State	0.051	96	338	Meet
	Federal	0.052	98	188	Meet
Annual NO_2	State	0.011	21	56	Meet
	Federal	0.010	19	100	Meet
24-hour SO_2	State	0.004	10	105	Meet
	Federal	0.004	10	367	Meet
24-hour PM_{10}	State	—	122	50	Exceed
	Federal	—	107	150	Meet
Annual PM_{10}	State	—	42	20	Exceed
24-hour $PM_{2.5}$	Federal	—	91	35	Exceed
Annual $PM_{2.5}$	State	—	16	12	Exceed
	Federal	—	17	12	Exceed

Source: CARB 2015b (ADAM database: http://www.arb.ca.gov/adam/index.html)

[1] Annualized 1-hour CO summary data not available; scaled from available 8-hour summary data

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Highest 8-Hour Ambient Ozone Levels at Arvin-Di Giorgio Station (ppmv)

Measurement Rankings	2012		2013		2014		3-Year Averages	Average Deviation
	Date	8-Hr Avg.	Date	8-Hr Avg.	Date	8-Hr Avg.		
National Standards:								
First High:	11-Jul	0.101	20-Jul	0.094	9-Jun	0.091	0.095	4%
Second High:	1-Jun	0.094	9-Jul	0.09	30-Jun	0.089	0.091	2%
Third High:	10-Aug	0.094	7-Jun	0.088	11-Sep	0.089	0.090	3%
Fourth High:	28-Aug	0.091	31-Jul	0.087	12-Sep	0.088	0.089	2%
California Standards:								
First High:	11-Jul	0.101	20-Jul	0.095	9-Jun	0.092	0.096	3%
Second High:	10-Aug	0.095	9-Jul	0.091	30-Jun	0.090	0.092	2%
Third High:	1-Jun	0.094	7-Jun	0.089	11-Sep	0.089	0.091	2%
Fourth High:	28-Aug	0.091	31-Jul	0.088	12-Sep	0.088	0.089	1%
National Status:								
# Days Above the Standard:	—	53	—	34	—	36	—	—
Nat'l Standard Design Value:	—	0.091	—	0.089	—	0.088	—	—
National Year Coverage:	—	100	—	100	—	98	—	—
California Status:								
# Days Above the Standard:	—	85	—	68	—	69	—	—
California Designation Value:	—	0.098	—	0.097	—	0.095	—	—
Expected Peak Day Concentration:	—	0.099	—	0.099	—	0.098	—	—
California Year Coverage:	—	99	—	100	—	98	—	—

Source: CARB 2015b (ADAM database: http://www.arb.ca.gov/adam/index.html)

* insufficient data

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Highest 8-Hour Ambient Ozone Levels at Bakersfield, Municipal Airport Station (ppmv)

Measurement Rankings	2012		2013		2014		3-Year Averages	Average Deviation
	Date	8-Hr Avg.	Date	8-Hr Avg.	Date	8-Hr Avg.		
National Standards:								
First High:	11-Jul	0.107	8-Jun	0.102	11-Sep	0.095	0.101	4%
Second High:	10-Jul	0.103	7-Jun	0.094	12-Sep	0.089	0.095	5%
Third High:	10-Aug	0.103	20-Jul	0.093	9-Jun	0.087	0.094	6%
Fourth High:	11-Aug	0.099	4-Jul	0.087	8-Aug	0.087	0.091	6%
California Standards:								
First High:	11-Jul	0.108	8-Jun	0.103	11-Sep	0.095	0.102	5%
Second High:	10-Jul	0.103	7-Jun	0.095	12-Sep	0.090	0.096	5%
Third High:	10-Aug	0.103	20-Jul	0.093	9-Jun	0.088	0.095	6%
Fourth High:	11-Aug	0.100	4-Jul	0.088	8-Aug	0.088	0.092	6%
National Status:								
# Days Above the Standard:	—	61	—	23	—	32	—	—
Nat'l Standard Design Value:	—	*	—	*	—	0.091	—	—
National Year Coverage:	—	92	—	82	—	95	—	—
California Status:								
# Days Above the Standard:	—	75	—	56	—	60	—	—
California Designation Value:	—	0.108	—	0.108	—	0.108	—	—
Expected Peak Day Concentration:	—	*	—	*	—	*	—	—
California Year Coverage:	—	58	—	81	—	94	—	—

Source: CARB 2015b (ADAM database: http://www.arb.ca.gov/adam/index.html)

* insufficient data

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Highest 8-Hour Ambient Ozone Levels at Maricopa, Stanislaus Street Station (ppmv)

Measurement Rankings	2012		2013		2014		3-Year Averages	Average Deviation
	Date	8-Hr Avg.	Date	8-Hr Avg.	Date	8-Hr Avg.		
National Standards:								
First High:	11-Jul	0.093	8-Jun	0.083	9-Jun	0.083	0.086	5%
Second High:	12-Jul	0.086	4-May	0.082	7-Oct	0.082	0.083	2%
Third High:	1-Jun	0.084	1-Jun	0.081	12-Sep	0.079	0.081	2%
Fourth High:	1-Oct	0.082	2-Jun	0.078	11-Sep	0.078	0.079	2%
California Standards:								
First High:	11-Jul	0.093	8-Jun	0.084	9-Jun	0.084	0.087	5%
Second High:	12-Jul	0.086	4-May	0.082	7-Oct	0.082	0.083	2%
Third High:	1-Jun	0.084	1-Jun	0.081	12-Sep	0.079	0.081	2%
Fourth High:	1-Oct	0.083	2-Jun	0.079	4-Oct	0.079	0.080	2%
National Status:								
# Days Above the Standard:	—	24	—	10	—	8	—	—
Nat'l Standard Design Value:	—	0.087	—	0.084	—	0.079	—	—
National Year Coverage:	—	94	—	94	—	98	—	—
California Status:								
# Days Above the Standard:	—	63	—	23	—	25	—	—
California Designation Value:	—	0.097	—	0.095	—	0.086	—	—
Expected Peak Day Concentration:	—	0.097	—	0.096	—	0.087	—	—
California Year Coverage:	—	93	—	93	—	97	—	—

Source: CARB 2015b (ADAM database: http://www.arb.ca.gov/adam/index.html)

* insufficient data

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Highest 1-Hour Ambient Ozone Levels at Arvin-Di Giorgio Station (ppmv)

Measurement Rankings	2012		2013		2014		3-Year Averages	Average Deviation
	Date	1-Hr Max.	Date	1-Hr Max.	Date	1-Hr Max.		
California Standards:								
First High:	11-Jul	0.122	20-Jul	0.109	11-Sep	0.109	0.113	5%
Second High:	28-Aug	0.113	13-Sep	0.106	12-Sep	0.109	0.109	2%
Third High:	13-Aug	0.111	9-Jul	0.103	9-Jun	0.108	0.107	3%
Fourth High:	1-Jun	0.109	19-Jul	0.103	25-Jul	0.108	0.107	2%
California Status:								
# Days Above the Standard:	—	31	—	14	—	15	—	—
California Designation Value:	—	0.120	—	0.110	—	0.110	—	—
Expected Peak Day Concentration:	—	0.115	—	0.114	—	0.110	—	—
California Year Coverage:	—	100	—	100	—	98	—	—

Source: CARB 2015b (ADAM database: http://www.arb.ca.gov/adam/index.html)

* insufficient data

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Highest 1-Hour Ambient Ozone Levels at Bakersfield, Municipal Airport Station (ppmv)

Measurement Rankings	2012		2013		2014		3-Year Averages	Average Deviation
	Date	1-Hr Max.	Date	1-Hr Max.	Date	1-Hr Max.		
California Standards:								
First High:	10-Jul	0.120	8-Jun	0.109	9-Jun	0.108	0.112	5%
Second High:	11-Jul	0.119	19-Jul	0.1	11-Sep	0.106	0.108	7%
Third High:	13-Aug	0.114	20-Jul	0.1	25-Jul	0.104	0.106	5%
Fourth High:	28-Aug	0.113	31-Aug	0.1	13-Sep	0.104	0.106	5%
California Status:								
# Days Above the Standard:	—	33	—	6	—	10	—	—
California Designation Value:	—	0.120	—	0.120	—	0.120	—	—
Expected Peak Day Concentration:	—	*	—	*	—	0.117	—	—
California Year Coverage:	—	93	—	82	—	95	—	—

Source: CARB 2015b (ADAM database: http://www.arb.ca.gov/adam/index.html)

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Highest 1-Hour Ambient Ozone Levels at Maricopa, Stanislaus Street Station (ppmv)

Measurement Rankings	2012		2013		2014		3-Year Averages	Average Deviation
	Date	1-Hr Max.	Date	1-Hr Max.	Date	1-Hr Max.		
California Standards:								
First High:	11-Jul	0.097	8-Jun	0.089	7-Oct	0.090	0.092	4%
Second High:	1-Oct	0.091	20-Sep	0.087	9-Nov	0.089	0.089	1%
Third High:	12-Jul	0.090	24-Oct	0.086	9-Jun	0.088	0.088	2%
Fourth High:	2-Oct	0.089	4-May	0.085	5-Oct	0.086	0.087	2%
California Status:								
# Days Above the Standard:	—	1	—	0	—	0	—	—
California Designation Value:	—	0.100	—	0.100	—	0.090	—	—
Expected Peak Day Concentration:	—	0.101	—	0.099	—	0.089	—	—
California Year Coverage:	—	94	—	95	—	97	—	—

Source: CARB 2015b (ADAM database: http://www.arb.ca.gov/adam/index.html)

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Highest 1-Hour Ambient Nitrogen Dioxide Levels at Bakersfield, 5558 California Avenue Station (ppbv)

Measurement Rankings	2012		2013		2014		3-Year Averages	Average Deviation
	Date	1-Hr Max.	Date	1-Hr Max.	Date	1-Hr Max.		
National Standards:								
First High:	1-Oct	64	18-Oct	55	6-Oct	61	60	5%
Second High:	7-Nov	63	21-Oct	55	29-Oct	59	59	5%
Third High:	5-Nov	62	19-Oct	54	10-Nov	59	58	5%
Fourth High:	6-Nov	62	22-Oct	52	7-Oct	58	57	6%
California Standards:								
First High:	1-Oct	64	18-Oct	55	6-Oct	60	60	5%
Second High:	7-Nov	63	21-Oct	54	7-Oct	58	58	5%
Third High:	5-Nov	62	19-Oct	53	29-Oct	58	58	5%
Fourth High:	6-Nov	62	22-Oct	52	10-Nov	58	57	6%
National Status:								
1-Hour Standard Design Value:	—	58	—	*	—	*	—	—
1-Hour Standard 98th Percentile:	—	56	—	51	—	59	—	—
# Days Above the Standard:	—	0	—	0	—	0	—	—
Annual Standard Design Value:	—	15	—	13	—	*	14	—
California Status:								
1-Hour Std Designation Value:	—	70	—	60	—	60	—	—
Expected Peak Day Concentration:	—	69	—	64	—	64	—	—
# Days Above the Standard:	—	0	—	0	—	0	—	—
Annual Std Designation Value:	—	15	—	15	—	15	15	—
Annual Average:	—	15	—	*	—	*	—	—
Year Coverage:	—	95	—	75	—	42	—	—

Source: CARB 2015b (ADAM database: http://www.arb.ca.gov/adam/index.html)

* insufficient data

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Highest 1-Hour Ambient Nitrogen Dioxide Levels at Edison Station (ppbv)

Measurement Rankings	2012		2013		2014		3-Year Averages	Average Deviation
	Date	1-Hr Max.	Date	1-Hr Max.	Date	1-Hr Max.		
National Standards:								
First High:	15-Nov	47	23-Jan	47	5-Nov	35	43	12%
Second High:	11-Jan	42	17-Dec	45	2-Jan	31	39	14%
Third High:	20-Jan	39	18-Dec	42	16-Jan	31	37	11%
Fourth High:	13-Jan	38	9-Jan	36	21-Jan	31	35	8%
California Standards:								
First High:	15-Nov	47	23-Jan	47	5-Nov	35	43	12%
Second High:	11-Jan	42	17-Dec	45	2-Jan	31	39	14%
Third High:	20-Jan	39	18-Dec	42	16-Jan	31	37	11%
Fourth High:	13-Jan	38	9-Jan	36	21-Jan	31	35	8%
National Status:								
1-Hour Standard Design Value:	—	34	—	35	—	34	—	—
1-Hour Standard 98th Percentile:	—	36	—	34	—	31	—	—
# Days Above the Standard:	—	0	—	0	—	0	—	—
Annual Standard Design Value:	—	7	—	6	—	6	6	—
California Status:								
1-Hour Std Designation Value:	—	40	—	40	—	40	—	—
Expected Peak Day Concentration:	—	42	—	42	—	41	—	—
# Days Above the Standard:	—	0	—	0	—	0	—	—
Annual Std Designation Value:	—	7	—	7	—	7	7	—
Annual Average:	—	7	—	6	—	*	—	—
Year Coverage:	—	97	—	94	—	86	—	—

Source: CARB 2015b (ADAM database: http://www.arb.ca.gov/adam/index.html)

* insufficient data

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Highest 24-Hour Ambient PM_{10} Levels at Bakersfield, 5558 California Avenue Station ($\mu g/m^3$)

Measurement Rankings	2011		2012		2013		3-Year Averages	Average Deviation
	Date	24-Hr Avg.	Date	24-Hr Avg.	Date	24-Hr Avg.		
National Standards:								
First High:	31-Dec	97.4	14-Nov	99.6	9-Jun	120.7	106	9%
Second High:	29-Dec	97.2	27-Sep	88.9	20-Aug	110.2	99	8%
Third High:	21-Dec	72.6	20-Sep	80.0	23-Jan	100.1	84	13%
Fourth High:	11-Dec	65.1	6-Jan	78.7	4-May	86.3	77	10%
California Standards:								
First High:	2-Nov	154.0	13-Jan	125.8	9-Jun	116.9	132	11%
Second High:	28-Dec	116.7	11-Jan	118.3	20-Aug	106.2	114	4%
Third High:	29-Dec	114.6	1-Jan	117.7	23-Jan	103.3	112	5%
Fourth High:	10-Dec	113.3	14-Jan	116.6	4-May	84	105	13%
National Status:								
Estimated # Days > 24-Hour Std:	—	0	—	0	—	*	—	—
Measured # Days > 24-Hour Std:	—	0	—	0	—	0	—	—
3-Yr Avg Est # Days > 24-Hr Std:	—	0	—	0	—	*	—	—
Annual Average:	—	36.6	—	40.4	—	47.0	41	—
3-Year Average:	—	37.0	—	36.0	—	41.0	38	—
California Status:								
Estimated # Days > 24-Hour Std:	—	116.4	—	89.4	—	*	—	—
Measured # Days > 24-Hour Std:	—	113	—	55	—	16	—	—
Annual Average:	—	44.2	—	41.4	—	*	43	—
3-Year Maximum Annual Average:	—	44.0	—	44.0	—	41.0	43	—
Year Coverage:	—	89	—	97	—	46	—	—

Source: CARB 2015b (ADAM database: http://www.arb.ca.gov/adam/index.html)

* insufficient data

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Highest 24-Hour Ambient PM_{10} Levels at Oildale, 3311 Manor Street Station ($\mu g/m^3$)

Measurement Rankings	2011		2012		2013		3-Year Averages	Average Deviation
	Date	24-Hr Avg.	Date	24-Hr Avg.	Date	24-Hr Avg.		
National Standards:								
First High:	29-Dec	100.2	10-Jan	91.1	12-Nov	134.3	109	16%
Second High:	24-Oct	89.2	18-Oct	86.7	30-Dec	111.6	96	11%
Third High:	18-Oct	78.0	5-Nov	85.0	18-Nov	98.5	87	9%
Fourth High:	30-Oct	72.1	4-Jan	83.1	25-Oct	96.8	84	10%
California Standards:								
First High:	29-Dec	105.5	10-Jan	94.7	12-Nov	138	113	15%
Second High:	24-Oct	89.0	4-Jan	87.2	30-Dec	115.4	97	12%
Third High:	18-Oct	77.4	5-Nov	86.1	18-Nov	101.4	88	10%
Fourth High:	30-Oct	72.6	18-Oct	85.7	13-Dec	100.2	86	11%
National Status:								
Estimated # Days > 24-Hour Std:	—	0	—	0	—	0	—	—
Measured # Days > 24-Hour Std:	—	0	—	0	—	0	—	—
3-Yr Avg Est # Days > 24-Hr Std:	—	0	—	0	—	0	—	—
Annual Average:	—	39.7	—	40.4	—	51.7	44	—
3-Year Average:	—	41.0	—	38.0	—	44.0	41	—
California Status:								
Estimated # Days > 24-Hour Std:	—	98.4	—	75.2	—	*	—	—
Measured # Days > 24-Hour Std:	—	16	—	12	—	27	—	—
Annual Average:	—	40.2	—	40.5	—	*	40	—
3-Year Maximum Annual Average:	—	47.0	—	41.0	—	41.0	43	—
Year Coverage:	—	98	—	94	—	100.0	—	—

Source: CARB 2015b (ADAM database: http://www.arb.ca.gov/adam/index.html)

* insufficient data

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Highest 24-Hour Ambient $PM_{2.5}$ Levels at Bakersfield, 5558 California Avenue Station ($\mu g/m^3$)

Measurement Rankings	2011		2012		2013		3-Year Averages	Average Deviation
	Date	24-Hr Avg.	Date	24-Hr Avg.	Date	24-Hr Avg.		
National Standards:								
First High:	25-Dec	80.3	1-Jan	86.5	18-Dec	111.7	93	14%
Second High:	31-Dec	79.7	12-Jan	70.3	17-Dec	106.9	86	17%
Third High:	28-Dec	74.9	14-Jan	65.5	16-Dec	93	78	13%
Fourth High:	27-Dec	69.0	13-Jan	64.2	15-Dec	89	74	13%
California Standards:								
First High:	31-Dec	82.8	1-Jan	86.5	18-Dec	114.9	95	14%
Second High:	25-Dec	80.3	12-Jan	71.1	17-Dec	106.9	86	16%
Third High:	28-Dec	75.4	14-Jan	67.3	16-Dec	93	79	12%
Fourth High:	27-Dec	69.0	13-Jan	66.7	15-Dec	89	75	13%
National Status:								
Estimated # Days > 24-Hour Std:	—	*	—	24.4	—	50.4	—	—
Measured # Days > 24-Hour Std:	—	30	—	22	—	44	—	—
24-Hour Standard Design Value:	—	62	—	58	—	65	—	—
24-Hour Standard 98th Percentile:	—	65.5	—	56.4	—	71.8	65	—
Annual Standard Design Value:	—	16.5	—	14.5	—	16.4	—	—
Annual Average:	—	16.2	—	13.0	—	19.9	16	—
California Status:								
Annual Std Designation Value:	—	21	—	18	—	18	—	—
Annual Average:	—	18.1	—	17.9	—	*	18	—
Year Coverage:	—	82	—	94	—	92	—	—

Source: CARB 2015b (ADAM database: http://www.arb.ca.gov/adam/index.html)

* insufficient data

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Highest 24-Hour Ambient $PM_{2.5}$ Levels at Bakersfield, 410 E Planz Road Station ($\mu g/m^3$)

Measurement Rankings	2011		2012		2013		3-Year Averages	Average Deviation
	Date	24-Hr Avg.	Date	24-Hr Avg.	Date	24-Hr Avg.		
National Standards:								
First High:	21-Jan	45.9	26-Nov	52.5	5-May	167.3	89	59%
Second High:	2-Nov	45.0	11-Dec	47.0	18-Dec	111	68	43%
Third High:	6-Jan	43.2	14-Nov	40.6	16-Dec	96.7	60	40%
Fourth High:	15-Jan	43.0	31-Jan	39.1	15-Dec	83.6	55	34%
California Standards:								
First High:	21-Jan	45.9	26-Nov	52.5	5-May	167.3	89	59%
Second High:	2-Nov	45.0	11-Dec	47.0	18-Dec	111	68	43%
Third High:	6-Jan	43.2	14-Nov	40.6	16-Dec	96.7	60	40%
Fourth High:	15-Jan	43.0	31-Jan	39.1	15-Dec	83.6	55	34%
National Status:								
Estimated # Days > 24-Hour Std:	—	22.1	—	21.8	—	49.4	—	—
Measured # Days > 24-Hour Std:	—	7	—	7	—	15	—	—
24-Hour Standard Design Value:	—	55	—	47	—	60	—	—
24-Hour Standard 98th Percentile:	—	43.2	—	40.6	—	96.7	60	—
Annual Standard Design Value:	—	18.2	—	15.6	—	17.3	—	—
Annual Average:	—	14.4	—	14.6	—	22.7	17	—
California Status:								
Annual Std Designation Value:	—	14	—	15	—	15	—	—
Annual Average:	—	14.4	—	14.7	—	*	15	—
Year Coverage:	—	97	—	98	—	92	—	—

Source: CARB 2015b (ADAM database: http://www.arb.ca.gov/adam/index.html)

* insufficient data

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Highest 8-Hour Ambient Carbon Monoxide Levels at Bakersfield, Golden State Highway Station (ppmv)

Measurement Rankings	2007		2008		2009		3-Year Averages	Average Deviation
	Date	8-Hr Avg.	Date	8-Hr Avg.	Date	8-Hr Avg.		
National Standards:								
First High:	5-Jul	1.97	8-Feb	2.17	3-Dec	1.51	1.88	13%
Second High:	25-Jan	1.91	19-Jan	2.13	18-Nov	1.49	1.84	13%
Third High:	20-Jan	1.63	25-May	1.76	15-Jan	1.44	1.61	7%
Fourth High:	4-Jul	1.61	18-Mar	1.73	11-Jan	1.43	1.59	7%
California Standards:								
First High:	4-Jul	1.97	8-Feb	2.17	2-Dec	1.51	1.88	13%
Second High:	25-Jan	1.91	18-Jan	2.13	17-Nov	1.49	1.84	13%
Third High:	19-Jan	1.63	25-May	1.76	14-Jan	1.44	1.61	7%
Fourth High:	4-Dec	1.61	17-Mar	1.73	10-Jan	1.43	1.59	7%
National Status:								
# Days Above the Standard:	–	0	–	0	–	0	–	–
California Status:								
# Days Above the Standard:	–	0	–	0	–	0	–	–
Expected Peak Day Concentration:	–	2.13	–	2.07	–	1.9	–	–
Year Coverage:	–	96	–	88	–	94	–	–

Source: CARB 2015b (ADAM database: http://www.arb.ca.gov/adam/index.html)

* insufficient data

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Highest 24-Hour Ambient Sulfur Dioxide Levels at Fresno, 1st Street Station (ppmv)

Measurement Rankings	2009		2010		2011		3-Year Averages	Average Deviation
	Date	24-Hr Avg.	Date	24-Hr Avg.	Date	24-Hr Avg.		
California Standards:								
First High:	18-Sep	0.005	5-Jul	0.004	29-Sep	0.004	0.004	10%
Second High:	26-Sep	0.004	25-Aug	0.003	23-Sep	0.004	0.004	12%
Third High:	28-Jun	0.004	28-Jun	0.003	19-Sep	0.003	0.003	13%
Fourth High:	23-Sep	0.004	3-Sep	0.003	3-Sep	0.003	0.003	13%
California Status:								
Annual Average:	—	0.001	—	0	—	*	—	—
California Year Coverage:	—	99	—	98	—	93	—	—

Source: CARB 2015b (ADAM database: http://www.arb.ca.gov/adam/index.html)

* insufficient data

A project would be considered to have a significant impact if its emissions are predicted to cause or contribute to a violation of an ambient air quality standard by exceeding any California Ambient Air Quality Standard (CAAQS) / National Ambient Air Quality Standard (NAAQS). (SJVAPCD 2015, GAMAQI Section 8.4)

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SJVAPCD Significant Impact Levels

Pollutant	Averaging Period	SILs (µg/m^3)		
		Class I	Class II*	Class III
$PM_{2.5}$	24-hour	**	**	**
	Annual	**	**	**
Fugitive $PM_{2.5}$	24-hour	—	**	—
	Annual	—	**	—
PM_{10}	24-hour	0.2	5	—
	Annual	0.32	1	—
Fugitive PM_{10}	24-hour	—	10.4	—
	Annual	—	2.08	—
CO	1-hour	—	2000	—
	8-hour	—	500	—
NO_2	1-hour	—	7.5	—
	Annual	0.1	1	—
SO_2	1-hour	—	7.8	—
	3-hour	1	25	—
	24-hour	0.2	5	—
	Annual	0.08	1	—

Source: SCVAPCD APR 1925

* Only Class II SILs applicable for District use

** $PM_{2.5}$ SILs vacated by Court Order, use PM_{10} SILs as surrogate $PM_{2.5}$ SILs

APPENDIX C – AERMOD OUTPUT FILES

Results Summary

C:\Lakes\Projects\Grapevine Food Processing Boiler\Grapevine Food Pr

CRITERIA - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	1ST	37.35897	ug/m^3	324055.20	3873166.17	10.00	0.00	10.00	9/29/2009, 18
8-HR	1ST	23.95876	ug/m^3	323855.20	3873466.17	10.00	0.00	10.00	3/20/2011, 8
24-HR	1ST	13.29215	ug/m^3	323955.20	3873466.17	10.00	0.00	10.00	5/5/2013, 24
ANNUAL		2.24014	ug/m^3	324155.20	3873266.17	10.00	0.00	10.00	
ANNUAL		2.38319	ug/m^3	324155.20	3873166.17	10.00	0.00	10.00	

Results Summary

C:\Lakes\Projects\Grapevine Auto Service Receiving Point

TAC - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	1ST	4036.43915	ug/m^3	323955.20	3873266.17	10.00	0.00	10.00	12/15/2009, 24
8-HR	1ST	1489.60092	ug/m^3	324055.20	3873266.17	10.00	0.00	10.00	12/26/2012, 24
24-HR	1ST	931.53526	ug/m^3	324055.20	3873266.17	10.00	0.00	10.00	1/3/2009, 24
ANNUAL		241.61930	ug/m^3	324055.20	3873266.17	10.00	0.00	10.00	
ANNUAL		248.09980	ug/m^3	324055.20	3873266.17	10.00	0.00	10.00	

Results Summary

C:\Lakes\Projects\Grapevine Auto Service Service Disp Vol

TAC - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	1ST	3537.47818	ug/m^3	323955.20	3873266.17	10.00	0.00	10.00	12/15/2009, 24
8-HR	1ST	1338.41165	ug/m^3	324055.20	3873266.17	10.00	0.00	10.00	12/26/2012, 24
24-HR	1ST	827.68234	ug/m^3	324055.20	3873266.17	10.00	0.00	10.00	1/3/2009, 24
ANNUAL		226.40677	ug/m^3	324055.20	3873266.17	10.00	0.00	10.00	
ANNUAL		232.13963	ug/m^3	324055.20	3873266.17	10.00	0.00	10.00	

Results Summary

C:\Lakes\Projects\Grapevine Green Waste Compost

TAC - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	1ST	148.95145	ug/m^3	324155.20	3873666.17	10.00	0.00	10.00	1/7/2009, 9
8-HR	1ST	51.09567	ug/m^3	323055.20	3873566.17	10.00	0.00	10.00	11/1/2009, 8
24-HR	1ST	31.31416	ug/m^3	324155.20	3873166.17	10.00	0.00	10.00	1/3/2009, 24
ANNUAL		12.32267	ug/m^3	324155.20	3873166.17	10.00	0.00	10.00	
ANNUAL		12.64477	ug/m^3	324155.20	3873166.17	10.00	0.00	10.00	

Results Summary

C:\Lakes\Projects\Grapevine Asphalt Point

CRITERIA - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	1ST	47.33335	ug/m^3	323955.20	3873366.17	10.00	0.00	10.00	6/28/2009, 8
8-HR	1ST	23.14884	ug/m^3	324155.20	3873266.17	10.00	0.00	10.00	7/29/2011, 16
24-HR	1ST	11.35478	ug/m^3	324155.20	3873166.17	10.00	0.00	10.00	7/12/2010, 24
ANNUAL		3.12348	ug/m^3	324155.20	3873266.17	10.00	0.00	10.00	
ANNUAL		3.24562	ug/m^3	324155.20	3873166.17	10.00	0.00	10.00	

Results Summary

C:\Lakes\Projects\Grapevine Asphalt Storage Volume

TAC - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	1ST	2291.55620	ug/m^3	323955.20	3873266.17	10.00	0.00	10.00	12/15/2009, 24
8-HR	1ST	839.89188	ug/m^3	323955.20	3873366.17	10.00	0.00	10.00	12/2/2010, 8
24-HR	1ST	413.39308	ug/m^3	324055.20	3873266.17	10.00	0.00	10.00	1/3/2009, 24
ANNUAL		136.91500	ug/m^3	324055.20	3873266.17	10.00	0.00	10.00	
ANNUAL		140.54499	ug/m^3	324055.20	3873266.17	10.00	0.00	10.00	

Results Summary

C:\Lakes\Projects\Grapevine Asphalt Dust Volume

TAC - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	1ST	951.57454	ug/m^3	323955.20	3873266.17	10.00	0.00	10.00	1/1/2012, 6
8-HR	1ST	345.16644	ug/m^3	323955.20	3873366.17	10.00	0.00	10.00	12/2/2010, 8
24-HR	1ST	166.78960	ug/m^3	323955.20	3873366.17	10.00	0.00	10.00	12/2/2010, 24
ANNUAL		53.31533	ug/m^3	324055.20	3873266.17	10.00	0.00	10.00	
ANNUAL		55.65783	ug/m^3	324055.20	3873266.17	10.00	0.00	10.00	

Results Summary

C:\Lakes\Projects\Grapevine Bakery Oven

CRITERIA - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	1ST	172.21085	ug/m^3	324055.20	3873266.17	10.00	0.00	10.00	7/4/2012, 19
8-HR	1ST	132.80440	ug/m^3	323955.20	3873366.17	10.00	0.00	10.00	3/20/2011, 8
24-HR	1ST	60.36029	ug/m^3	323955.20	3873366.17	10.00	0.00	10.00	12/25/2010, 24
ANNUAL		10.82409	ug/m^3	324055.20	3873266.17	10.00	0.00	10.00	
ANNUAL		12.20301	ug/m^3	324055.20	3873266.17	10.00	0.00	10.00	

Results Summary

C:\Lakes\Projects\Grapevine POTW

TAC - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	1ST	641.83032	ug/m^3	324155.20	3873366.17	10.00	0.00	10.00	2/13/2010, 3
8-HR	1ST	364.92479	ug/m^3	323855.20	3873366.17	10.00	0.00	10.00	2/7/2010, 24
24-HR	1ST	191.43179	ug/m^3	323855.20	3873366.17	10.00	0.00	10.00	2/10/2009, 24
ANNUAL		58.80816	ug/m^3	324055.20	3873166.17	10.00	0.00	10.00	
ANNUAL		58.26758	ug/m^3	324055.20	3873166.17	10.00	0.00	10.00	

Results Summary

C:\Lakes\Projects\Grapevine IC Engine

CRITERIA - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	1ST	271.22359	ug/m^3	323955.20	3873366.17	10.00	0.00	10.00	2/5/2009, 1
8-HR	1ST	196.80021	ug/m^3	323955.20	3873366.17	10.00	0.00	10.00	3/20/2011, 8
24-HR	1ST	92.96392	ug/m^3	323955.20	3873366.17	10.00	0.00	10.00	12/25/2010, 24
ANNUAL		7.55708	ug/m^3	324055.20	3873266.17	10.00	0.00	10.00	
ANNUAL		8.44154	ug/m^3	324055.20	3873266.17	10.00	0.00	10.00	

Results Summary

C:\Lakes\Projects\Grapevine Manufacturing

TAC - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	1ST	218.52583	ug/m^3	324155.20	3873366.17	10.00	0.00	10.00	8/11/2012, 19
8-HR	1ST	42.45719	ug/m^3	324055.20	3873266.17	10.00	0.00	10.00	1/9/2009, 16
24-HR	1ST	24.41632	ug/m^3	324155.20	3873266.17	10.00	0.00	10.00	7/26/2009, 24
ANNUAL		6.42783	ug/m^3	324155.20	3873266.17	10.00	0.00	10.00	
ANNUAL		6.48597	ug/m^3	324155.20	3873166.17	10.00	0.00	10.00	

Results Summary

C:\Lakes\Projects\Grapevine Manufacturing Volume

TAC - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	1ST	376.52172	ug/m^3	324055.20	3873166.17	10.00	0.00	10.00	1/20/2009, 19
8-HR	1ST	229.85757	ug/m^3	323855.20	3873366.17	10.00	0.00	10.00	1/18/2012, 8
24-HR	1ST	129.06697	ug/m^3	323855.20	3873366.17	10.00	0.00	10.00	2/10/2009, 24
ANNUAL		33.56684	ug/m^3	323855.20	3873366.17	10.00	0.00	10.00	
ANNUAL		33.16595	ug/m^3	324055.20	3873166.17	10.00	0.00	10.00	

Results Summary

C:\Lakes\Projects\Grapevine Construction 6A\Grapevine Construction 6

CRITERIA - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	1ST	57.70230	ug/m^3	324140.36	3871525.37	10.00	0.00	10.00	1/17/2009, 19
8-HR	1ST	39.77587	ug/m^3	323640.36	3872125.37	10.00	0.00	10.00	12/2/2010, 8
24-HR	1ST	23.63760	ug/m^3	323640.36	3872025.37	10.00	0.00	10.00	2/10/2009, 24
ANNUAL		6.84662	ug/m^3	323640.36	3872025.37	10.00	0.00	10.00	
ANNUAL		6.55412	ug/m^3	323640.36	3872025.37	10.00	0.00	10.00	

APPENDIX D – HARP2 (HRA) OUTPUT FILES

HARP2 - HRACalc (dated 15197) 10/26/2015 9:16:48 PM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
****
Start Age: -0.25
Total Exposure Duration: 70

****
Exposure Duration Bin Distribution for Cancer
3rd Trimester Bin: 0.25
0<2 Years Bin: 2
2<9 Years Bin: 0
2<16 Years Bin: 14
16<30 Years Bin: 0
16 to 70 Years Bin: 54

****
Pathways Enabled
Inhalation: True
Soil: True
Dermal: True
Mother's Milk: True
Water: False
Fish: False
Homegrown Crops: True
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

Calculating cancer risk
Cancer risk saved to: C:\Users\bboyes\Desktop\RAST Outputs\Asphalt_2_CancerRisk.csv
Calculating chronic risk
Chronic risk saved to: C:\Users\bboyes\Desktop\RAST Outputs\Asphalt_2_NCChronicRisk.csv
Calculating acute risk
Acute risk saved to: C:\Users\bboyes\Desktop\RAST Outputs\Asphalt_2_NCAcuteRisk.csv
HRA ran successfully

HARP2 - HRACalc (dated 15197) 9/25/2015 8:23:30 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
****
Start Age: -0.25
Total Exposure Duration: 70

****
Exposure Duration Bin Distribution for Cancer
3rd Trimester Bin: 0.25
0<2 Years Bin: 2
2<9 Years Bin: 0
2<16 Years Bin: 14
16<30 Years Bin: 0
16 to 70 Years Bin: 54

****
Pathways Enabled
Inhalation: True
Soil: True
Dermal: True
Mother's Milk: True
Water: False
Fish: False
Homegrown Crops: True
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

Calculating cancer risk
Cancer risk saved to: C:\Users\bboyes\Desktop\RAST Outputs\Autogas_CancerRisk.csv
Calculating chronic risk
Chronic risk saved to: C:\Users\bboyes\Desktop\RAST Outputs\Autogas_NCChronicRisk.csv
Calculating acute risk
Acute risk saved to: C:\Users\bboyes\Desktop\RAST Outputs\Autogas_NCAcuteRisk.csv
HRA ran successfully

HARP2 - HRACalc (dated 15197) 9/25/2015 9:05:59 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
****
Start Age: -0.25
Total Exposure Duration: 70

****
Exposure Duration Bin Distribution for Cancer
3rd Trimester Bin: 0.25
0<2 Years Bin: 2
2<9 Years Bin: 0
2<16 Years Bin: 14
16<30 Years Bin: 0
16 to 70 Years Bin: 54

****
Pathways Enabled
Inhalation: True
Soil: True
Dermal: True
Mother's Milk: True
Water: False
Fish: False
Homegrown Crops: True
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

Calculating cancer risk
Cancer risk saved to: C:\Users\bboyes\Desktop\RAST Outputs\Bakery_CancerRisk.csv
Calculating chronic risk
Chronic risk saved to: C:\Users\bboyes\Desktop\RAST Outputs\Bakery_NCChronicRisk.csv
Calculating acute risk
Acute risk saved to: C:\Users\bboyes\Desktop\RAST Outputs\Bakery_NCAcuteRisk.csv
HRA ran successfully

HARP2 - HRACalc (dated 15197) 9/24/2015 5:57:11 PM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
****
Start Age: -0.25
Total Exposure Duration: 70

****
Exposure Duration Bin Distribution for Cancer
3rd Trimester Bin: 0.25
0<2 Years Bin: 2
2<9 Years Bin: 0
2<16 Years Bin: 14
16<30 Years Bin: 0
16 to 70 Years Bin: 54

****
Pathways Enabled
Inhalation: True
Soil: True
Dermal: True
Mother's Milk: True
Water: False
Fish: False
Homegrown Crops: True
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

Calculating cancer risk
Cancer risk saved to: C:\Users\bboyes\Desktop\RAST Outputs\Boiler_CancerRisk.csv
Calculating chronic risk
Chronic risk saved to: C:\Users\bboyes\Desktop\RAST Outputs\Boiler_NCChronicRisk.csv
Calculating acute risk
Acute risk saved to: C:\Users\bboyes\Desktop\RAST Outputs\Boiler_NCAcuteRisk.csv
HRA ran successfully

HARP2 - HRACalc (dated 15197) 10/2/2015 4:17:31 PM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
****
Start Age: -0.25
Total Exposure Duration: 70

****
Exposure Duration Bin Distribution for Cancer
3rd Trimester Bin: 0.25
0<2 Years Bin: 2
2<9 Years Bin: 0
2<16 Years Bin: 14
16<30 Years Bin: 0
16 to 70 Years Bin: 54

****
Pathways Enabled
Inhalation: True
Soil: True
Dermal: True
Mother's Milk: True
Water: False
Fish: False
Homegrown Crops: True
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

Calculating cancer risk
Cancer risk saved to: C:\Users\bboyes\Desktop\RAST Outputs\Compost_6_CancerRisk.csv
Calculating chronic risk
Chronic risk saved to: C:\Users\bboyes\Desktop\RAST Outputs\Compost_6_NCChronicRisk.csv
Calculating acute risk
Acute risk saved to: C:\Users\bboyes\Desktop\RAST Outputs\Compost_6_NCAcuteRisk.csv
HRA ran successfully

HARP2 - HRACalc (dated 15197) 10/28/2015 12:02:28 PM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
****
Start Age: -0.25
Total Exposure Duration: 3

****
Exposure Duration Bin Distribution for Cancer
3rd Trimester Bin: 0.25
0<2 Years Bin: 2
2<9 Years Bin: 1
2<16 Years Bin: 0
16<30 Years Bin: 0
16 to 70 Years Bin: 0

****
Pathways Enabled
Inhalation: True
Soil: True
Dermal: True
Mother's Milk: True
Water: False
Fish: False
Homegrown Crops: True
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

Calculating cancer risk
Cancer risk saved to: C:\Users\bboyes\Desktop\RAST Outputs\Construction6A_CancerRisk.csv
Calculating chronic risk
Chronic risk saved to: C:\Users\bboyes\Desktop\RAST Outputs\Construction6A_NCChronicRisk.csv
Calculating acute risk
Acute risk saved to: C:\Users\bboyes\Desktop\RAST Outputs\Construction6A_NCAcuteRisk.csv
HRA ran successfully

HARP2 - HRACalc (dated 15197) 9/25/2015 9:08:12 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
****
Start Age: -0.25
Total Exposure Duration: 70

****
Exposure Duration Bin Distribution for Cancer
3rd Trimester Bin: 0.25
0<2 Years Bin: 2
2<9 Years Bin: 0
2<16 Years Bin: 14
16<30 Years Bin: 0
16 to 70 Years Bin: 54

****
Pathways Enabled
Inhalation: True
Soil: True
Dermal: True
Mother's Milk: True
Water: False
Fish: False
Homegrown Crops: True
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

Calculating cancer risk
Cancer risk saved to: C:\Users\bboyes\Desktop\RAST Outputs\Diesel_CancerRisk.csv
Calculating chronic risk
Chronic risk saved to: C:\Users\bboyes\Desktop\RAST Outputs\Diesel_NCChronicRisk.csv
Calculating acute risk
Acute risk saved to: C:\Users\bboyes\Desktop\RAST Outputs\Diesel_NCAcuteRisk.csv
HRA ran successfully

HARP2 - HRACalc (dated 15197) 10/2/2015 8:34:19 PM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
****
Start Age: -0.25
Total Exposure Duration: 70

****
Exposure Duration Bin Distribution for Cancer
3rd Trimester Bin: 0.25
0<2 Years Bin: 2
2<9 Years Bin: 0
2<16 Years Bin: 14
16<30 Years Bin: 0
16 to 70 Years Bin: 54

****
Pathways Enabled
Inhalation: True
Soil: True
Dermal: True
Mother's Milk: True
Water: False
Fish: False
Homegrown Crops: True
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

Calculating cancer risk
Cancer risk saved to: C:\Users\bboyes\Desktop\RAST Outputs\Mfg_2A_CancerRisk.csv
Calculating chronic risk
Chronic risk saved to: C:\Users\bboyes\Desktop\RAST Outputs\Mfg_2A_NCChronicRisk.csv
Calculating acute risk
Acute risk saved to: C:\Users\bboyes\Desktop\RAST Outputs\Mfg_2A_NCAcuteRisk.csv
HRA ran successfully

HARP2 - HRACalc (dated 15197) 10/2/2015 2:22:28 PM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
****
Start Age: -0.25
Total Exposure Duration: 70

****
Exposure Duration Bin Distribution for Cancer
3rd Trimester Bin: 0.25
0<2 Years Bin: 2
2<9 Years Bin: 0
2<16 Years Bin: 14
16<30 Years Bin: 0
16 to 70 Years Bin: 54

****
Pathways Enabled
Inhalation: True
Soil: True
Dermal: True
Mother's Milk: True
Water: False
Fish: False
Homegrown Crops: True
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

Calculating cancer risk
Cancer risk saved to: C:\Users\bboyes\Desktop\RAST Outputs\Mfg_2B_CancerRisk.csv
Calculating chronic risk
Chronic risk saved to: C:\Users\bboyes\Desktop\RAST Outputs\Mfg_2B_NCChronicRisk.csv
Calculating acute risk
Acute risk saved to: C:\Users\bboyes\Desktop\RAST Outputs\Mfg_2B_NCAcuteRisk.csv
HRA ran successfully

HARP2 - HRACalc (dated 15197) 9/28/2015 2:24:45 PM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
****
Start Age: -0.25
Total Exposure Duration: 70

****
Exposure Duration Bin Distribution for Cancer
3rd Trimester Bin: 0.25
0<2 Years Bin: 2
2<9 Years Bin: 0
2<16 Years Bin: 14
16<30 Years Bin: 0
16 to 70 Years Bin: 54

****
Pathways Enabled
Inhalation: True
Soil: True
Dermal: True
Mother's Milk: True
Water: False
Fish: False
Homegrown Crops: True
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

Calculating cancer risk
Cancer risk saved to: C:\Users\bboyes\Desktop\RAST Outputs\POTW_2_CancerRisk.csv
Calculating chronic risk
Chronic risk saved to: C:\Users\bboyes\Desktop\RAST Outputs\POTW_2_NCChronicRisk.csv
Calculating acute risk
Acute risk saved to: C:\Users\bboyes\Desktop\RAST Outputs\POTW_2_NCAcuteRisk.csv
HRA ran successfully

APPENDIX F

Diesel Particulate Matter Health Risk Assessment of Interstate 5 Freeway (Ramboll Environ US Corporation)

Prepared for:
Tejon Ranchcorp
Lebec, California

Prepared By:
Ramboll Environ US Corporation
Irvine, California

Date:
November 2015

Project Number
0324287K2

DIESEL PARTICULATE MATTER HEALTH RISK ASSESSMENT OF INTERSTATE-5 FREEWAY - GRAPEVINE PROJECT

TEJON RANCHCORP

LEBEC, CALIFORNIA

RAMBOLL ENVIRON

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\\wcirvfps1\Projects\T\Tejon Ranch\Report\Grapevine_I-5_HRA_Report_151119.docx

ACRONYMS AND ABBREVIATIONS

µm:	micrometer
AADT:	annual average daily traffic
AB:	assembly bill
ADMRT:	air dispersion modeling risk tool
AERMOD:	AMS/EPA Regulatory Model Improvement Committee Model
AMS:	American Meteorological Society
CA-99	California State Route 99
CalTrans:	California Department of Transportation
CARB:	California Air Resources Board
CEQA:	California Environmental Quality Act
CHP:	California Highway Patrol
CPF:	cancer potency factor
CVEF:	Commercial Vehicle Enforcement Facility
DPM:	diesel particulate matter
EIR:	Environmental Impact Report
EPA:	United States Environmental Protection Agency
FAH:	fraction of time spent at home
HARP2:	Hotspots Analysis and Reporting Program Version 2
HHDT:	heavy-heavy duty trucks (33,001-66,000 pounds)
HI:	Hazard Index
HOA:	homeowner's association
HRA:	Health Risk Assessment
HVAC:	Heating, Ventilation and Air Conditioning
I-5:	Interstate-5
LDA:	passenger cars
LDS:	loop detection station
LDT1:	light duty trucks (0-3,750 pounds)
LDT2:	light duty trucks (3,751-5,750 pounds)
LHD1	light-heavy duty trucks (8,501-10,000 pounds)
LHD2:	light-heavy duty trucks (10,001-14,000 pounds)

ACRONYMS AND ABBREVIATIONS (CONTINUED)

MATES:	Multiple Air Toxics Exposure Study
MCY:	motorcycles
MDV:	medium duty trucks (5,751-8,500 pounds)
MERV:	minimum efficiency reporting value
MHDT:	medium-heavy duty trucks (14,001-33,000 pounds)
mph:	miles per hour
OBUS:	other buses
OEHHA:	Office of Environmental Health Hazard Assessment
PeMS:	Freeway Performance Measurement System
PM_{10}:	Particulate matter emissions with a diameter less than 10 microns
REL:	Reference Exposure Levels
SBUS:	school buses
SJVAPCD:	San Joaquin Valley Air Pollution Control District
TAC:	Toxic Air Contaminant
TRCC:	Tejon Ranch Commerce Center
UTM:	Universal Transverse Mercator
UBUS:	urban buses
URF:	unit risk factor
VMT:	vehicle miles travelled
WGS:	World Geodetic System

1. INTRODUCTION

California Air Resources Board's (CARB) guidance manual on land use development[1] serves as a general reference guide for evaluating and reducing air pollution impacts associated with new projects that go through the land use decision-making process. Recommendations provided by CARB are voluntary and do not constitute a requirement or mandate for either land use agencies or local air districts. Some examples of CARB's recommendations include avoiding siting sensitive receptors within: (a) 500 feet of a freeway, urban road with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day; (b) 1,000 feet of a transport distribution center; and (c) 300 feet of any dry cleaning operation using perchloroethylene or within 500 feet of a dry cleaning operation with two or more machines. According to CARB, California freeway studies show an approximately 70 percent drop off in particulate pollution levels at 500 feet, and lifetime cancer risk from exposure to diesel particulate matter (DPM) is expected to be lowered proportionately at that distance.

The Interstate-5 (I-5) freeway runs through the proposed site for a mixed-use residential development called Grapevine Project ("Project"). Figure 1 illustrates the location of the I-5 freeway relative to the Project site. The purpose of this analysis is to evaluate the health risk impact of the I-5 freeway on the Project. This report is prepared to support the draft environmental impact report (EIR) for the Grapevine Project.

1.1 Project Description

The proposed Grapevine project is a Specific Plan and Community Plan that encompasses approximately 8,010 acres located approximately 25 miles south of Downtown Bakersfield, east and west of I-5 at the Grapevine interchange and adjacent to Laval and Edmonston Pumping Plant Roads, in southwestern Kern County, California. Approximately 4,780 acres of the Project area are proposed to be developed and approximately 3,230 acres (roughly 40% of the Specific Plan area) would be designated as exclusive agriculture, with open space, agriculture, and grazing as the predominant uses. The new Grapevine residential community and employment center is proposed to complement and build on the economic development occurring at the adjacent Tejon Ranch Commerce Center (TRCC).

The Project's 4,780 acres development area would be composed of up to 12,000 residential units and up to 5,100,000 square feet of commercial and industrial development. Residential development would include both single-family and multi-family units. Commercial and industrial development could include approximately 2,450,000 square feet of office/research and development, 1,200,000 square feet of retail and 1,450,000 square feet of industrial land uses. A total of 175 acres of the Project site has been set aside for schools, and 96 acres for parks. Other public facilities, including fire stations, a sheriff's substation, transit facilities/park-and-rides, and water and wastewater treatment facilities, are also proposed in this community.

The 3,230 acres of the Project area proposed to be designated as exclusive agriculture are located predominantly along the foothills of the Tehachapi Mountains, existing creek corridors (namely Grapevine and Cattle Creeks), the edges of the California Aqueduct and other associated areas identified as wildlife corridors.

[1] CARB. 2005. Air Quality and Land Use Handbook: A Community Health Perspective. April. Available at: www.arb.ca.gov/ch/handbook.pdf. Accessed: July 2015.

Access to the first phases of the Grapevine community is from I-5 at the existing Grapevine Road and Laval Road interchanges. The existing Grapevine Road/I-5 interchange has limited capacity and will require reconstruction. During later phases of development, the existing Grapevine Road/I-5 interchange is proposed to be expanded and relocated to the north while some functionality may be retained at the existing interchange location. To allow for the relocation and replacement of the interchange, an existing Commercial Vehicle Enforcement Facility (CVEF) operated by the California Highway Patrol (CHP) may be relocated to a parcel owned by Tejon Ranchcorp on the west side of the junction of I-5 and CA-99. Two reconstruction scenarios are proposed for the new Grapevine interchange in the event that the existing CVEF is not moved. The preferred scenario is for the interchange to be constructed immediately south of the existing CVEF location and for the CVEF to be relocated to the north at the location mentioned above. Under both scenarios, the existing interchange (including any performance improvement features) may be used until capacity is reached at the existing Grapevine Road/I-5 interchange. Additional circulation system improvements would include two off-site bridges crossing the California Aqueduct, and potential construction of an off-site alternate truck route to the east of the Project site connecting Edmonston Pumping Plant Road and Laval Road.

1.2 Regulatory Context

The San Joaquin Valley Air Pollution Control District (SJVAPCD) has recently updated the District's Risk Management Policy[2] (SJVAPCD Risk Management Policy) to address the Office of Environmental Health Hazard Assessment's (OEHHA's) Revised Risk Assessment Guidance Document.[3] Ramboll Environ has relied on the SJVAPCD Risk Management Policy in preparing this HRA. The cancer risk calculations in the revised OEHHA guidance manual include age-specific adjustments for infants and children, which are described in more detail in Section 4.

This report evaluates the results of this health risk assessment in relation to SJVAPCD's air quality California Environmental Quality Act (CEQA) significance thresholds for Toxic Air Contaminants (TACs).[4] The TAC CEQA significance thresholds are an incremental cancer risk that equals or exceeds of 20 in a million and a non-cancer hazard index (HI) (chronic and acute HI) that equals or exceeds 1 for the maximally exposed individual.

The issue of whether CEQA requires an assessment of the environment's impact on a project is currently under review by the California Supreme Court[5]. Given contradictory appellate case law on this issue, this technical report does evaluate the I-5 freeway's impact on the Project, and thus provides both information for the public and decision makers as well as the required CEQA evaluation if the Supreme Court concludes that CEQA does require an evaluation of the environment's impact on a project. This technical report evaluates the

[2] SJVAPCD. 2015. Final Staff Report – The District's Updated Risk Management Policy to Address OEHHA's Revised Risk Assessment Guidance Document. May. Available at: http://www.valleyair.org/busind/pto/toxics.htm#RiskManagement. Accessed: July 2015.

[3] OEHHA 2015. Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. February. Available at: http://oehha.ca.gov/air/hot_spots/hotspots2015.html. Accessed: July 2015.

[4] SJVAPCD. Air Quality Significance Thresholds – Toxic Air Contaminants. Available at: http://www.valleyair.org/transportation/0714-GAMAQI-TACs-Thresholds-of-Significance.pdf. Accessed: July 2015.

[5] California Building Industry Association versus Bay Area Air Quality Management District. Supreme Court Case No. S213478 (Review granted November 26, 2013).

significance of TAC emission impacts from the I-5 freeway on the Project, and recommends measures to reduce these TAC impacts to less than significant levels.

2. EMISSIONS CALCULATION METHODOLOGY

The traffic emissions were estimated based on the methodology as described in this section.

2.1 Traffic Data

The traffic data was based on the Traffic Study[6] for the Grapevine Project, which provided AM and PM peak hour traffic volumes on several segments of the I-5 freeway that pass through the proposed Project site. The following four scenarios (Tables 1 through 4) were evaluated in this HRA:

1. Existing No Project (calendar year 2015);
2. Future No Project (calendar year 2040);
3. Existing Plus Project (calendar year 2015); and
4. Future Plus Project (calendar year 2040).

Annual average emission estimates are estimated as the basis for the cancer and chronic non-cancer health risk analyses. The hourly traffic volume data provided by the Traffic Study, must be extrapolated to estimate the annual average emissions. The following steps were taken to extrapolate the peak hour traffic volumes on the I-5 freeway to average daily traffic volumes, which were used to estimate the annual average emissions.

- The existing/future peak hour traffic volumes were converted to average daily traffic volumes using historical freeway vehicle flow data on the I-5 freeway obtained from the California Department of Transportation (CalTrans) Freeway Performance Measurement System (PeMS). Fehr & Peers extracted the hourly traffic counts for all weekdays (Tuesday, Wednesday, and Thursday) between June 12, 2012 and August 16, 2012 at the loop detection station LDS #66310 from the PeMS database. These data were averaged across the entire time period to estimate a typical weekday condition. Since, LDS #66310 is located on the I-5 freeway in the vicinity of the Project site, these average hourly traffic count data were assumed to be representative of the existing traffic on the I-5 freeway. For each existing scenario (No Project and Plus Project), the percentage of the average daily existing traffic flow that occurs during the peak hours was estimated using the PeMS data. This percentage was used to convert both existing and future peak hour traffic into daily average traffic. This calculation is shown in Tables 1 through 5.
- The percentage of the daily Project traffic flow that occurs during the peak hours was estimated using AM peak hour, PM peak hour, and daily Project trip generation rates as shown in Table 6. This factor was used to convert the peak hour Project traffic volumes on the I-5 freeway to average daily traffic volumes.

CalTrans' Traffic Census Program data was used to determine the average daily percentage of trucks travelling on the I-5 freeway. This CalTrans' Traffic Census Program provides annual average daily traffic (AADT) counts for all vehicles and for trucks. 2012 traffic census data on the I-5 freeway at post mile R 15.858 was used to estimate the daily truck percentages for existing conditions in the vicinity of the Project site (Table 7). This truck percentage was used to estimate average daily existing and future truck volumes.

[6] Fehr & Peers. 2015. Transportation Impact Study – Technical Report, Grapevine Project. October.

The Traffic Study data also provides the percentage of trucks in the Project related traffic on the I-5 during the peak hours (Table 8). The maximum truck percentage across all modeled freeway segments (excluding the I-5 and SR-99 truck ramps) was conservatively used to determine the average daily Project truck volumes.

2.2 Emission Factors

The primary TAC associated with high-volume roadways such as the I-5 freeway is DPM. DPM emission factors for calendar years 2015 and 2040, consistent with the assumptions in the Traffic Study, are calculated using the latest version of CARB's mobile source emission inventory, EMFAC2014. Exhaust particulate matter emissions with a diameter less than 10 microns (PM_{10}) from diesel vehicles were used as a proxy for DPM.

As described in the Section 2.1, traffic data was provided for trucks and non-trucks. In order to estimate the emission factors consistent with the traffic data the EMFAC vehicle categories were linked to the traffic vehicle groups as follows

- Non-Trucks = Passenger Cars (identified as LDA), Motorcycles (identified as MCY), Light Duty Trucks (identified as LDT1, LDT2), Medium Duty Trucks (identified as MDV), Motor Homes (identified as MH), Buses (identifies as SBUS, UBUS, and OBUS), and Motor Coach (Identified as Motor Coach).
- Trucks = Light-Heavy Duty Trucks (identified as LHD1 and LHD2), Medium-Heavy Duty Trucks (identified as MHDT), and Heavy-Heavy Duty Trucks (identified as HHDT).

Based on the Traffic Consultant analysis, the traffic on the I-5 freeway in the proximity of the Project site is predominantly free-flowing in nature.[7] Average speeds provided in the traffic study, varied from 65 miles per hour (mph) to 70 mph in existing scenarios (i.e., 'existing no Project' and 'existing plus Project'), and 61 mph to 70 mph in the 'future plus Project' scenario. The 'future no Project' scenario was assumed to have speeds similar to the 'future plus Project' scenario[8]. Non-trucks were assumed to operate at the average speeds provided by the traffic consultant. Since the speed limit for the trucks is a lot lower than the average speed on the freeway segments, trucks were assumed to operate close to the speed limit of 35 mph on the Grapevine Grade and 55 mph elsewhere.

In order to estimate the DPM emissions from all vehicles operating on the I-5 freeway, EMFAC2014 was run at multiple speeds for each vehicle class (non-trucks 60 mph, 65 mph, and 70 mph, trucks 30 mph, 35 mph, 50 mph, and 55 mph). EMFAC2014 model outputs are available in Appendix A. A vehicle mile travelled (VMT) weighted average emission factor was estimated at each speed and the highest emission factor for each vehicle class (truck and non-trucks) was used in the analyses. Emission factors are summarized in Tables 9 (trucks) and 10 (non-trucks).

2.3 Emission Estimates

For each scenario, the average daily emissions from trucks and non-trucks were estimated as a product of the appropriate emission factors, the average daily traffic volumes, and the length of the road segment (Table 11). The 'existing no Project' scenario uses 2015 emission factors. The 'future no Project' and 'future plus Project' scenarios use the 2040 emission

[7] Phone conversation with Rob Hananouchi, Fehr & Peers on May 28, 2015.

[8] Future no project scenario has lower traffic volumes than the future plus project scenario, therefore slightly higher speeds would be expected.

factors, which is consistent with the year assumed by the traffic data. Although the traffic data for the 'existing plus Project' scenario is uses 2040 emission factors, which were chosen to be consistent with the Project traffic data assumption.

The annual average emissions used in the HRA were estimated as a product of the average daily emissions multiplied by 365 days in a year (Table 12). This is a conservative estimate based on the HRA methodology, which assumes a 70-year exposure period for residents and a 13-year exposure period for school children. Since the emissions from vehicles are expected to continually decrease into the future due to vehicle fleet turnover and regulatory measures (e.g., CARB regulation for in-use heavy-duty diesel trucks[9]), the emissions estimates assuming the 2040 emission factor conservatively represents the potential emissions for this analysis. As seen in Table 13, the 2040 diesel emission factors for trucks[10] are representative of the average diesel particulate matter emission factors over each of these exposure periods in comparison to emission factors assuming a 2036 full occupancy for the Project.

[9] CARB. 2015. Truck and Bus Regulation 2014. Available at: http://www.arb.ca.gov/regact/2014/truckbus14/truckbus14.htm. Accessed: November 2015.

[10] As seen in Table 12, trucks emit greater than 97% of the total diesel particulate matter emissions on the section of the I-5 freeway that we are modeling. As a result this comparison is performed only for truck emission factors.

3. AIR DISPERSION MODELING METHODOLOGY

3.1 Air Dispersion Model

In accordance with SVJAPCD's modeling guidance[11] Ramboll Environ used the latest version (14134) of the American Meteorological Society (AMS)/ United States Environmental Protection Agency (EPA) Regulatory Model Improvement Committee Model (AERMOD) for dispersion modeling. This model incorporates multiple variables in its algorithm including local terrain data, meteorological data representation of surface and upper air conditions, and physical specifications of emission sources and receptors. A brief description of the model input parameters is provided below.

3.2 Land Use

AERMOD can evaluate the heat island effects from urban areas to atmospheric transport and dispersion using an urban boundary layer option. Figure 2 shows the current land use in the vicinity of the proposed Project site. This area can currently be considered rural; however, with the inclusion of the proposed Project there will be urbanized land uses at the receptor locations evaluated in this report as described further below. Based on EPA's[12] guidance for determining land use types in air quality models, however, the modeling domain that includes the Project's conceptual land use plan (Figure 1) was found to be rural in nature. Therefore, the rural option was used in AERMOD.

3.3 Terrain Data

Ramboll Environ included elevation dataset from the Multi-Resolution Land Characteristics Consortium[13] to represent the modeling domain (Figure 3). Terrain elevations data for sources and receptors were imported into the model using AERMAP version 11103.

3.4 Meteorological Data

Hourly resolution meteorological surface data, such as wind speed and direction, and upper air data must be provided as inputs to AERMOD for pollutant transport calculations. SJVAPCD provides AERMOD model-ready meteorological data sets for use in air quality and risk impact analyses in the district. SJVAPCD's Bakersfield meteorological data set was chosen for this analyses based on the station's close geographic proximity to the Project site (Figure 4). Figure 5 depicts the wind rose for five year (2009 to 2013) meteorological data set from the Bakersfield station.

3.5 Coordinate System

Ramboll Environ used the Universal Transverse Mercator (UTM) system of coordinates and the World Geodetic System 1984 (WGS84) spheroid as the datum for identifying the UTM coordinates of the various modeling objects (sources and receptors).

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[11] SJVAPCD. Air Quality Modeling: Permitting & CEQA. Available at: http://www.valleyair.org/busind/pto/Tox_Resources/AirQualityMonitoring.htm#modeling_guidance. Accessed: July 2015.

[12] EPA. Guideline on Air Quality Models. Available at: http://www3.epa.gov/scram001/guidance/guide/appw_05.pdf. Accessed: August 2015.

[13] Available at: http://www.mrlc.gov/viewerjs/. Accessed: July 2015.

3.6 Source Parameters

This health risk assessment evaluated segments of I-5 freeway that run through the proposed Project site, including an additional quarter mile on either end of the Project boundary (Figure 6a and 6b). The DPM exhaust emissions generated by the freeway traffic were modeled in AERMOD as a series of adjacent volume sources, which is an accepted practice for modeling mobile sources in a dispersion model. Ramboll Environ calculated the volume source parameters for this analysis based on EPA's Conformity Guidance[14] as shown below:

- Volume source width = Road width multiplied by 2
- Initial lateral dimension = Volume source width ÷ 2.15
- Initial vertical dimension
  - Non-Truck = 1.2 meters
  - Trucks = 3.2 meters
- Release Height
  - Non-Truck = 1.3 meters
  - Truck = 3.4 meters

3.7 Receptor Locations

Ramboll Environ used a freeway following receptor grid that covers the proposed Project site for the AERMOD model run (Figure 7). Details of the grid are provided below:

- Fine Grid Receptors: The fine grid receptors were placed a distance of 25, 50, 75, 100, 150, 200, 250, 300, 350, 400, 450, and 500 meters from the edge of the I-5 freeway. Although the Project site lies along the edge of the I-5 freeway, Ramboll Environ has not placed any receptors closer than 25 meters from the center of the freeway. Receptors within the volume source exclusion zone were removed from the analysis, based on SJVAPCD Risk Management Policy[15].
- Coarse Grid Receptors: Intermediate grid receptors were placed at a distance of 600, 700, 800, 900, 1000, 1250, 1500, 1750, 2000, 2500, 3000, 3500, 4000, 4500, 5000, 5500, 6000, 6500, 7000, 7500, 8000 meters from the edge of the I-5 freeway.
- Discrete Receptors: Discrete receptors were placed in the center of land parcels classified as "School", if a receptor was not placed there during the creation of the receptor grid.
- Boundary Receptors: Boundary receptors were placed a distance of 100 m apart along the approximate Project boundary.

3.8 Emission Rate and Averaging Times

AERMOD model run was performed using a unit emission rate approach (i.e., an emission rate of 1 gram per second for each volume source) for an averaging time of period to obtain

[14] EPA. 2013. Transportation Conformity Guidance for Quantitative Hot-spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas. November. Office of Transportation and Air Quality. Available at: http://www.epa.gov/otaq/stateresources/transconf/projectlevel-hotspot.htm#pm-hotspot. Accessed: July 2015.

[15] SJVAPCD. 2015. Final Staff Report – The District's Updated Risk Management Policy to Address OEHHA's Revised Risk Assessment Guidance Document. May.

annual average dispersion factors at the modeled receptors. In order to reduce the model run time the receptors were spilt into fifteen zones; one model run was performed for each set of receptors. AERMOD input and output files are provided in Appendix B.

4. RISK CHARACTERIZATION

4.1 Chemicals of Potential Concern

The chemical of potential concern included in this HRA is diesel exhaust. Diesel exhaust is a complex mixture of hundreds of individual constituents and is identified by the State of California as a known carcinogen. Under California regulatory guidelines, DPM is used as a surrogate measure of carcinogen exposure for the mixture of chemicals that make up diesel exhaust as a whole. There is currently no acute non-cancer toxicity value available for DPM.

As stated in Section 2, DPM is typically the main driver of cancer risk from freeways[16]. As a result, DPM was the only chemical of potential concern used in this analysis. Other project vehicular emissions, such as criteria pollutants, which can cause adverse health impacts, are assessed as appropriate in the Air Quality Report (e.g., localized CO hotspots analysis, estimated operational mobile source emissions of CO, NOx, and VOC).

4.2 Exposure Assessment and Exposure Pathways

Exposure assessment is concerned with the quantity of a contaminant that people are exposed to during a specific time period, as well as the populations of interest (e.g., residential and other sensitive populations). SJVAPCD Risk Management Policy[17] requires the use of a residential exposure period of 70 years (3rd trimester to age 70). Based on discussion with the SJVAPCD modeling group[18], an exposure period of 13 years (age 5 to 18) and exposure frequency of 180 days per year was used for the schools.

Exposure pathway is the route through which a contaminant enters the body. For air emissions inhalation is usually the primary exposure pathway. However, TACs can also enter the body through primary non-inhalation pathways like dermal exposure, water ingestion, crop ingestion (direct deposition), and soil ingestion and secondary non-inhalation pathways like ingestion of mother's milk, fish, dairy products, all types of meat, and eggs, and crop ingestion (root uptake). DPM does not have multi-pathway factors, therefore only the inhalation exposure pathway was evaluated in accordance with OEHHA guidance.

4.3 Dose-Response Assessment

Dose is the amount of a chemical that enters the human body (or reaches a target organ). Response is the resulting health effect from the level of the dose. Epidemiologist, toxicologist, and other researchers conduct animal and human epidemiological studies to evaluate and establish the casual relationships between the various does and the resulting health effects (responses) for a chemical. These casual relationships are quantified as cancer potency factors (CPFs) or unit risk factors (URFs) for carcinogenic health effects and acute and chronic Reference Exposure Levels (RELs) for non-carcinogenic health effects. Ramboll Environ used the latest version of approved values of CPFs and RELs from revised OEHHA guidance

[16] The South Coast Air Quality Management District's Multiple Air Toxics Exposure Study (MATES IV) shows that DPM contributes to about 83% of the total air toxics risk from on-road vehicles in the South Coast Air Basin. The MATES IV study is available at http://www.aqmd.gov/home/library/air-quality-data-studies/health-studies/mates-iv. Accessed November, 2015.

[17] SJVAPCD. 2015. Final Staff Report – The District's Updated Risk Management Policy to Address OEHHA's Revised Risk Assessment Guidance Document. May.

[18] Email communication with Leland Villalvazo on September 24, 2015.

document[19] in this analysis. During its most recent update to the Air Toxics Hotspots Program Guidance Manual[20], OEHHA reviewed RELs and CPFs to provide consideration for infants and children and did not propose any revisions of the values for DPM.

4.4 Estimation of Cancer Risks and Non-Cancer Risks

Ramboll Environ used CARB's Hotspots Analysis and Reporting Program Version 2 (HARP2) for conducting this HRA. HARP2 is a software suite used to assist with the programmatic requirements of the Air Toxics "Hot Spots" Program (Assembly Bill [AB] 2588). This software combines the tools needed to implement the requirements of AB 2588, such as reporting emission a facilities emissions inventory, determining a facilities prioritization score, conducting air dispersion modeling, and performing a facility HRA.

HARP2 incorporates the requirements of the latest version of OEHHA Air Toxics Hot Spot Risk Assessment guidelines[21], including the age-specific factors that are applied to the cancer risk calculations to reflect the potential exposure of infants and children. This assessment includes the following elements, which have also been adopted as part of SJVAPCD Risk Management Policy[22]:

- Age Group Bins: Cancer risk is estimated separately for the following age group bins: third trimester to age zero, ages zero to less than two, ages two to less than nine, ages two to less than 16, ages 16 to less than 30, and ages 16 to 70. Total cancer risk associated with a particular population of interest and exposure period is estimated by summing up the estimated cancer risk from the appropriate age group bins.
- Age Sensitivity Factors: The following age sensitivity factors (multipliers) are applied while estimating the cancer risk: a 10-fold multiplier for infants (3rd trimester to 2 years old), a 3-fold multiplier for children (ages 2 to 16 years old), and a 1-fold multiplier for adults (ages 16 years and older).
- Breathing Rates: Breathing rates are used for cancer risk assessment. As per OEHHA's proposed methodology, HARP2 uses a different breathing rate for each of the proposed age groups (3rd trimester to age zero, ages zero to less than two, ages two to less than nine, ages two to less than 16, ages 16 to less than 30, and ages 16 to 70). The 95th percentile breathing rate is used for all age groups up to 16 years old and the 80th percentile breathing rate is used for ages 16 to 70.
- Fraction of Time Spent at Home (FAH): For residential cancer risk estimates, the HARP2 default fraction of time spent at home of 0.73 was applied to ages 16 and older. This FAH factor was not used for ages below 16 as it was assumed that children would attend the neighborhood school.

As described in Section 3, Ramboll Environ obtained dispersion factors from the AERMOD model run using the unit emission factor approach. For each analyses scenario described in Section 1, emission rates for the volume sources and the dispersion factors obtained from

[19] Available at: http://oehha.ca.gov/air/hot_spots/pdf/CPFs042909.pdf and http://oehha.ca.gov/air/allrels.html. Accessed: July 2015.

[20] OEHHA. 2015. Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. February.

[21] Ibid.

[22] SJVAPCD. 2015. Final Staff Report – The District's Updated Risk Management Policy to Address OEHHA's Revised Risk Assessment Guidance Document. May.

AERMOD were imported into the air dispersion modeling risk tool (ADMRT) in HARP2. The ADMRT was run with the appropriate DPM emission rates for each scenario to obtain an estimate of cancer risk and non-cancer hazard indices at all modeled receptors. HARP2 model files are provided in Appendix C.

5. RESULTS

5.1 Cancer and Non-Cancer Health Effects

Figure 8 presents the estimated residential cancer risk associated with DPM emissions from the I-5 freeway on the proposed Project site for the '2015 existing no Project' scenario. In this scenario, estimated residential cancer risk exceeds SJVAPCD's CEQA threshold of 20 in a million at almost all the proposed residential land use parcels.

Figure 9 presents the estimated residential cancer risk associated with DPM emissions from the I-5 freeway on the proposed Project site for the '2040 future no Project' scenario, which include future increases in traffic volumes based on projected population and economic growth. As a result of the penetration of cleaner diesel trucks into vehicle fleet in calendar year 2040 required by existing laws and regulations[23,24,25] , even with the projected substantial increase in I-5 traffic under the cumulative scenario, there is a reduction in the residential cancer risk in this scenario as compared to the '2015 existing no Project' scenario. The estimated residential cancer risk exceeds the 20 in a million threshold at locations up to 1,800 feet east of the I-5 freeway and 3,000 feet west of the I-5 freeway.

Figure 10 presents the estimated residential cancer risk associated with DPM emissions from the I-5 freeway on the proposed Project site for the 'existing plus Project' scenario. In this scenario, the residential cancer risk exceeds the 20 in a million threshold at locations within 650 feet east of the I-5 freeway and 1,300 feet west of the I-5 freeway.

Figure 11 presents the estimated residential cancer risk associated with DPM emissions from the I-5 freeway on the proposed Project site for the '2040 future plus Project scenario'. The residential cancer risk exceeds the 20 in a million threshold at locations within 2,000 feet east of the I-5 freeway and 3,600 feet west of the I-5 freeway.

Table 14 provides a summary of estimated cancer risk at the maximum impacted residential and school receptors for all Project scenarios. Please note, that the receptors are classified as residential or school based on the Project's conceptual land use plan (Figure 1), where there are no residential receptors located within 800 feet of the edge of the I-5 freeway.

For the Project scenarios (i.e., 'existing plus Project' and 'future plus Project') the maximum estimated cancer risk at a residential receptor is approximately 24 and 58 in a million for 'existing plus Project' and 'future plus Project' scenarios, respectively. These risk estimates are greater than the 20 in a million threshold. A 66% reduction in DPM emissions would bring the residential cancer risk at the maximum impacted receptor below the 20 in a million threshold for both Project scenarios.

The estimated cancer risk at the proposed locations of schools on the Project site is summarized in Table 15. These risk estimates are well below the 20 in a million threshold; they vary from 0.3 in a million to 2.5 in a million for the Project scenarios.

[23] CARB. California's Advanced Clean Cars Program. Available at: http://www.arb.ca.gov/msprog/consumer_info/advanced_clean_cars/consumer_acc.htm. Accessed: November 2015.

[24] CARB. 2014. Heavy-Duty GHG Phase 1 2013. Available at: http://www.arb.ca.gov/regact/2013/hdghg2013/hdghg2013.htm. Accessed: November 2015.

[25] CARB. 2015. Truck and Bus Regulation 2014. Available at: http://www.arb.ca.gov/regact/2014/truckbus14/truckbus14.htm. Accessed: November 2015.

This risk analysis includes the use of conservative exposure assumptions that likely overestimate actual exposure and risk. These assumptions include a 70-year residential exposure period, including the periods of a resident's life as an infant and child. The OEHHA risk assessment guidance[26] recommends the use of a lower residential exposure period of 30 years because people move periodically instead of living 70 years at the same location. As a result, reported risks are upper-bound estimates, and actual risks will likely be lower than reported.

The maximum chronic health index values at all sensitive receptors resulting from the DPM emissions on the I-5 freeway range from 0.002 to 0.054 across all four modeled scenarios. These values are below SJVAPCD's threshold of 1.0. Table 16 shows chronic non-cancer results for receptors located on school property.

5.2 Evaluation for Early Occupancy

Since the first phase of construction on the Project site is expected to be completed as early as calendar year 2018, early occupants may be present at an earlier time than the assumed date for full Project buildout (i.e., 2040). While traffic volumes may be lower at that time on the I-5 freeway, emission factors may be higher than that assumed in the 2040 analysis. Table 17 provides a comparison of the average diesel particulate matter emission factors for trucks[27] operating during various exposure periods for early occupants as compared to the 2040 emission factors that are used in this analyses. The residential and school cancer risk estimates are directly proportional to the diesel emissions; therefore, the approximate increase in the risk estimates is 34% and 189% for early occupants of residential and school locations, respectively.

Figure12 shows estimated residential cancer risk for early occupants of the Project site for the 'future plus Project' scenario assuming 2018 occupancy. The early occupant residential cancer risk estimate exceeds the 20 in a million threshold at locations within 3,000 feet east of the I-5 freeway and 4,400 feet west of the I-5 freeway. A 74% reduction in DPM emissions will bring the residential cancer risk at the maximum impacted receptor below the 20 in a million threshold. The early occupant cancer risk at proposed school locations are estimated to be below the 20 in a million threshold.

5.3 Mitigation Measures

Mitigation measures to reduce potential exposure to freeway emissions include air filtration technology in buildings, other building design features, vegetative barriers, and setbacks. These measures can also be used in combination. For example, Fisk et al., conducted a study of the performance and costs of particulate air filtration technologies. This study showed that Minimum Efficiency Reporting Value 13 (MERV 13) filters provide an 80% or greater reduction of outdoor fine particulate matter (such as DPM) if the ventilation systems are operated with one air exchange per hour of outside air and four air exchanges of recirculated air[28]. Vegetative barriers also provide some mitigation from freeway emissions.

[26] OEHHA. 2015. Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. February.

[27] As seen in Table 12, trucks emit greater than 97% of the total diesel particulate matter emissions on the section of the I-5 freeway that we are modeling. Therefore, it is reasonable to assume that the total emissions will change in the same manner as the truck emission factors.

[28] Fisk, W.J., D. Faulkner, J. Palonen, and O. Seppanen. 2002. Performance and costs of particle air filtration technologies. *Indoor Air*. 12: 223-234.

Studies have shown that vegetative landscaping can reduce particulate matter emissions by up to 55 to 80 percent at low wind speeds, with greater removal rates for smaller particles <0.1 micrometer (µm) in diameter.[29]

Mitigation Measure: To reduce the health effects from toxic air contaminant emissions from Interstate 5 on residential and other sensitive land uses on the project site to below the San Joaquin Valley Air Pollution Control District's significance threshold of 20 in 1 (or one) million, as part of the tentative tract map application for development of sensitive uses within 3,000 feet east of Interstate 5, or within 4,400 feet west of Interstate 5, the applicant shall describe the toxic air contaminant exposure measures to be implemented to assure that sensitive receptors are not exposed to toxic air contaminant emissions above the District's threshold by implementing one or more of the following measures: setbacks; vegetative barriers; HVAC system filtration technology; or other structural, technology, or design elements. The applicant may also update the health risk assessment (e.g., to take into account improvements in vehicular emissions and technology, and to take into account updated toxicological assessment methodology recommended by the San Joaquin Valley Air Pollution Control District) as part of this tentative tract map submittal.

5.4 Conclusion

In summary, this HRA demonstrates that implementation of feasible mitigation measures will reduce the health risks on the Project site from TAC emissions from the I-5 freeway to below SJVAPCD's CEQA threshold of 20 in a million. Future developments in technology to reduce freeway emissions, air filtration, or alternative approaches to mitigate freeway emissions may eliminate the need to implement any mitigation measures discussed above to address potential health risk impacts from freeway TAC emissions.

[29] Fujii, Erin et al., Removal Rates of Particulate Matter onto Vegetation as a Function of Particle Size, Final Report to Breathe California of Sacramento-Emigrant Trails Health Effects Task Force (HETF) and Sacramento Metropolitan AQMD, *April 30, 2008.* Available at: http://www.sacbreathe.org/Local%20Studies/Vegetation%20Study.pdf. Accessed: August 1, 2014.

TABLES

Table 1. Traffic Volumes on the I-5 Freeway for 2015 Existing No Project Scenario
Tejon Ranch
Lebec, California

Segment ID[1]	Segment Description[1]	AM Peak Hour Traffic Volumes[2]	PM Peak Hour Traffic Volumes[2]	Average Daily Traffic Volumes[3]	Average Daily Truck Volumes[4]	Average Daily Non-Truck Volumes[5]
Northbound						
NB1	Fort Tejon to Grapevine Off-Ramp	1,541	2,035	34,599	8,729	25,869
NB2	Grapevine Off to On-Ramp	1,491	1,994	33,718	8,507	25,211
NB3	Grapevine On-Ramp to Laval Road East Off-Ramp	1,571	2,051	35,044	8,842	26,202
NB4	Laval Road East Off-Ramp to Laval Road West Off-Ramp	1,404	1,793	30,932	7,804	23,128
NB5	Laval Road West Off-Ramp to On-Ramp	1,356	1,718	29,742	7,504	22,238
NB6	Laval Road On-Ramp to I-5 Northbound Off-Ramp	1,561	2,158	35,982	9,078	26,904
NB7	SR 99 Northbound North of I-5	976	1,283	21,856	5,514	16,342
Southbound						
SB1	SR 99 Southbound North of I-5	796	808	15,950	0	15,950
SB2	I-5 Southbound On-Ramp	1,107	1,443	25,357	0	25,357
SB3	I-5 and SR 99 Truck On-Ramp	354	441	7,905	7,905	0
SB4	SR 99 Truck On-Ramp to Laval Road West Off-Ramp	1,461	1,884	33,263	8,392	24,871
SB5	Laval Road East Off-Ramp to Laval Road East Off-Ramp	1,245	1,556	27,853	7,027	20,826
SB6	Laval Road East Off-Ramp to On-Ramp	1,154	1,454	25,934	6,543	19,391
SB7	Laval Road On-Ramp to Grapevine Off-Ramp	1,422	1,780	31,841	8,033	23,807
SB8	Grapevine Off to On-Ramp	1,360	1,730	30,727	7,752	22,975
SB9	Grapevine On-Ramp to Fort Tejon	1,398	1,782	31,622	7,978	23,644

Notes:
1. Refer to Figures 6a and 6b for an illustration of the road segments.
2. Data obtained from Fehr & Peers. 2015. Transportation Impact Study – Technical Report, Grapevine Project. October.
3. Average daily traffic volumes are estimated using the percent of existing traffic in AM and PM Peak hours for the existing no project scenario seen in Table 5.
4. Average daily truck volumes for all traffic segments (except SB1, SB2, and SB3) are calculated using the percentage of trucks seen in Table 7. Segments SB1 and SB2 have no truck traffic while Segment SB3 is a truck only segment.
5. Average daily non-truck volumes are estimated as the difference between average daily volumes and average daily truck volumes.

Abbreviations:
AM - ante meridiem or before midday
I-5 - Interstate-5
PM - post meridiem or after midday
SR 99 - State Route 99

Source:
Q:\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]T1_ExistingNoProjVol

Table 2. Traffic Volumes on the I-5 Freeway for 2040 Future No Project Scenario
Tejon Ranch
Lebec, California

Segment ID[1]	Segment Description[1]	AM Peak Hour Traffic Volumes[2]	PM Peak Hour Traffic Volumes[2]	Average Daily Traffic Volumes[3]	Average Daily Truck Volumes[4]	Average Daily Non-Truck Volumes[5]
Northbound						
NB1	Fort Tejon to Grapevine Off-Ramp	3,870	5,570	91,334	23,044	68,291
NB2	Grapevine Off to On-Ramp	3,840	5,470	90,076	22,726	67,350
NB3	Grapevine On-Ramp to Laval Road East Off-Ramp	3,850	5,480	90,270	22,775	67,495
NB4	Laval Road East Off-Ramp to Laval Road West Off-Ramp	3,570	5,160	84,465	21,310	63,154
NB5	Laval Road West Off-Ramp to On-Ramp	3,490	5,060	82,723	20,871	61,852
NB6	Laval Road On-Ramp to I-5 Northbound Off-Ramp	3,820	5,510	90,270	22,775	67,495
NB7	SR 99 Northbound North of I-5	2,010	2,760	46,151	11,644	34,507
Southbound						
SB1	SR 99 Southbound North of I-5	1,630	1,800	34,108	0	34,108
SB2	I-5 Southbound On-Ramp	3,250	3,490	67,023	0	67,023
SB3	I-5 and SR 99 Truck On-Ramp	870	1,370	22,275	22,275	0
SB4	SR 99 Truck On-Ramp to Laval Road West Off-Ramp	4,120	4,860	89,297	22,530	66,768
SB5	Laval Road East Off-Ramp to Laval Road East Off-Ramp	3,780	4,490	82,237	20,748	61,489
SB6	Laval Road East Off-Ramp to On-Ramp	3,640	4,320	79,154	19,971	59,184
SB7	Laval Road On-Ramp to Grapevine Off-Ramp	4,110	4,770	88,303	22,279	66,024
SB8	Grapevine Off to On-Ramp	4,100	4,770	88,203	22,254	65,950
SB9	Grapevine On-Ramp to Fort Tejon	4,120	4,890	89,596	22,605	66,991

Notes:
1. Refer to Figures 6a and 6b for an illustration of the road segments.
2. Data obtained from Fehr & Peers. 2015. Transportation Impact Study – Technical Report, Grapevine Project. October.
3. Average daily traffic volumes are estimated using the percent of existing traffic in AM and PM Peak hours for the existing plus project scenario seen in Table 5.
4. Average daily truck volumes for all traffic segments (except SB1, SB2, and SB3) are calculated using the percentage of trucks seen in Table 7. Segments SB1 and SB2 have no truck traffic while Segment SB3 is a truck only segment.
5. Average daily non-truck volumes are estimated as the difference between average daily volumes and average daily truck volumes.

Abbreviations:
AM - ante meridiem or before midday
I-5 - Interstate-5
PM - post meridiem or after midday
SR 99 - State Route 99

Source:
Q:\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]T2_FutureNoProjVol

Table 3. Traffic Volumes on the I-5 Freeway for 2015 Existing Plus Project Scenario
Tejon Ranch
Lebec, California

Segment ID[1]	Segment Description[1]	AM Peak Hour Traffic Volumes[2]		PM Peak Hour Traffic Volumes[2]		Average Daily Traffic Volumes		Average Daily Truck Volumes			Average Daily Non-Truck Volumes[8]		
		Existing	Project[3]	Existing	Project[3]	Existing[4]	Project[5]	Existing[6]	Project[7]	Total	Existing	Project	Total
Northbound													
NB1	Fort Tejon to Grapevine Off-Ramp	1,541	720	2,035	990	37,302	9,047	9,411	1,740	11,151	27,891	7,307	35,197
NB2	Grapevine Off to On-Ramp	1,491	-40	1,994	-140	36,353	-952	9,172	-183	8,989	27,181	-769	26,412
NB3	Grapevine On-Ramp to Laval Road East Off-Ramp	1,571	1,600	2,051	1,180	37,782	14,707	9,532	2,828	12,361	28,249	11,879	40,128
NB4	Laval Road East Off-Ramp to Laval Road West Off-Ramp	1,404	1,390	1,793	1,100	33,349	13,173	8,414	2,533	10,947	24,935	10,640	35,574
NB5	Laval Road West Off-Ramp to On-Ramp	1,356	1,370	1,718	1,100	32,065	13,067	8,090	2,513	10,603	23,975	10,554	34,530
NB6	Laval Road On-Ramp to I-5 Northbound Off-Ramp	1,561	1,800	2,158	1,570	38,794	17,829	9,788	3,429	13,216	29,006	14,400	43,406
NB7	SR 99 Northbound North of I-5	976	1,250	1,283	1,200	23,564	12,961	5,945	2,493	8,438	17,619	10,469	28,088
Southbound													
SB1	SR 99 Southbound North of I-5	796	520	808	1,420	17,379	10,263	0	0	0	17,379	10,263	27,643
SB2	I-5 Southbound On-Ramp	1,107	650	1,443	1,810	27,629	13,014	0	0	0	27,629	13,014	40,644
SB3	I-5 and SR 99 Truck On-Ramp	354	150	441	170	8,614	1,693	8,614	1,693	10,307	0	0	0
SB4	SR 99 Truck On-Ramp to Laval Road West Off-Ramp	1,461	800	1,884	1,980	36,243	14,707	9,144	2,828	11,973	27,099	11,879	38,978
SB5	Laval Road East Off-Ramp to Laval Road East Off-Ramp	1,245	780	1,556	1,650	30,349	12,856	7,657	2,472	10,129	22,692	10,383	33,075
SB6	Laval Road East Off-Ramp to On-Ramp	1,154	580	1,454	1,260	28,258	9,734	7,129	1,872	9,001	21,128	7,862	28,991
SB7	Laval Road On-Ramp to Grapevine Off-Ramp	1,422	790	1,780	1,450	34,694	11,850	8,753	2,279	11,032	25,941	9,572	35,512
SB8	Grapevine Off to On-Ramp	1,360	-50	1,730	-220	33,480	-1,428	8,447	-275	8,172	25,033	-1,154	23,880
SB9	Grapevine On-Ramp to Fort Tejon	1,398	530	1,782	930	34,456	7,724	8,693	1,485	10,179	25,762	6,239	32,001

Notes:
1. Refer to Figures 6a and 6b for an illustration of the road segments.
2. Data obtained from Fehr & Peers. 2015. Transportation Impact Study – Technical Report, Grapevine Project. October.
3. Project traffic volumes on some segments are negative. These represent existing traffic that would get off the freeway to use services on the Project site.
4. Average daily existing traffic volumes are estimated using the percent of existing traffic in AM and PM Peak hours for the existing no project scenario seen in Table 5.
5. Average daily project traffic volumes are estimated using the percent of project traffic in AM and PM Peak hours seen in Table 6.
6. Average daily truck volumes for all traffic segments (except SB1, SB2, and SB3) are calculated using the percentage of trucks seen in Table 7. Segments SB1 and SB2 have no truck traffic while Segment SB3 is a truck only segment.
7. Average daily truck volumes for all traffic segments (except SB1, SB2, and SB3) are calculated using maximum percentage of trucks in the northbound and southbound directions seen in Table 8. Segments SB1 and SB2 have no truck traffic while Segment SB3 is a truck only segment.
8. Average daily non-truck volumes are estimated as the difference between average daily volumes and average daily truck volumes.

Abbreviations:
AM - ante meridiem or before midday
I-5 - Interstate-5
PM - post meridiem or after midday
SR 99 - State Route 99

Source:
Q:\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]T3_ExistingPlusProjVol

Table 4. Traffic Volumes on the I-5 Freeway for 2040 Future Plus Project Scenario
Tejon Ranch
Lebec, California

Segment ID[1]	Segment Description[1]	AM Peak Hour Traffic Volumes[2]		PM Peak Hour Traffic Volumes[2]		Average Daily Traffic Volumes		Average Daily Truck Volumes			Average Daily Non-Truck Volumes[8]		
		Future	Project[3]	Future	Project[3]	Future[4]	Project[5]	Future[6]	Project[7]	Total	Future	Project	Total
Northbound													
NB1	Fort Tejon to Grapevine Off-Ramp	3,870	650	5,570	980	98,470	8,623	24,844	1,544	26,389	73,626	7,079	80,705
NB2	Grapevine Off to On-Ramp	3,840	0	5,470	10	97,114	53	24,502	9	24,511	72,612	43	72,656
NB3	Grapevine On-Ramp to Laval Road East Off-Ramp	3,850	1,570	5,480	970	97,323	13,438	24,555	2,407	26,961	72,768	11,031	83,799
NB4	Laval Road East Off-Ramp to Laval Road West Off-Ramp	3,570	1,270	5,160	820	91,064	11,057	22,976	1,980	24,956	68,089	9,077	77,165
NB5	Laval Road West Off-Ramp to On-Ramp	3,490	1,210	5,060	810	89,187	10,687	22,502	1,914	24,416	66,685	8,773	75,457
NB6	Laval Road On-Ramp to I-5 Northbound Off-Ramp	3,820	1,600	5,510	1,220	97,323	14,919	24,555	2,672	27,227	72,768	12,247	85,015
NB7	SR 99 Northbound North of I-5	2,010	1,110	2,760	930	49,757	10,792	12,554	1,933	14,487	37,203	8,859	46,063
Southbound													
SB1	SR 99 Southbound North of I-5	1,630	460	1,800	1,330	37,164	9,470	0	0	0	37,164	9,470	46,634
SB2	I-5 Southbound On-Ramp	3,250	570	3,490	1,690	73,028	11,956	0	0	0	73,028	11,956	84,985
SB3	I-5 and SR 99 Truck On-Ramp	870	120	1,370	140	24,271	1,375	24,271	1,375	25,646	0	0	0
SB4	SR 99 Truck On-Ramp to Laval Road West Off-Ramp	4,120	690	4,860	1,830	97,299	13,332	24,549	2,388	26,936	72,750	10,944	83,694
SB5	Laval Road East Off-Ramp to Laval Road East Off-Ramp	3,780	670	4,490	1,490	89,606	11,427	22,608	2,047	24,654	66,998	9,381	76,379
SB6	Laval Road East Off-Ramp to On-Ramp	3,640	530	4,320	1,170	86,247	8,994	21,760	1,611	23,371	64,487	7,383	71,870
SB7	Laval Road On-Ramp to Grapevine Off-Ramp	4,110	770	4,770	1,370	96,216	11,321	24,275	2,028	26,303	71,940	9,294	81,234
SB8	Grapevine Off to On-Ramp	4,100	0	4,770	0	96,107	0	24,248	0	24,248	71,859	0	71,859
SB9	Grapevine On-Ramp to Fort Tejon	4,120	460	4,890	920	97,624	7,301	24,631	1,308	25,938	72,994	5,993	78,987

Notes:
1. Refer to Figures 6a and 6b for an illustration of the road segments.
2. Data obtained from Fehr & Peers. 2015. Transportation Impact Study – Technical Report, Grapevine Project. October.
3. Project traffic volumes on some segments are negative. These represent future traffic that would get off the freeway to use services on the Project site.
4. Average daily existing traffic volumes are estimated using the percent of existing traffic in AM and PM Peak hours for the existing plus project scenario seen in Table 5.
5. Average daily project traffic volumes are estimated using the percent of project traffic in AM and PM Peak hours seen in Table 6.
6. Average daily truck volumes for all traffic segments (except SB1, SB2, and SB3) are calculated using the percentage of trucks seen in Table 7. Segments SB1 and SB2 have no truck traffic while Segment SB3 is a truck only segment.
7. Average daily truck volumes for all traffic segments (except SB1, SB2, and SB3) are calculated using maximum percentage of trucks in the northbound and southbound directions seen in Table 8. Segments SB1 and SB2 have no truck traffic while Segment SB3 is a truck only segment.
8. Average daily non-truck volumes are estimated as the difference between average daily volumes and average daily truck volumes.

Abbreviations:
AM - ante meridiem or before midday
I-5 - Interstate-5
PM - post meridiem or after midday
SR 99 - State Route 99

Source:
Q:\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]T4_FuturePlusProjVol

Table 5. Percentage of Average Daily Existing Traffic Volumes During Peak Hours
Tejon Ranch
Lebec, California

Direction	Average Daily Traffic Volumes[1]	Traffic Volumes in AM Peak Period[1]		Traffic Volumes in AM Peak Period[1]		Percentage of Average Daily Traffic in AM and PM Peak Hours	
		7:00 AM to 8:00 AM	8:00 AM to 9:00 AM	4:00 PM to 5:00 PM	5:00 PM to 6:00 PM	Existing Traffic in Existing Plus Project Scenario[2]	Existing Traffic in Existing No Project Scenario3
Northbound	35,779	1,581	1,503	2,195	1,927	9.6%	10.3%
Southbound	34,098	1,204	1,486	1,964	1,943	9.2%	10.1%

Notes:
1. Data extracted from CalTrans Freeway Performance Measurement System (PeMS). Represents typical weekday condition at loop detection station LDS #66310 between June 12, 2012 and August 16, 2012.
2. The AM and PM peak periods are defined as 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM respectively. For the existing plus project and future plus project scenarios, the AM and PM peak hours would occur in the AM and PM peak periods, however the exact hour is not known. As a conservative measure, the minimum percent traffic in these time periods is used; this results in a higher estimates of average daily traffic volumes.
3. For the existing no project and future no project scenarios the AM and PM peak hours in the southbound direction occur at 8:00 AM to 9:00 AM and 5:00 PM to 6:00 PM respectively; the AM and PM peak hours in the northbound direction occur at 8:00 AM to 9:00 AM and 4:00 PM to 5:00 PM respectively.

Abbreviations:
AM - ante meridiem or before midday
CalTrans - California Department of Transportation
LDS - loop detection station
PeMS - CalTrans Freeway Performance Measurement System
PM - post meridiem or after midday

Source:
Q:\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]T5_Background_ADT_Ratio

Table 6. Percentage of Average Daily Project Traffic Volumes During Peak Hours
Tejon Ranch
Lebec, California

Project Trip Generation during AM Peak Hour[1,2]	Project Trip Generation during PM Peak Hour[1,3]	Average Daily Project Trip Generation[1]	Percentage of Average Daily Project Traffic in AM and PM Peak Hours
17,286	20,651	200,701	18.9%

Notes:
1. Data obtained from Fehr & Peers. 2015. Transportation Impact Study – Technical Report, Grapevine Project. October.
2. The AM Peak hour occurs between 7:00 am and 9:00 am.
3. The PM Peak hour occurs between 4:00 pm and 6:00 pm.

Abbreviations:
AM - ante meridiem or before midday
PM - post meridiem or after midday

Source:

Q:\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]T6_Project_ADT_Ratio

Table 7. Average Daily Truck Percentage in Existing Traffic
Tejon Ranch
Lebec, California

Calendar Year	Annual Average Daily Trips[1]	Annual Average Daily Truck Trips[2]	Average Daily Truck Percentage
2012	140,000	35,322	25.2%

Notes:
1. Traffic census data for Leg B (behind) at post mile R 15.858. This location represents the section of the I-5 freeway being modeled. Available at: http://traffic-counts.dot.ca.gov/. Accessed: September 2015.

Abbreviations:
I-5 - Interstate-5

Source:

\\wcirvfps1\projects\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]T7_Background_Truck%

Table 8. Percent Truck Volumes in Project Traffic
Tejon Ranch
Lebec, California

Segment ID[1]	Segment Description[1]	2015 Existing Plus Project[2]		2040 Future Plus Project[2]	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Northbound					
NB1	Fort Tejon to Grapevine Off-Ramp	10.8%	8.2%	10.8%	8.2%
NB2	Grapevine Off to On-Ramp	0.0%	0.0%	0.0%	0.0%
NB3	Grapevine On-Ramp to Laval Road East Off-Ramp	5.6%	10.2%	5.7%	8.2%
NB4	Laval Road East Off-Ramp to Laval Road West Off-Ramp	5.8%	10.9%	5.5%	9.8%
NB5	Laval Road West Off-Ramp to On-Ramp	5.8%	10.9%	5.8%	9.9%
NB6	Laval Road On-Ramp to I-5 Northbound Off-Ramp	7.8%	12.1%	7.5%	11.5%
NB7	SR 99 Northbound North of I-5	8.8%	12.5%	8.1%	11.8%
Southbound					
SB1	SR 99 Southbound North of I-5	0.0%	0.0%	0.0%	0.0%
SB2	I-5 Southbound On-Ramp	0.0%	0.0%	0.0%	0.0%
SB3	I-5 and SR 99 Truck On-Ramp	100.0%	100.0%	100.0%	100.0%
SB4	SR 99 Truck On-Ramp to Laval Road West Off-Ramp	18.8%	8.6%	17.4%	7.7%
SB5	Laval Road East Off-Ramp to Laval Road East Off-Ramp	19.2%	7.3%	17.9%	6.0%
SB6	Laval Road East Off-Ramp to On-Ramp	19.0%	5.6%	17.0%	4.3%
SB7	Laval Road On-Ramp to Grapevine Off-Ramp	16.5%	4.8%	14.3%	3.6%
SB8	Grapevine Off to On-Ramp	0.0%	4.5%	0.0%	0.0%
SB9	Grapevine On-Ramp to Fort Tejon	15.1%	9.7%	15.2%	8.7%
Maximum Truck Percentage in Project Traffic[3]		**19.2%**		**17.9%**	

Notes:
1. Refer to Figures 6a and 6b for an illustration of the road segments.
2. Data obtained from Fehr & Peers. 2015. Transportation Impact Study – Technical Report, Grapevine Project. October.
3. The maximum truck percentage excludes Segments SB1, SB2, and SB3; Segments SB1 and SB2 have no truck traffic while Segment SB3 is a truck only segment.

Abbreviations:
AM - ante meridiem or before midday
I-5 - Interstate-5
PM - post meridiem or after midday
SR 99 - State Route 99

Source:
Q:\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]T8_Project_Truck%

Table 9. Diesel Particulate Matter Emission Factors for Trucks
Tejon Ranch
Lebec, California

EMFAC Vehicle Class	Fuel	Vehicle Miles Travelled in 2015[1]	Vehicle Miles Travelled in 2040[2]	Diesel Particulate Matter Emission Factors in Calendar Year 2015[2,3]				Diesel Particulate Matter Emission Factors in Calendar Year 2040[2,3]			
				55 mph	50 mph	35 mph	30 mph	55 mph	50 mph	35 mph	30 mph
LHDT1	GAS	340,324	120,340	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LHDT1	DSL	378,435	201,905	2.65E-02	2.56E-02	2.95E-02	3.37E-02	6.86E-03	7.05E-03	8.62E-03	9.63E-03
LHDT2	GAS	80,833	39,886	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LHDT2	DSL	147,191	98,000	2.24E-02	2.18E-02	2.53E-02	2.88E-02	5.75E-03	6.08E-03	7.62E-03	8.43E-03
MHDT	GAS	52,476	62,254	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MHDT	DSL	509,656	564,062	1.82E-01	1.62E-01	1.48E-01	1.59E-01	2.50E-03	2.64E-03	3.20E-03	3.44E-03
HHDT	GAS	11,135	8,358	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
HHDT	DSL	3,139,094	5,220,817	7.61E-02	7.00E-02	7.18E-02	7.93E-02	4.47E-03	4.74E-03	5.75E-03	6.19E-03
Truck Emission Factors[4]				**7.40E-02**	6.76E-02	6.78E-02	**7.45E-02**	4.23E-03	**4.47E-03**	5.43E-03	**5.86E-03**

Notes:
1. Vehicle miles travelled for each combination of vehicle class, fuel, and calendar year are obtained from EMFAC2014 Model Output Table A.2 in Appendix A.
2. For purposes of this analysis, diesel particulate matter emissions are assumed to be equal to PM_{10} running exhaust emissions from diesel vehicles. Therefore, emission factors for the gasoline vehicles are set to zero. For diesel vehicles, emission factors for each combination of vehicle class, speed, and calendar year are obtained from EMFAC2014 Model Output Table A.1 in Appendix A.
3. Emission factors are calculated as a VMT weighted average.

Abbreviations:
CARB - California Air Resources Board
DSL - diesel
EMFAC - CARB's mobile source emission inventory model
GAS - gasoline
HHDT - heavy-heavy duty truck
LHDT1 - light-heavy duty trucks (8501-10000 pounds)
LHDT2 - light-heavy duty trucks (10001-14000 pounds)
MHDT - medium-heavy duty truck
mph - miles per hour
PM_{10} - particulate matter less than 10 microns in diameter
VMT - vehicle miles travelled

Source:
Q:\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]T9_Truck_EF

Table 10. Diesel Particulate Matter Emission Factors for Non-Trucks
Tejon Ranch
Lebec, California

EMFAC Vehicle Class	Fuel	Vehicle Miles Travelled in Calendar Year 2015[1]	Vehicle Miles Travelled in Calendar Year 2040[1]	Diesel Particulate Matter Emission Factors in Calendar Year 2015[2,3]		Diesel Particulate Matter Emission Factors in Calendar Year 2040[2,3]		
				70 mph	65 mph	70 mph	65 mph	60 mph
LDA	GAS	9,579,675	16,530,264	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LDA	DSL	74,935	229,478	1.94E-02	1.80E-02	5.96E-04	5.95E-04	5.94E-04
LDA	ELEC	59,733	2,994,970	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LDT1	GAS	814,944	1,124,920	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LDT1	DSL	1,423	632	1.98E-01	1.82E-01	3.96E-03	3.90E-03	3.81E-03
LDT1	ELEC	382	507	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LDT2	GAS	3,482,563	6,944,932	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LDT2	DSL	4,846	15,266	6.89E-03	6.53E-03	3.23E-03	3.23E-03	3.23E-03
MCY	GAS	128,234	198,323	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MDV	GAS	3,715,876	3,473,185	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MDV	DSL	31,321	97,281	1.09E-02	1.02E-02	7.89E-04	7.89E-04	7.87E-04
MH	GAS	20,354	13,313	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MH	DSL	6,835	3,842	2.82E-01	2.42E-01	3.98E-02	3.33E-02	3.00E-02
OBUS	GAS	24,244	33,512	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
OBUS	DSL	12,108	20,127	6.77E-02	7.42E-02	3.04E-03	2.97E-03	3.11E-03
SBUS	GAS	6,764	9,275	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SBUS	DSL	16,595	17,566	7.01E-02	7.01E-02	2.30E-03	2.30E-03	2.30E-03
UBUS	GAS	15,977	23,469	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
UBUS	DSL	39,434	24,821	1.45E-01	1.45E-01	6.18E-03	1.19E-02	9.73E-03
Non Truck Emission Factors[4]				**6.51E-04**	6.31E-04	2.12E-05	**2.48E-05**	2.28E-05

Notes:

1. Vehicle miles travelled for each combination of vehicle class, fuel, and calendar year are obtained from EMFAC2014 Model Output Table A.2 in Appendix A.
2. For purposes of this analysis, diesel particulate matter emissions are assumed to be equal to PM_{10} running exhaust emissions from diesel vehicles. Therefore, emission factors for the gasoline vehicles are set to zero. For diesel vehicles, emission factors for each combination of vehicle class, speed, and calendar year are obtained from EMFAC2014 Model Output Table A.1 in Appendix A. Based on CARB's direction, whenever the emission factor at a particular speed was not available in Table A.1, statewide emission factors from EMFAC2014 Model Output Table A.3 in Appendix A were used.
3. Emission factors are calculated as a VMT weighted average.

Abbreviations:

CARB - California Air Resources Board
DSL - diesel
ELEC - electric
EMFAC - CARB's mobile source emission inventory model
GAS - gasoline
LDA - passenger car
LDT1 - light duty trucks (0-3750 pounds)
LDT2- light duty trucks (3751-5750 pounds)
MCY - motorcycle
MDV - medium duty trucks (5751-8500 pounds)
MH - motor homes
mph - miles per hour
OBUS - other buses
PM_{10} - particulate matter less than 10 microns in diameter
SBUS - school bus
UBUS - urban bus
VMT - vehicle miles travelled

Source:

Q:\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]T10_NonTruck_EF

Table 11. Average Daily Diesel Particulate Matter Emissions Estimates
Tejon Ranch
Lebec, California

Segment ID[1]	Segment Description[1]	Length[2] (miles)	Average Daily Diesel Particulate Matter Emission Estimates[3] (lb/day)							
			Existing No Project 2015		Future No Project 2040		Existing Plus Project 2040[4]		Future Plus Project 2040	
			Trucks	Non-Trucks	Trucks	Non-Trucks	Trucks	Non-Trucks	Trucks	Non-Trucks
Northbound										
NB1	Fort Tejon to Grapevine Off-Ramp	1.61	2.303	0.060	0.478	0.006	0.231	0.003	0.548	0.007
NB2	Grapevine Off to On-Ramp	0.35	0.485	0.013	0.078	0.001	0.031	0.001	0.084	0.001
NB3	Grapevine On-Ramp to Laval Road East Off-Ramp	2.77	3.994	0.104	0.622	0.010	0.338	0.006	0.736	0.013
NB4	Laval Road East Off-Ramp to Laval Road West Off-Ramp	0.23	0.298	0.008	0.049	0.001	0.025	0.000	0.058	0.001
NB5	Laval Road West Off-Ramp to On-Ramp	0.28	0.343	0.009	0.058	0.001	0.029	0.001	0.068	0.001
NB6	Laval Road On-Ramp to I-5 Northbound Off-Ramp	1.16	1.723	0.045	0.261	0.004	0.152	0.003	0.312	0.005
NB7	SR 99 Northbound North of I-5	0.39	0.351	0.009	0.045	0.001	0.032	0.001	0.056	0.001
Southbound										
SB1	SR 99 Southbound North of I-5	0.24	0	0.006	0	0.000	0	0.0004	0	0.001
SB2	I-5 Southbound On-Ramp	0.26	0	0.009	0	0.001	0	0.001	0	0.001
SB3	I-5 and SR 99 Truck On-Ramp	0.52	0.667	0	0.114	0	0.053	0	0.131	0
SB4	SR 99 Truck On-Ramp to Laval Road West Off-Ramp	1.21	1.660	0.043	0.269	0.004	0.143	0.003	0.322	0.006
SB5	Laval Road East Off-Ramp to Laval Road East Off-Ramp	0.23	0.267	0.007	0.048	0.001	0.023	0.0004	0.057	0.001
SB6	Laval Road East Off-Ramp to On-Ramp	0.33	0.357	0.009	0.066	0.001	0.030	0.001	0.077	0.001
SB7	Laval Road On-Ramp to Grapevine Off-Ramp	2.57	3.368	0.088	0.565	0.009	0.280	0.005	0.667	0.011
SB8	Grapevine Off to On-Ramp	0.18	0.229	0.006	0.040	0.001	0.015	0.000	0.043	0.001
SB9	Grapevine On-Ramp to Fort Tejon	1.72	2.257	0.058	0.503	0.006	0.227	0.003	0.577	0.007

Notes:
1. Refer to Figures 6a and 6b for an illustration of the road segments.
2. Segment length was determined using aerial imagery.
3. Average daily emissions are estimate using emission factors in Tables 9 and 10, traffic volumes in Tables 1 through 4, and the traffic link lengths shown in this table. For non-trucks, the maximum emission factor in speed ranging from 60-70 mph is used. For trucks, the maximum emission factor in speed range 50-55 mph is used, with the exception of segments NB1 and SB9. Segments NB1 and SB9 are on the Grapevine Grade which has a speed limit is 35 mph; therefore, the maximum emission factor in speed range 30-35 mph is used on these segments.
4. Although the traffic data for the existing no Project scenario is for calendar year 2015, the Project will not exist in 2015. Therefore, the 2040 emission factors are used for this scenario. Refer to Section 2.3 of the main report for further details.

Abbreviations:
g - grams
I-5 - Interstate-5
lb - pounds
mph - miles per hour
SR 99 - State Route 99

Conversion Factor:
453.59 g/lb

Source:
\\wcirvfps1\projects\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]T11_Emissions_Daily

Table 12. Annual Average Diesel Particulate Matter Emissions Estimates
Tejon Ranch
Lebec, California

Segment ID[1]	Segment Description[1]	AERMOD Source Group	Source Group Type	AERMOD Volume Source IDs	Number of Volume Sources	Annual Average Diesel Particulate Matter Emission Estimates[2] (lb/year)			
						Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[3]	Future Plus Project 2040
Trucks									
NB1	Fort Tejon to Grapevine Off-Ramp	NB1T	Truck	T133-T220	88	840.49	174.59	84.488	199.94
NB2	Grapevine Off to On-Ramp	NB2T	Truck	T221-T239	19	176.86	28.56	11.297	30.81
NB3	Grapevine On-Ramp to Laval Road East Off-Ramp	NB3T	Truck	T240-T391	152	1,457.95	227.03	123.218	268.77
NB4	Laval Road East Off-Ramp to Laval Road West Off-Ramp	NB4T	Truck	T392-T404	13	108.63	17.93	9.212	21.00
NB5	Laval Road West Off-Ramp to On-Ramp	NB5T	Truck	T405-T419	15	125.31	21.07	10.704	24.65
NB6	Laval Road On-Ramp to I-5 Northbound Off-Ramp	NB6T	Truck	T420-T483	64	628.99	95.39	55.355	114.04
NB7	SR 99 Northbound North of I-5	NB7T	Truck	T85-T113	29	128.13	16.36	11.852	20.35
SB1	SR 99 Southbound North of I-5	SB1T	Truck	T58-T84	27	0	0	0	0
SB2	I-5 Southbound On-Ramp	SB2T	Truck	T114-T132	19	0	0	0	0
SB3	I-5 and SR 99 Truck On-Ramp	SB3T	Truck	T1-T57	57	243.46	41.47	19.188	47.75
SB4	SR 99 Truck On-Ramp to Laval Road West Off-Ramp	SB4T	Truck	T484-T550	67	605.87	98.33	52.253	117.56
SB5	Laval Road East Off-Ramp to Laval Road East Off-Ramp	SB5T	Truck	T551-T563	13	97.51	17.40	8.497	20.68
SB6	Laval Road East Off-Ramp to On-Ramp	SB6T	Truck	T564-T581	18	130.14	24.01	10.823	28.10
SB7	Laval Road On-Ramp to Grapevine Off-Ramp	SB7T	Truck	T687-T827	141	1,229.32	206.10	102.057	243.32
SB8	Grapevine Off to On-Ramp	SB8T	Truck	T582-T591	10	83.64	14.51	5.330	15.81
SB9	Grapevine On-Ramp to Fort Tejon	SB9T	Truck	T592-T686	95	823.87	183.69	82.711	210.77
Non-Trucks									
NB1	Fort Tejon to Grapevine Off-Ramp	NB1N	Non Truck	N133-N220	88	21.76	2.19	1.130	2.59
NB2	Grapevine Off to On-Ramp	NB2N	Non Truck	N221-N239	19	4.61	0.47	0.184	0.51
NB3	Grapevine On-Ramp to Laval Road East Off-Ramp	NB3N	Non Truck	N240-N391	152	38.01	3.74	2.221	4.64
NB4	Laval Road East Off-Ramp to Laval Road West Off-Ramp	NB4N	Non Truck	N392-N404	13	2.83	0.30	0.166	0.36
NB5	Laval Road West Off-Ramp to On-Ramp	NB5N	Non Truck	N405-N419	15	3.27	0.35	0.194	0.42
NB6	Laval Road On-Ramp to I-5 Northbound Off-Ramp	NB6N	Non Truck	N420-N483	64	16.40	1.57	1.010	1.98
NB7	SR 99 Northbound North of I-5	NB7N	Non Truck	N85-N113	29	3.34	0.27	0.219	0.36
SB1	SR 99 Southbound North of I-5	SB1N	Non Truck	N58-N84	27	2.02	0.16	0.134	0.23
SB2	I-5 Southbound On-Ramp	SB2N	Non Truck	N114-N132	19	3.39	0.34	0.207	0.43
SB3	I-5 and SR 99 Truck On-Ramp	SB3N	Non Truck	N1-N57	57	0	0	0.000	0

Table 12. Annual Average Diesel Particulate Matter Emissions Estimates
Tejon Ranch
Lebec, California

Segment ID[1]	Segment Description[1]	AERMOD Source Group	Source Group Type	AERMOD Volume Source IDs	Number of Volume Sources	Annual Average Diesel Particulate Matter Emission Estimates[2] (lb/year)			
						Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[3]	Future Plus Project 2040
Non-Trucks									
SB4	SR 99 Truck On-Ramp to Laval Road West Off-Ramp	SB4N	Non Truck	N484-N550	67	15.79	1.62	0.945	2.03
SB5	Laval Road East Off-Ramp to Laval Road East Off-Ramp	SB5N	Non Truck	N551-N563	13	2.54	0.29	0.154	0.36
SB6	Laval Road East Off-Ramp to On-Ramp	SB6N	Non Truck	N564-N581	18	3.39	0.40	0.194	0.48
SB7	Laval Road On-Ramp to Grapevine Off-Ramp	SB7N	Non Truck	N687-N827	141	32.05	3.39	1.824	4.17
SB8	Grapevine Off to On-Ramp	SB8N	Non Truck	N582-N591	10	2.18	0.24	0.086	0.26
SB9	Grapevine On-Ramp to Fort Tejon	SB9N	Non Truck	N592-N686	95	21.33	2.31	1.102	2.72

Notes:
1. Refer to Figures 6a and 6b for an illustration of the road segments.
2. Annual average emissions are estimated using the average daily emissions and the number of days in a year.
3. Although the traffic data for the existing no Project scenario is for calendar year 2015, the Project will not exist in 2015. Therefore, the 2040 emission factors are used for this scenario. Refer to Section 2.3 of the main report for further details.

Abbreviation:
AERMOD - American Meteorological Society/Environmental Protection Agency Regulatory Model
I-5 - Interstate-5
lb - pounds
SR 99 - State Route 99

Conversion Factor:
365 days/year

Source:
\\wcirvfps1\projects\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]T12_Emissions_Annual

Table 13. Average Diesel Particulate Matter Emission Factors for Trucks Operating During Various Exposure Periods Analyzed in this Health Risk Assessment
Tejon Ranch
Lebec, California

Speed (mph)	Diesel Particulate Matter Emission Factors for Trucks (g/mi)			% Change from 2040 Emission Factor	
	Calendar Year 2040	School Age	Residential	School Age	Residential
		13-year Average (2036-2048)	70-year Average (2036-2105)	13-year Average (2036-2048)	70-year Average (2036-2105)
55	4.23E-03	4.22E-03	4.16E-03	-0.14%	-1.7%
50	4.47E-03	4.47E-03	4.40E-03	-0.12%	-1.6%
35	5.43E-03	5.42E-03	5.35E-03	-0.11%	-1.5%
30	5.86E-03	5.85E-03	5.77E-03	-0.12%	-1.6%

Notes:
1. Average emission factors are calculated using the diesel particulate matter emission factors shown in Table A.7 in Appendix A of this report.

Abbreviations:
g - grams
mi - miles
mph - miles per hour

Source:
P:\T\Tejon Ranch\Technical_Work\Emissions\[EmissionFactorComparison.xlsx]T13_AverageEF_2036

Table 14. Summary of Health Risk Estimates at Maximum Impacted Receptors
Tejon Ranch
Lebec, California

Health Endpoint	Receptor Type[1,2]	Maximum Estimated Cancer Risk (in a million)				
		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[3]	Future Plus Project 2040	SJVAPCD CEQA Threshold[4]
Cancer Risk	Resident	268	51	24	58	20
	School	13	2	1	3	20
Health Endpoint	**Receptor[1]**	**Maximum Estimated Chronic Noncancer Hazard Index**				
		Existing No Project 2015	**Future No Project 2040**	**Existing Plus Project 2040[3]**	**Future Plus Project 2040**	**SJVAPCD CEQA Threshold[4]**
Chronic Noncancer Hazard Index	Resident	0.054	0.010	0.005	0.012	1.0
	School	0.019	0.003	0.002	0.004	1.0

Notes:
1. Receptor types are designated based on the Project's conceptual land use map seen in Figure 1.
2. Exposure period varies based on receptor type. Refer to Section 4.2 to further details.
3. Traffic data were provided for calendar year 2015. Since the project will not be built out untill calendar year 2040, emission factors from for calendar year 2040 were used for these health risk estimates.
4. SJVAPCD. 2015. Final Staff Report – The District's Updated Risk Management Policy to Address OEHHA's Revised Risk Assessment Guidance Document. May. Available at: http://www.valleyair.org/busind/pto/toxics.htm#RiskManagement. Accessed: July 2015.

Abbreviations:
CEQA - California Environmental Quality Act
OEHHA - Office of Environmental Health Hazard Assessment
SJVAPCD - San Joaquin Valley Unified Air Pollution Control District

Source:
P:\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]T14_HRA Results

Table 15. Chronic Non-Cancer Hazard Index Estimates at Schools
Tejon Ranch
Lebec, California

UTM Coordinates[1] (meters)		Cancer Risk Estimates (in a million)			
X Coordinate	Y Coordinate	Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[2]	Future Plus Project 2040
326,335	3,868,717	3.5	0.6	0.3	0.7
324,762	3,871,621	4.9	0.8	0.4	1.0
324,029	3,870,137	10.8	1.8	0.9	2.1
322,532	3,869,409	12.2	2.1	1.0	2.4
322,508	3,869,506	12.7	2.2	1.1	2.5
322,485	3,869,603	12.6	2.1	1.1	2.5
324,118	3,870,192	9.7	1.6	0.8	1.9
324,142	3,870,095	9.8	1.6	0.8	1.9
322,421	3,869,442	10.8	1.9	0.9	2.2
322,397	3,869,539	11.0	1.9	0.9	2.2
322,334	3,869,378	9.5	1.7	0.8	1.9
322,310	3,869,475	9.9	1.7	0.8	2.0
322,287	3,869,572	10.0	1.7	0.8	2.0
322,147	3,870,156	11.6	1.9	1.0	2.3
322,124	3,870,253	12.0	2.0	1.0	2.3
324,792	3,868,877	7.0	1.2	0.6	1.4
325,857	3,869,807	3.8	0.6	0.3	0.8

Notes:
1. The projection datum is WGS-84.
2. Traffic data were provided for calendar year 2015. Since the project will not be built out untill calendar year 2040, emission factors from for calendar year 2040 were used for these health risk estimates.

Abbreviations:
UTM - Universal Transverse Mercator
WGS - World Geodetic System

Source:
\\wcirvfps1\projects\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]T15_Cancer Risk School

Table 16. Chronic Non-Cancer Hazard Index Estimates at Schools
Tejon Ranch
Lebec, California

UTM Coordinates[1] (meters)		Chronic Noncancer Hazard Index Estimates			
X Coordinate	Y Coordinate	Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[2]	Future Plus Project 2040
326,335	3,868,717	5.2E-03	9.2E-04	4.5E-04	1.1E-03
324,762	3,871,621	7.2E-03	1.2E-03	6.1E-04	1.4E-03
324,029	3,870,137	1.6E-02	2.6E-03	1.3E-03	3.1E-03
322,532	3,869,409	1.8E-02	3.1E-03	1.5E-03	3.6E-03
322,508	3,869,506	1.9E-02	3.2E-03	1.6E-03	3.7E-03
322,485	3,869,603	1.8E-02	3.1E-03	1.5E-03	3.7E-03
324,118	3,870,192	1.4E-02	2.4E-03	1.2E-03	2.8E-03
324,142	3,870,095	1.4E-02	2.4E-03	1.2E-03	2.8E-03
322,421	3,869,442	1.6E-02	2.7E-03	1.3E-03	3.2E-03
322,397	3,869,539	1.6E-02	2.8E-03	1.3E-03	3.2E-03
322,334	3,869,378	1.4E-02	2.5E-03	1.2E-03	2.8E-03
322,310	3,869,475	1.5E-02	2.5E-03	1.2E-03	2.9E-03
322,287	3,869,572	1.5E-02	2.6E-03	1.2E-03	3.0E-03
322,147	3,870,156	1.7E-02	2.8E-03	1.4E-03	3.3E-03
322,124	3,870,253	1.8E-02	2.9E-03	1.5E-03	3.4E-03
324,792	3,868,877	1.0E-02	1.8E-03	8.9E-04	2.1E-03
325,857	3,869,807	5.5E-03	9.5E-04	4.7E-04	1.1E-03

Notes:
1. The projection datum is WGS-84.
2. Traffic data were provided for calendar year 2015. Since the project will not be built out untill calendar year 2040, emission factors from for calendar year 2040 were used for these health risk estimates.

Abbreviations:
UTM - Universal Transverse Mercator
WGS - World Geodetic System

Source:
\\wcirvfps1\projects\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]T16_Chronic Risk School

Table 17. Average Diesel Particulate Matter Emission Factors for Trucks Operating During Various Exposure Periods for Early Occupants of Project Site
Tejon Ranch
Lebec, California

Speed[1] (mph)	Diesel Particulate Matter Emission Factors for Trucks[2] (g/mi)			% Change from 2040 Emission Factor	
	Calendar Year 2040	School Age	Residential	School Age	Residential
		13-year Average (2018-2030)	70-year Average (2018-2087)	13-year Average (2018-2030)	70-year Average (2018-2087)
55	4.23E-03	1.31E-02	5.85E-03	211%	38%
50	**4.47E-03**	**1.29E-02**	**6.01E-03**	**189%**	**34%**
35	5.43E-03	1.40E-02	6.99E-03	158%	29%
30	**5.86E-03**	**1.51E-02**	**7.54E-03**	**158%**	**29%**

Notes:

1. Average emission factors are calculated using the emission factors shown in Table A.7 in Appendix A of this report.
2. Trucks are assumed to operate close to the speed limit of 35 mph on the Grapevine Grade and 55 mph elsewhere (Refer to Section 2.2 of the main report for further details). The higher of the two emission factors at 30 mph and 35 mph was used to estimate emissions from trucks on the Grapevine Grade. For all other road segments the higher of the two emission factors at 50 mph and 55 mph were used. These are highlighted in **bold**.

Abbreviations:

g - grams

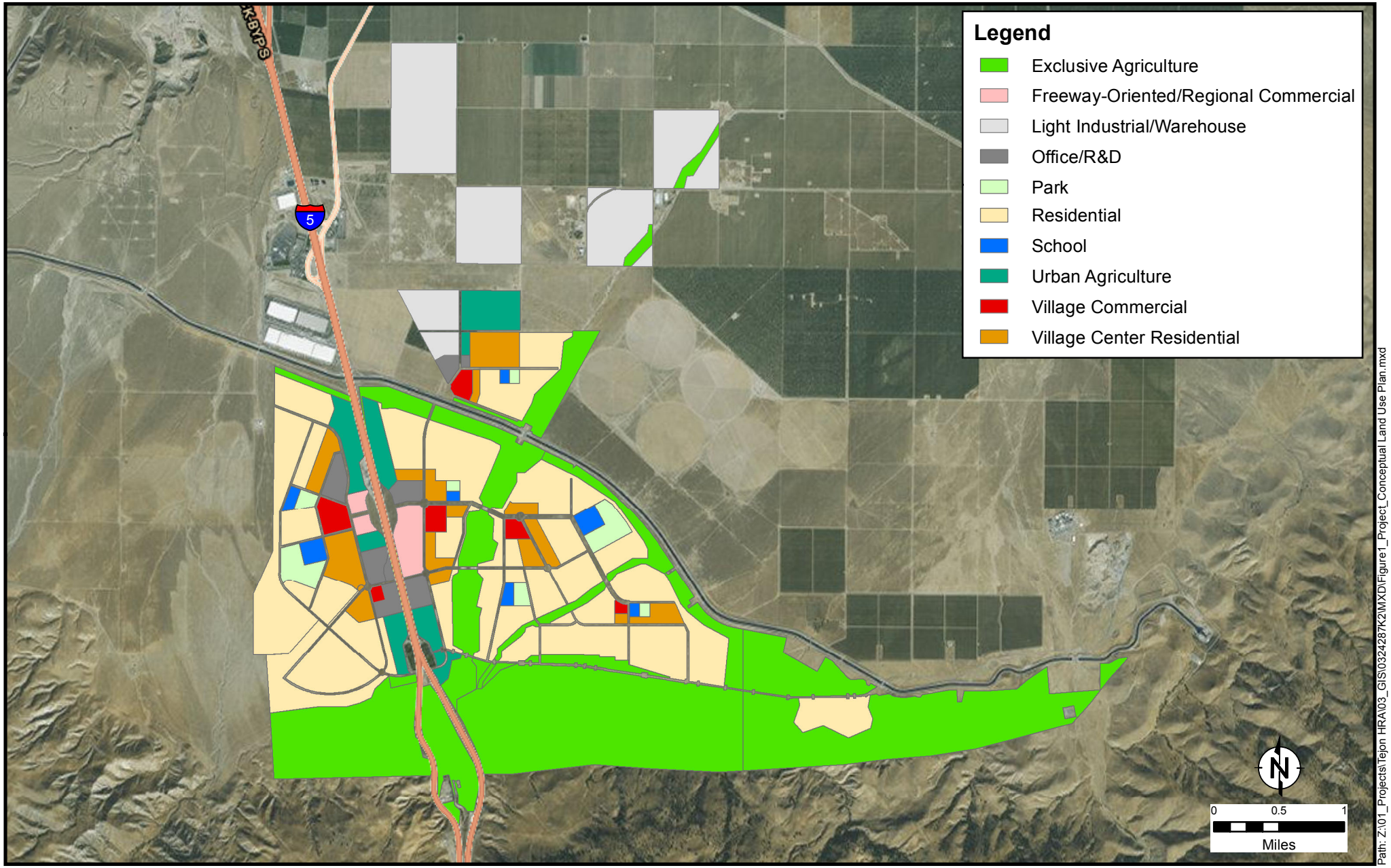
mi - miles

mph - miles per hour

Source:

P:\T\Tejon Ranch\Technical_Work\Emissions\[EmissionFactorComparison.xlsx]T17_AverageEF_2018

FIGURES



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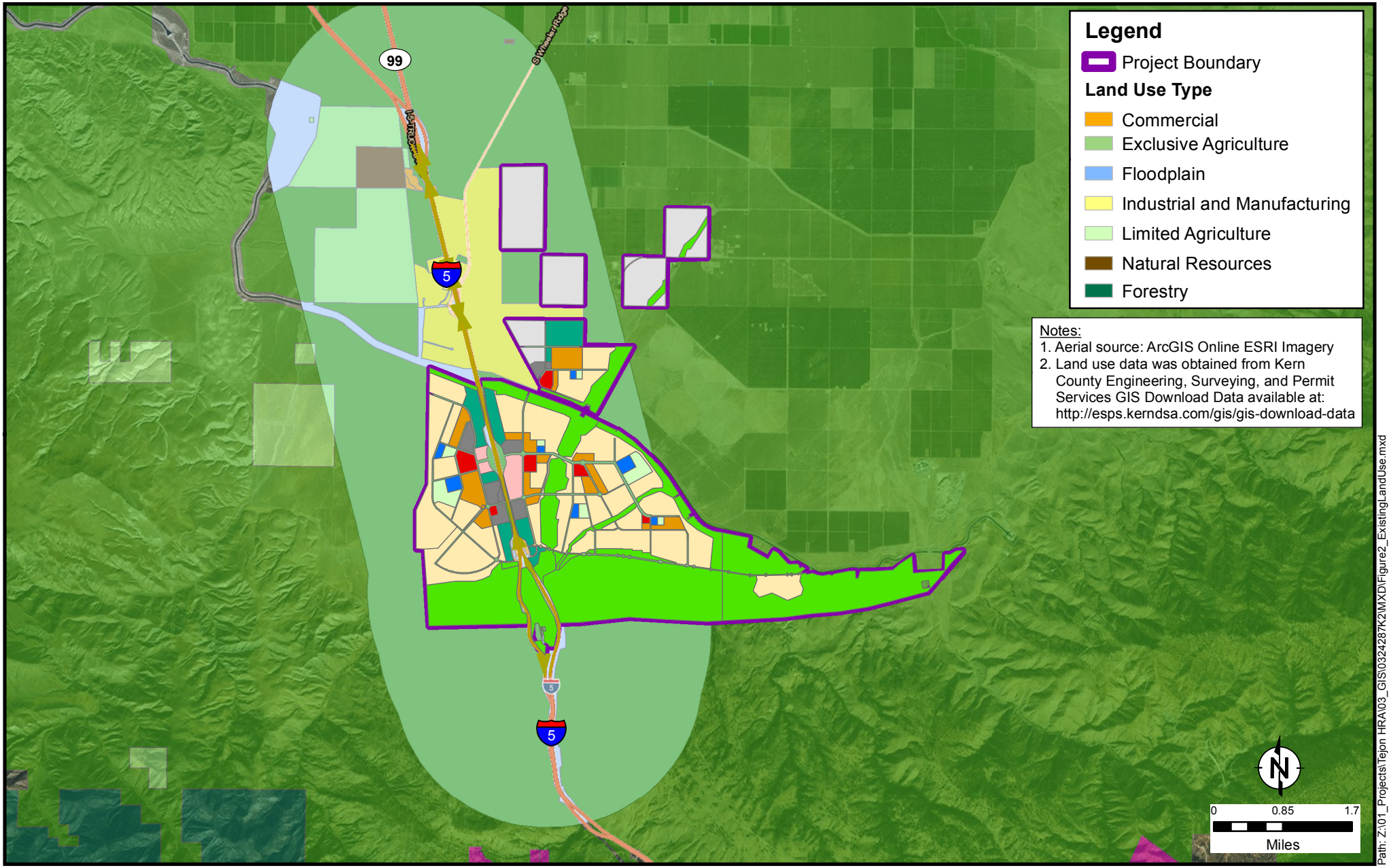
RAMBOLL ENVIRON

Grapevine Project – Conceptual Land Use Plan

Figure 1

DRAFTED BY: RRH | Date: 10/28/2015 | PROJECT: 0324287K2

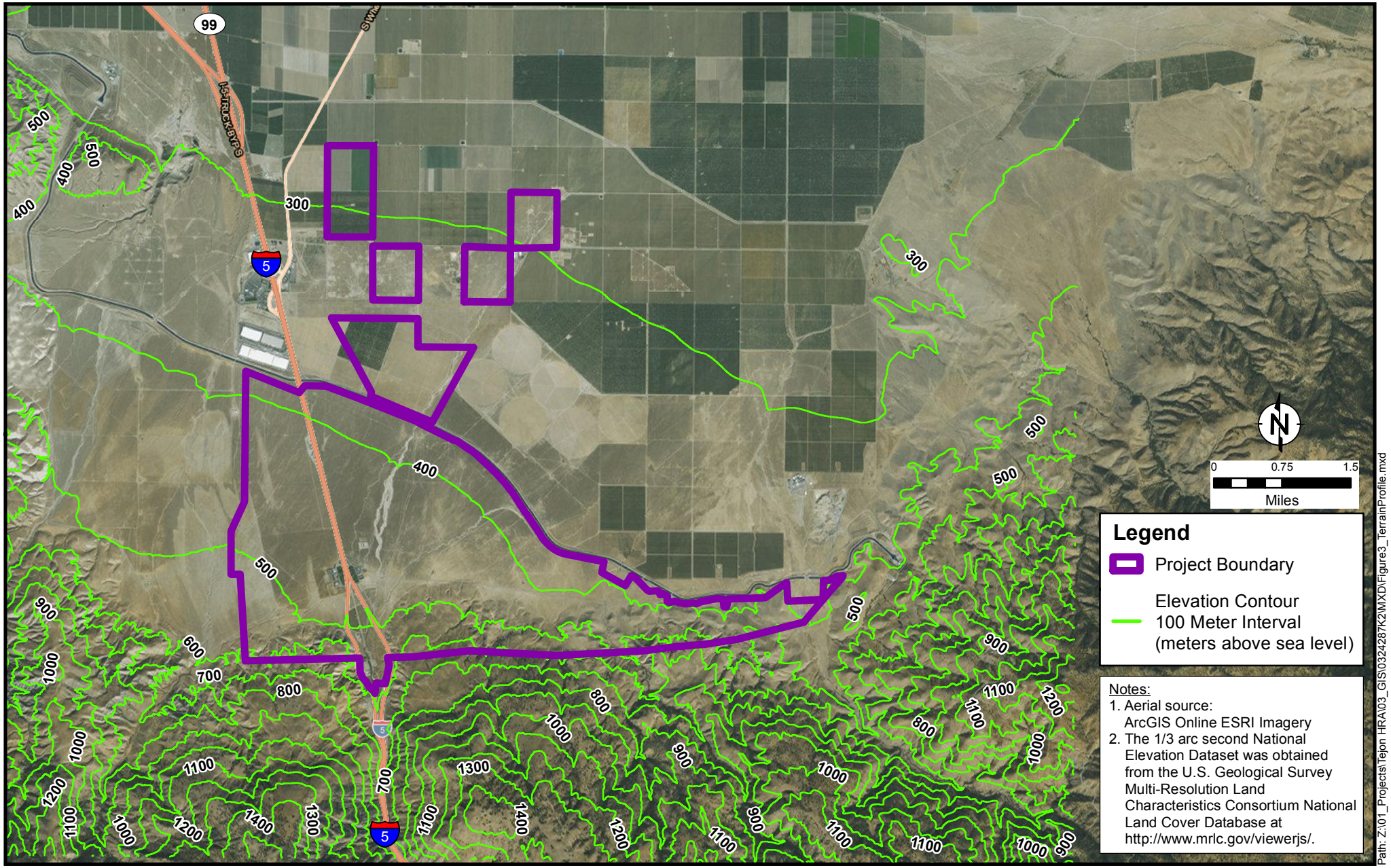


RAMBOLL ENVIRON

Existing Land Use in the Modeling Domain

Figure 2

DRAFTED BY: RRH | Date: 5/12/2016 | PROJECT: 0324287K2



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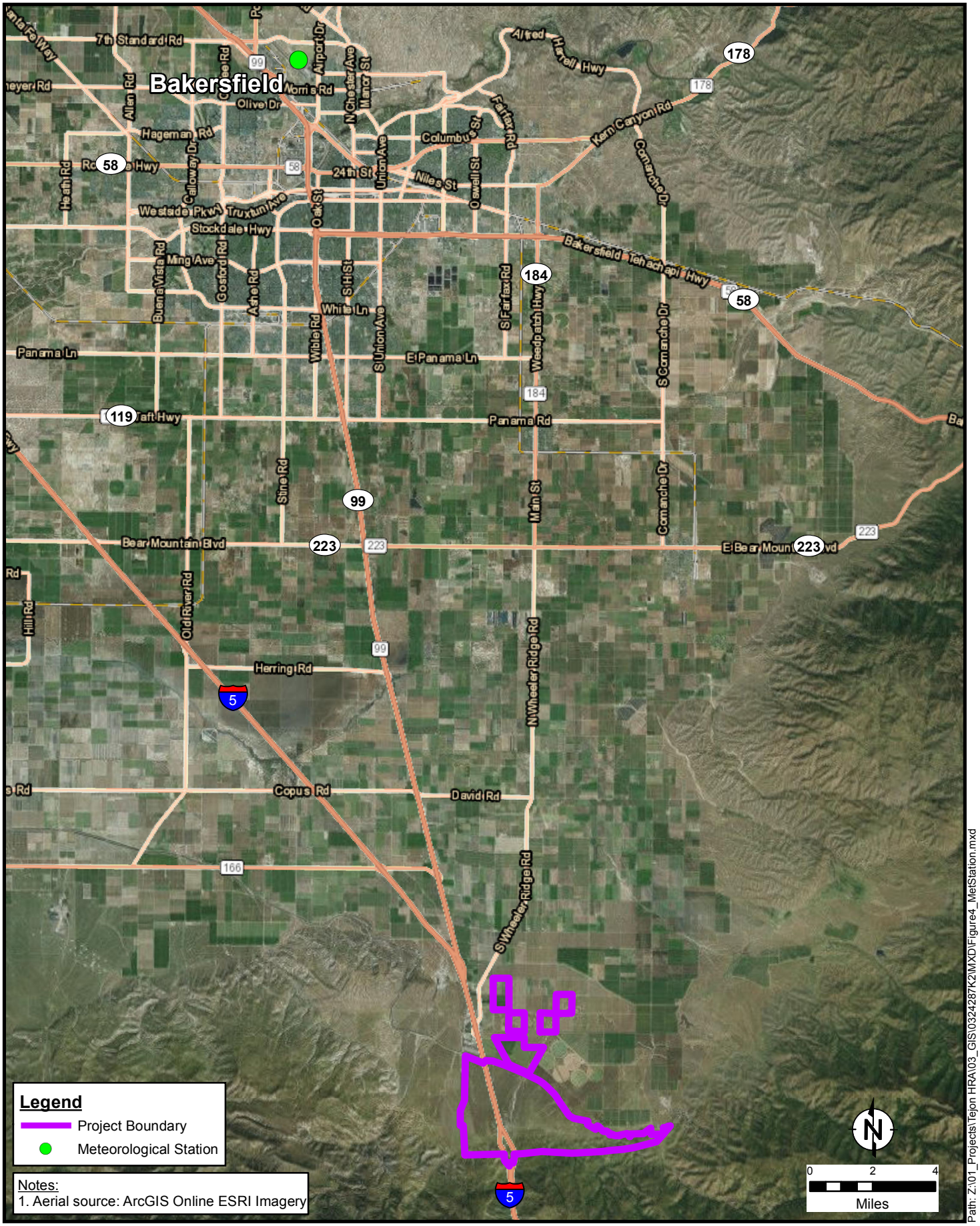
RAMBOLL ENVIRON

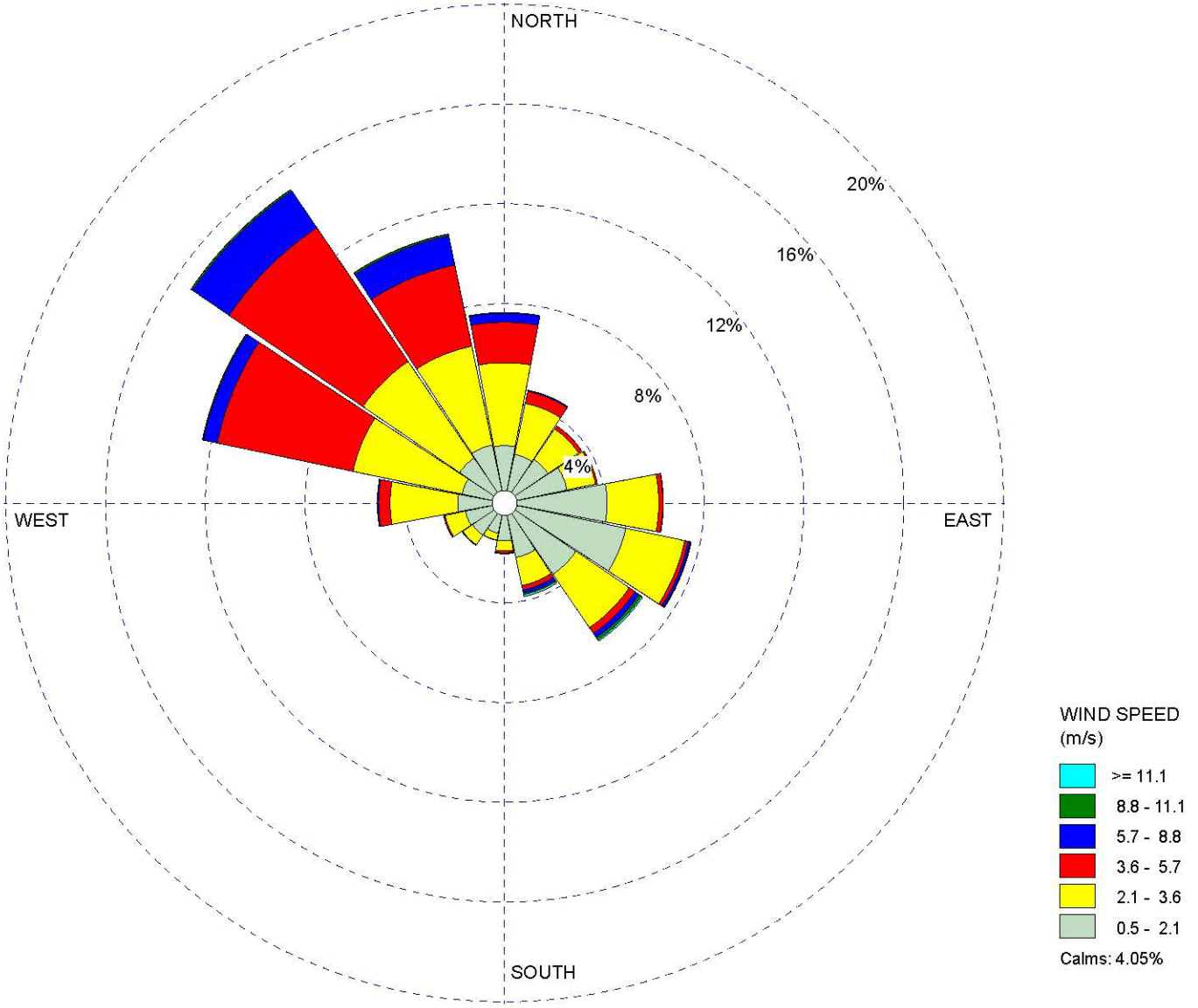
Terrain Profile in the Modeling Domain

Figure 3

DRAFTED BY: RRH | Date: 5/12/2016 | PROJECT: 0324287K2



RAMBOLL ENVIRON	Location of Meteorological Station		Figure 4
DRAFTED BY: RRH	Date: 5/12/2016		PROJECT: 0324287K2



FILE: \\wcirvfps1\projects\TTejon Ranch\Report\Figures\Figure5_BakersfieldWindRose

RAMBOLL ENVIRON

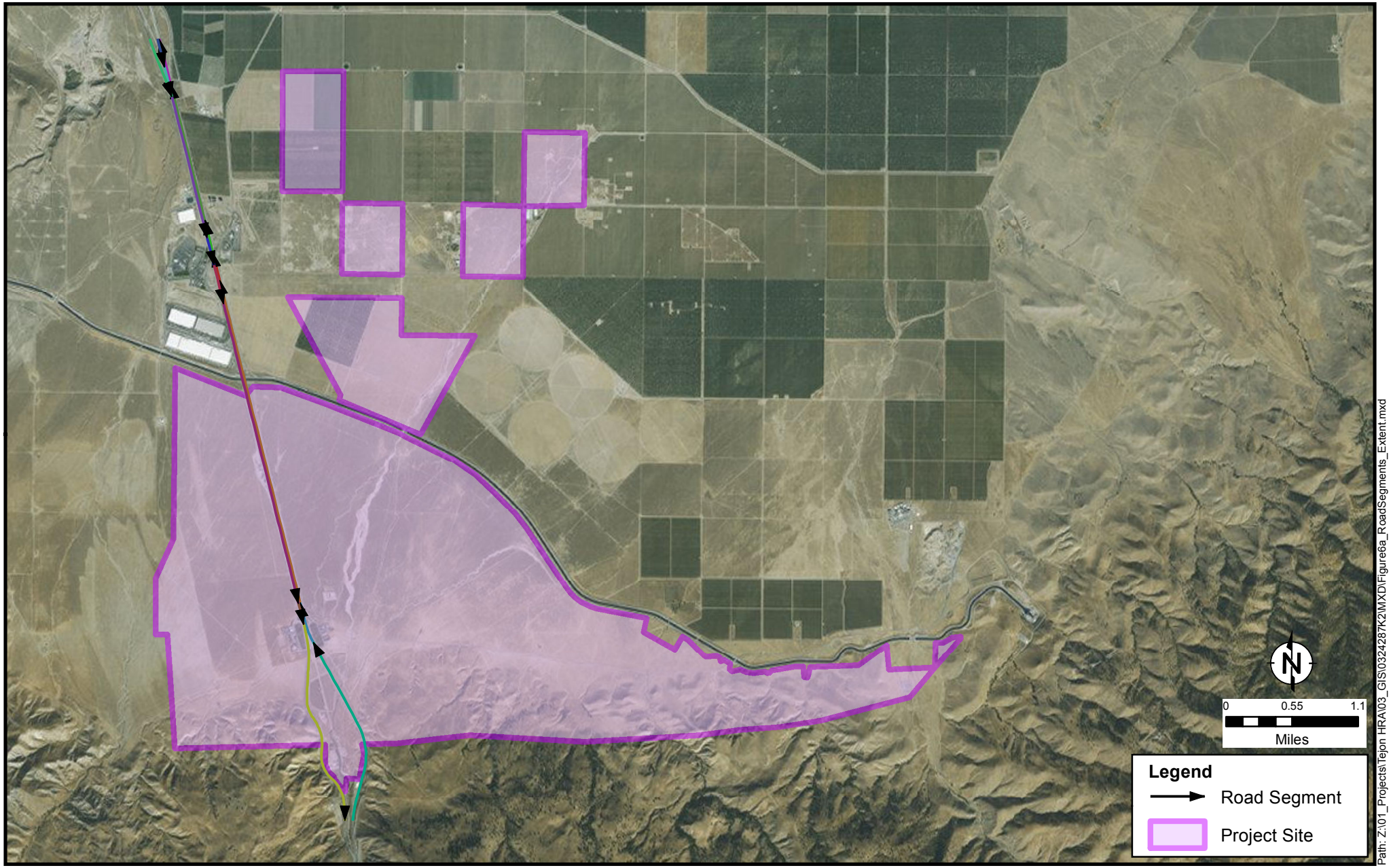
DRAFTED BY: RRH | DATE: 7/30/15

Bakersfield Meteorological Station

5 Year Wind Rose (2009 to 2013)

Figure 5

PROJECT: 0324287K2



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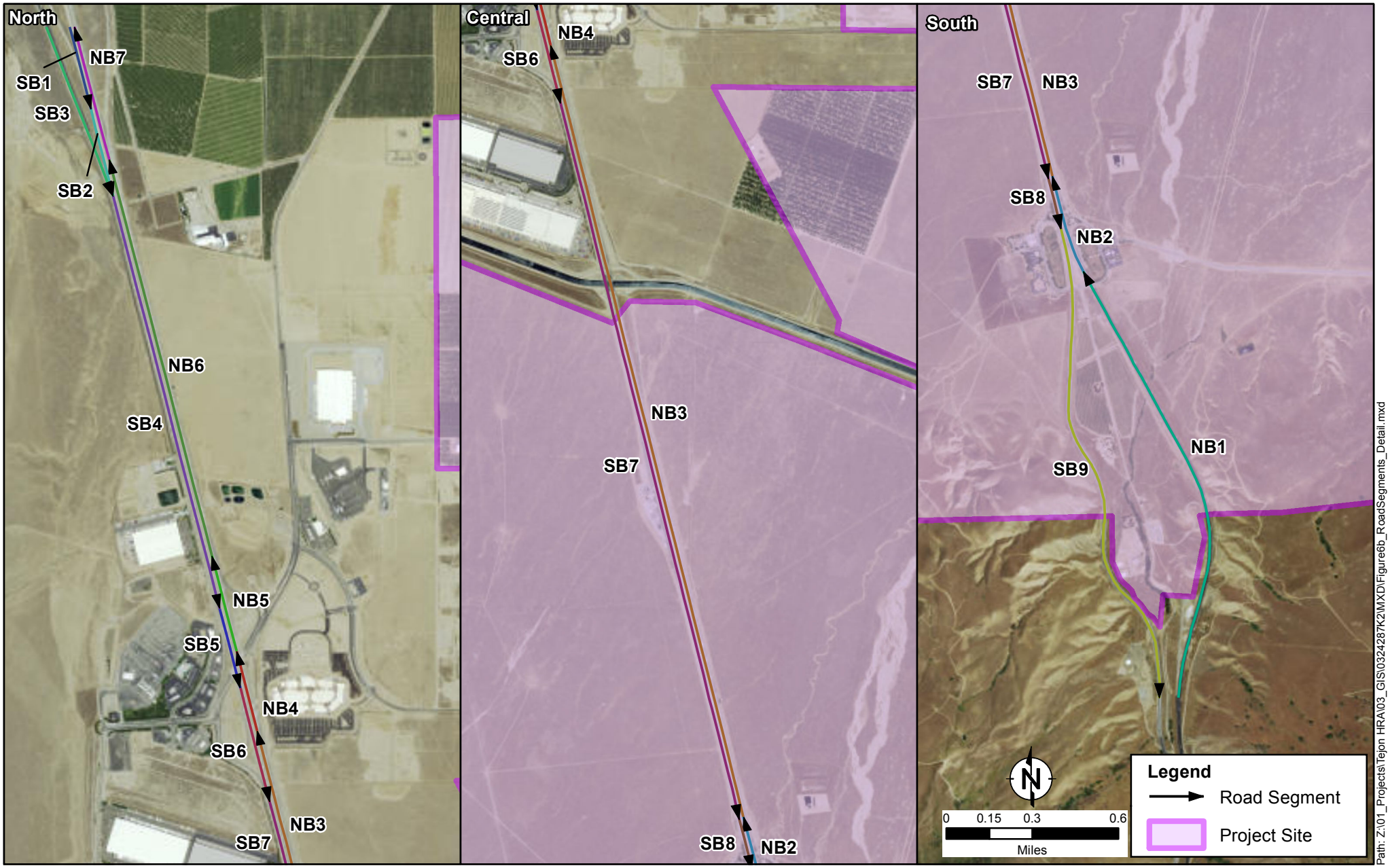
RAMBOLL ENVIRON

Extent of Modeled Road Segments

Figure 6a

DRAFTED BY: RRH | Date: 5/12/2016 | PROJECT: 0324287K2

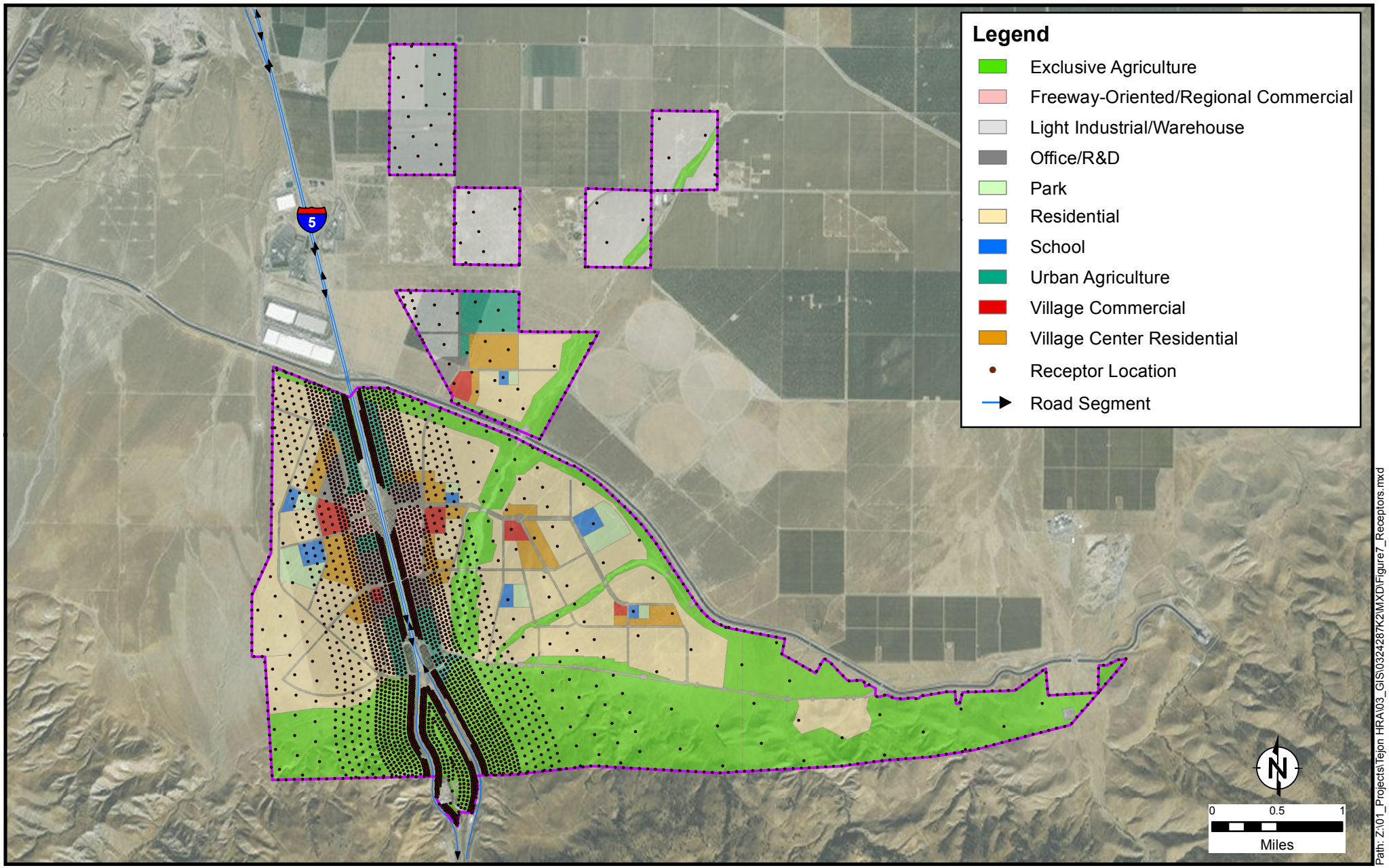


RAMBOLL ENVIRON

Modeled Road Segments - Detailed View

Figure 6b

DRAFTED BY: RRH | Date: 5/12/2016 | PROJECT: 0324287K2



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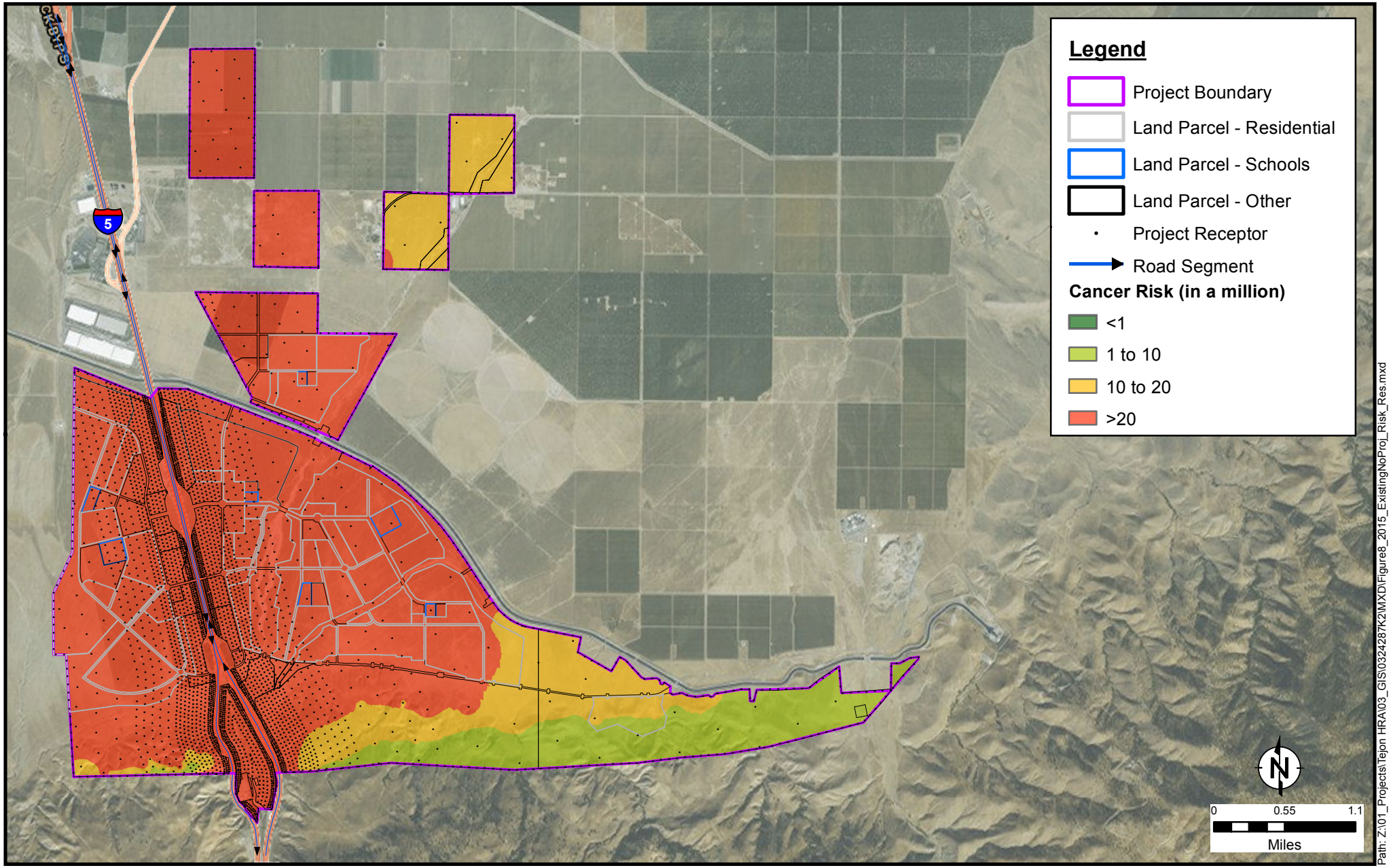
RAMBOLL ENVIRON

Receptor Locations

Figure 7

DRAFTED BY: RRH | Date: 5/12/2016 | PROJECT: 0324287K2



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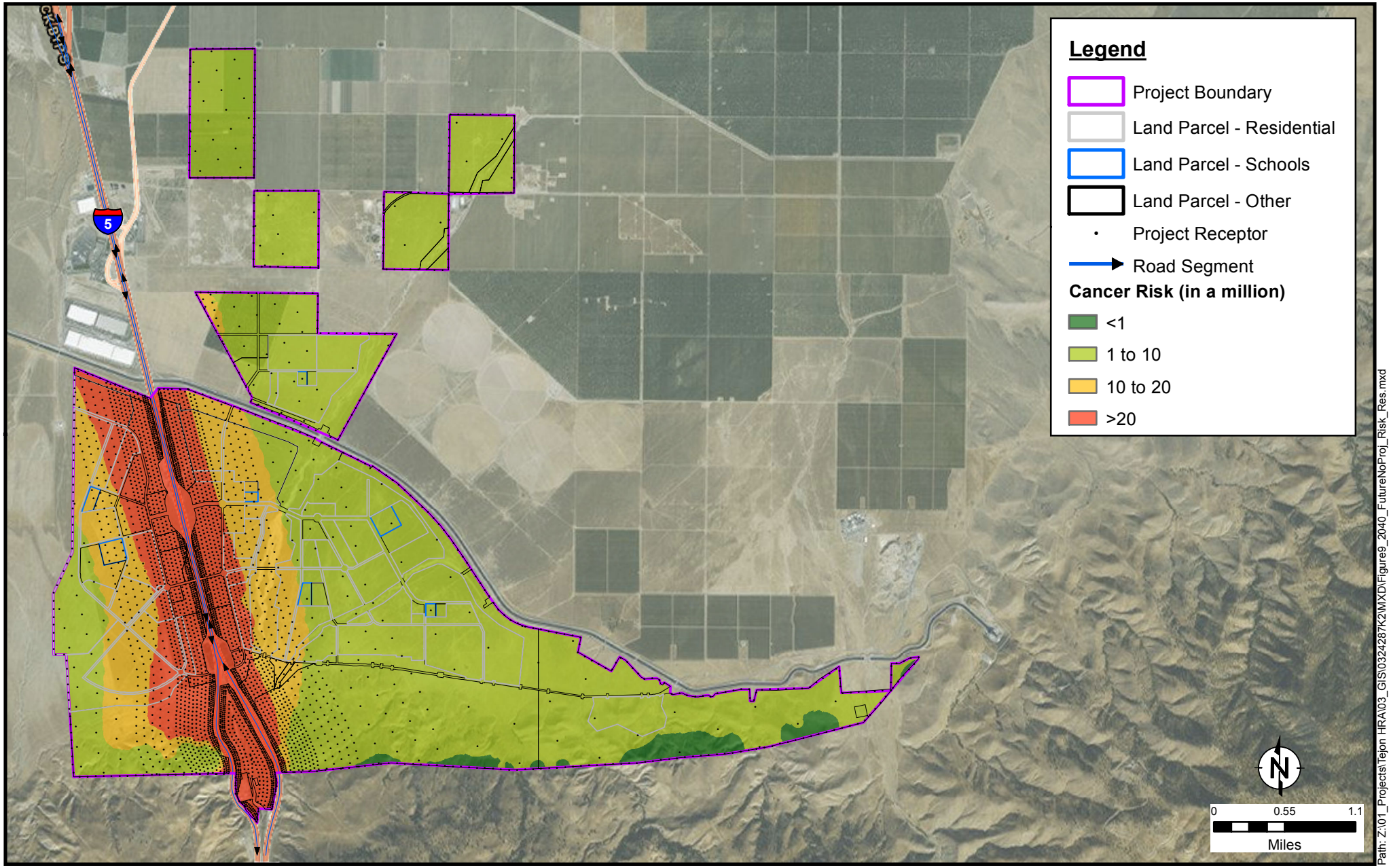
RAMBOLL ENVIRON

Existing No Project 2015 - Residential Cancer Risk

Figure 8

DRAFTED BY: RRH | Date: 5/12/2016 | PROJECT: 0324287K2



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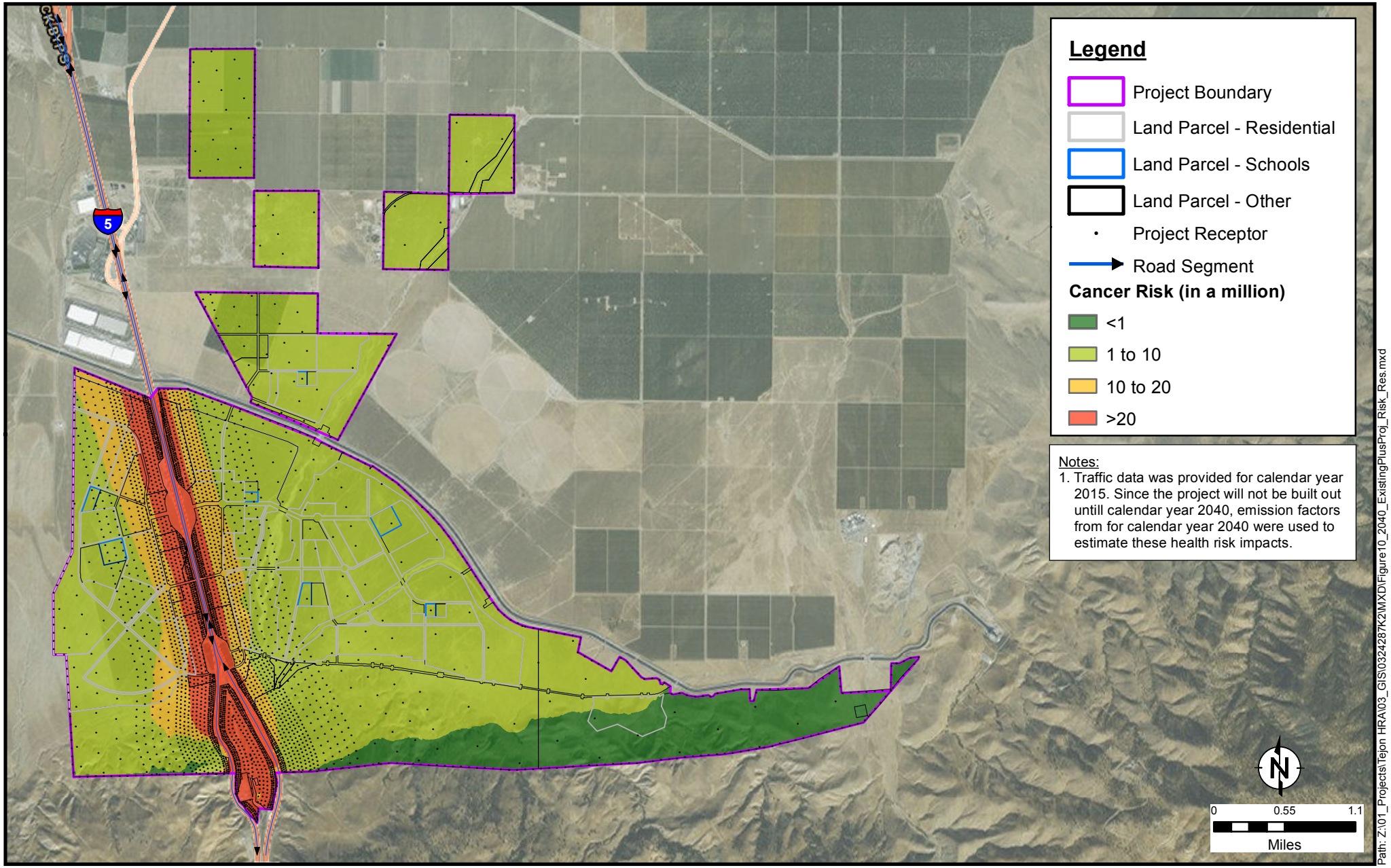
RAMBOLL ENVIRON

Future No Project 2040 - Residential Cancer Risk

Figure 9

DRAFTED BY: RRH | Date: 5/12/2016 | PROJECT: 0324287K2



RAMBOLL ENVIRON

Existing Plus Project 2040 - Residential Cancer Risk

Figure 10

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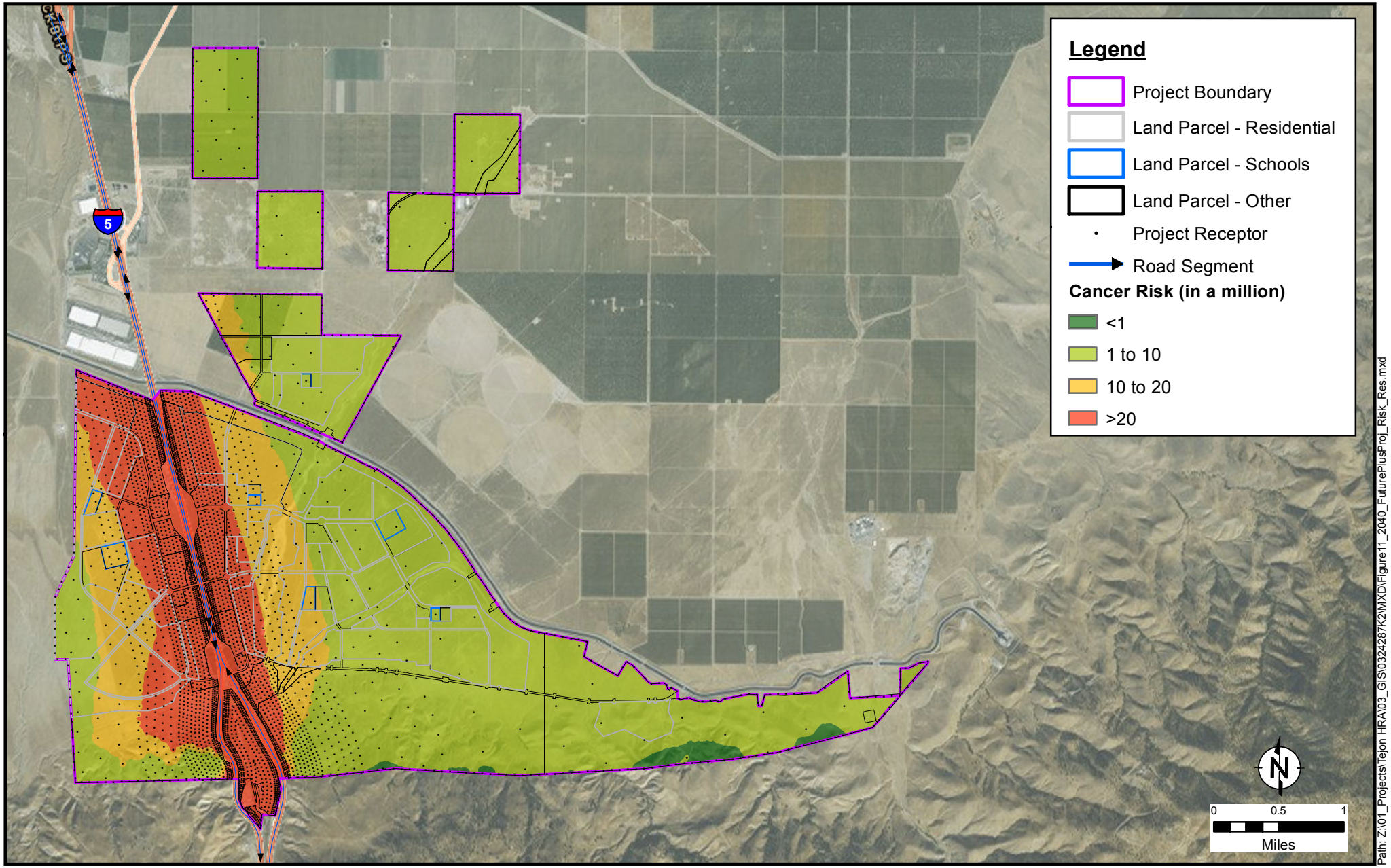

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RAMBOLL ENVIRON

Future Plus Project 2040 - Residential Cancer Risk

Figure 11

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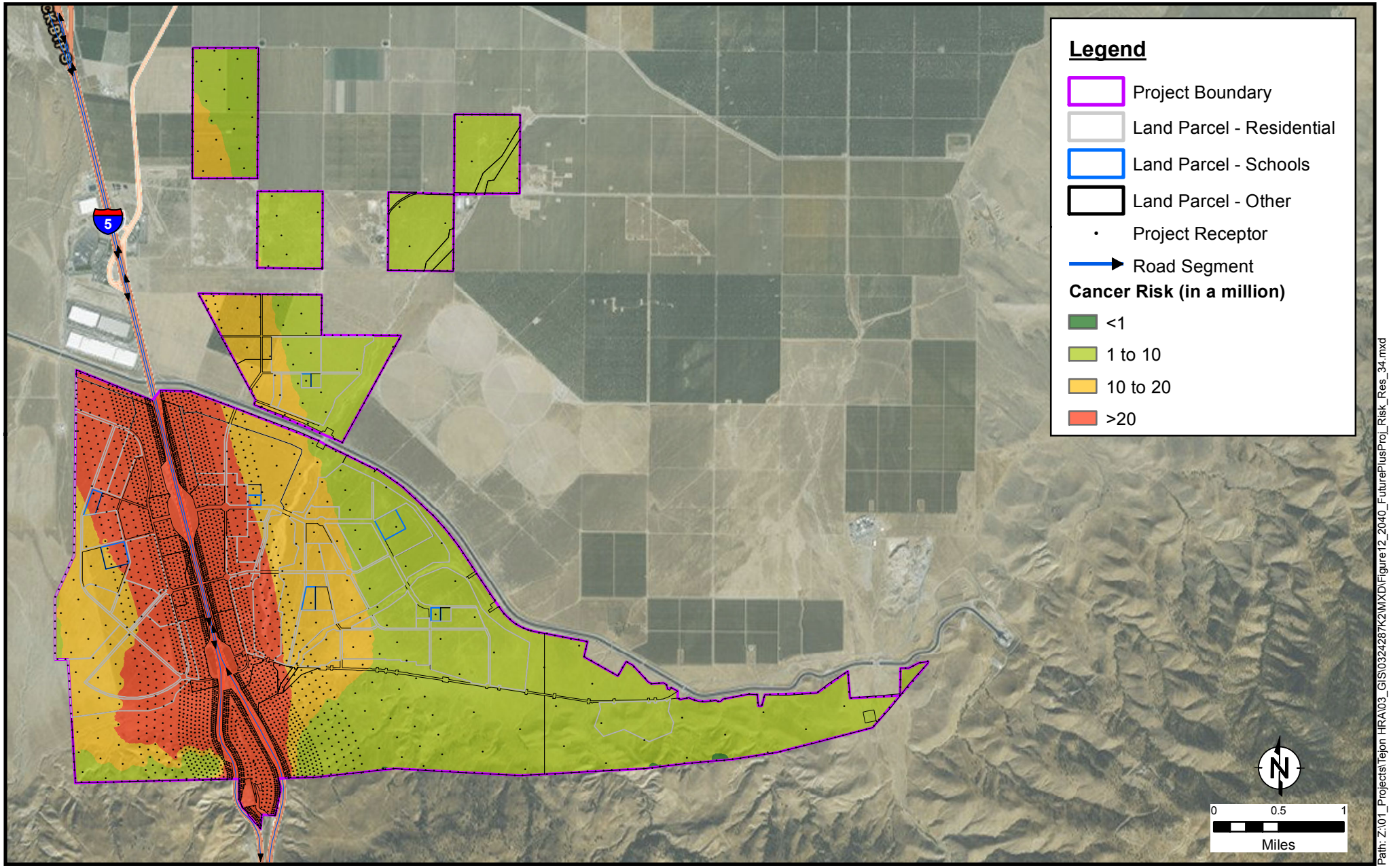

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RAMBOLL ENVIRON

Future Plus Project - Residential Cancer Risk Estimates for Early Occupants

Figure 12

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Table A.1. EMFAC2014 Model Output for Kern County at Specific Speeds in Calendar Years 2015 and 2040
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Sub-Area
Region: Kern (SJV)
Calendar Year: 2015, 2040
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Kern (SJV)	2015	HHDT	Aggregated	30	DSL	184424.356	0.347994372	0.400952761	1.329778233	7.196287705	1862.519349	0.079293918	0.075863698
Kern (SJV)	2015	HHDT	Aggregated	35	DSL	337345.018	0.267894955	0.310246545	1.053293258	6.605733915	1764.652144	0.071819955	0.068713055
Kern (SJV)	2015	HHDT	Aggregated	40	DSL	337195.307	0.210081485	0.242282593	0.849003584	6.162227844	1674.258342	0.067918856	0.064980716
Kern (SJV)	2015	HHDT	Aggregated	45	DSL	494846.765	0.169665558	0.194598278	0.699654092	5.843031059	1597.838682	0.067292627	0.064381578
Kern (SJV)	2015	HHDT	Aggregated	50	DSL	526255.16	0.143649819	0.163937513	0.595130442	5.600362796	1534.195663	0.069982312	0.066954908
Kern (SJV)	2015	HHDT	Aggregated	55	DSL	619483.607	0.129638385	0.147583433	0.528356099	5.431527559	1490.654577	0.076070589	0.072779809
Kern (SJV)	2015	HHDT	Aggregated	60	DSL	196344.629	0.127368833	0.144999721	0.505629745	5.382139594	1472.871983	0.080133601	0.076667057
Kern (SJV)	2015	HHDT	Aggregated	65	DSL	105475.321	0.127368833	0.144999721	0.505629745	5.382958006	1472.871983	0.080133601	0.076667057
Kern (SJV)	2015	HHDT	Aggregated	70	DSL	0	0	0	0	0	0	0	0
Kern (SJV)	2015	LDA	Aggregated	30	DSL	10407.2987	0.031568809	0.03593899	0.296592715	0.185147848	312.4132599	0.018996477	0.018174698
Kern (SJV)	2015	LDA	Aggregated	35	DSL	6832.60432	0.026769148	0.030474896	0.251071098	0.188301635	282.4152939	0.016697676	0.015975342
Kern (SJV)	2015	LDA	Aggregated	40	DSL	2447.07522	0.023734728	0.027020409	0.22319316	0.192647066	264.2775196	0.015273479	0.014612755
Kern (SJV)	2015	LDA	Aggregated	45	DSL	5188.58967	0.021961471	0.025001675	0.207852053	0.197768596	255.2717818	0.014528334	0.013899844
Kern (SJV)	2015	LDA	Aggregated	50	DSL	3267.8175	0.02120094	0.02413586	0.202958589	0.203394719	255.9215967	0.014371959	0.013750235
Kern (SJV)	2015	LDA	Aggregated	55	DSL	903.589851	0.021371696	0.024330255	0.208456044	0.209398068	267.8017985	0.014797158	0.014157039
Kern (SJV)	2015	LDA	Aggregated	60	DSL	933.019072	0.022757479	0.025907876	0.230055324	0.216207119	290.3293084	0.015936928	0.015247504
Kern (SJV)	2015	LDA	Aggregated	65	DSL	21963.9111	0.025503665	0.029034227	0.271065969	0.223495752	326.3889014	0.017953864	0.017177188
Kern (SJV)	2015	LDA	Aggregated	70	DSL	14859.3166	0.027418359	0.031213978	0.299771219	0.227136452	352.4484015	0.01936011	0.0185226
Kern (SJV)	2015	LDT1	Aggregated	30	DSL	197.650507	0.234674708	0.267161553	1.039308477	1.161271243	415.3021799	0.181001991	0.173171925
Kern (SJV)	2015	LDT1	Aggregated	35	DSL	129.761598	0.204688876	0.233024677	0.951563038	1.212193668	374.8261786	0.158145207	0.151303915
Kern (SJV)	2015	LDT1	Aggregated	40	DSL	46.4736982	0.186827548	0.212690742	0.917699317	1.264047741	349.8329669	0.144565639	0.138311793
Kern (SJV)	2015	LDT1	Aggregated	45	DSL	98.5392474	0.178429751	0.203130409	0.932151529	1.316691714	337.2983291	0.138261117	0.132280002
Kern (SJV)	2015	LDT1	Aggregated	50	DSL	62.0608485	0.178308737	0.202992642	0.997306532	1.369780079	337.8586577	0.138344833	0.132360097
Kern (SJV)	2015	LDT1	Aggregated	55	DSL	17.1605522	0.186457269	0.212269204	1.124052908	1.423341563	353.2587502	0.14483328	0.138567857
Kern (SJV)	2015	LDT1	Aggregated	60	DSL	17.7194581	0.204128067	0.232386233	1.335642091	1.477510067	382.6515414	0.158668087	0.151804176
Kern (SJV)	2015	LDT1	Aggregated	65	DSL	417.128239	0.233917561	0.266299591	1.672466805	1.531258324	429.8037945	0.181897996	0.17402917
Kern (SJV)	2015	LDT1	Aggregated	70	DSL	282.201132	0.254687363	0.28994463	1.908226019	1.558103117	463.717204	0.198094332	0.189524859
Kern (SJV)	2015	LDT2	Aggregated	30	DSL	672.969825	0.020233111	0.023034052	0.147303085	0.06418376	395.4685353	0.00779902	0.007461638
Kern (SJV)	2015	LDT2	Aggregated	35	DSL	441.818447	0.016468474	0.018748263	0.120131681	0.061176151	356.9255521	0.00692939	0.006629628
Kern (SJV)	2015	LDT2	Aggregated	40	DSL	158.235853	0.013955869	0.015887829	0.102228137	0.059443199	333.1259447	0.006345428	0.006070927
Kern (SJV)	2015	LDT2	Aggregated	45	DSL	335.511106	0.012240888	0.013935438	0.090272237	0.058516293	321.1899253	0.005977652	0.005719061
Kern (SJV)	2015	LDT2	Aggregated	50	DSL	211.307722	0.011084489	0.012618954	0.082609178	0.058122562	321.7234943	0.005791066	0.005540547
Kern (SJV)	2015	LDT2	Aggregated	55	DSL	58.4290625	0.010362153	0.011796622	0.078505863	0.058108868	336.3881224	0.005776099	0.005526228
Kern (SJV)	2015	LDT2	Aggregated	60	DSL	60.3320518	0.010359298	0.011793372	0.080592657	0.058960018	364.3771979	0.006012677	0.005752571
Kern (SJV)	2015	LDT2	Aggregated	65	DSL	1420.25802	0.010985829	0.012506636	0.088682449	0.060428873	409.2775942	0.006528703	0.006246274
Kern (SJV)	2015	LDT2	Aggregated	70	DSL	960.851806	0.011422659	0.013003938	0.09434487	0.061162924	441.5713963	0.006888486	0.006590493
Kern (SJV)	2015	LHDT1	Aggregated	30	DSL	47449.1776	0.147012132	0.167363538	0.732096611	4.29256637	491.1204991	0.033680788	0.032223772
Kern (SJV)	2015	LHDT1	Aggregated	35	DSL	25051.3742	0.127252665	0.144868699	0.666412467	4.491263084	491.1204991	0.029534914	0.028257247
Kern (SJV)	2015	LHDT1	Aggregated	40	DSL	13763.0574	0.115259446	0.131215216	0.639112017	4.69104486	477.6754676	0.027009107	0.025840705
Kern (SJV)	2015	LHDT1	Aggregated	45	DSL	14850.6288	0.109179537	0.124293644	0.645608882	4.875651509	465.9348325	0.025746442	0.024632662
Kern (SJV)	2015	LHDT1	Aggregated	50	DSL	57336.1997	0.108156482	0.123128964	0.687060163	5.062208909	488.4703935	0.025584894	0.024478102
Kern (SJV)	2015	LHDT1	Aggregated	55	DSL	34542.5834	0.11208334	0.12759943	0.770537132	5.276538108	510.4342266	0.026517956	0.025370801
Kern (SJV)	2015	LHDT2	Aggregated	30	DSL	18455.2027	0.124551576	0.141793688	0.61007198	3.419115378	557.153421	0.028766936	0.027522491
Kern (SJV)	2015	LHDT2	Aggregated	35	DSL	9743.65023	0.107158856	0.121993233	0.551624886	3.571845021	557.153421	0.025282184	0.024188488
Kern (SJV)	2015	LHDT2	Aggregated	40	DSL	5353.09623	0.096460141	0.109813457	0.525574554	3.726579783	536.8035302	0.023125444	0.022125047
Kern (SJV)	2015	LHDT2	Aggregated	45	DSL	5776.10361	0.090761179	0.103325569	0.527461526	3.869989984	516.0000433	0.022000058	0.021048345
Kern (SJV)	2015	LHDT2	Aggregated	50	DSL	22300.7277	0.089260765	0.101617446	0.557748069	4.015447666	535.0051935	0.021769211	0.020827485
Kern (SJV)	2015	LHDT2	Aggregated	55	DSL	13435.2251	0.091799785	0.104507952	0.621753522	4.183273878	553.7561441	0.022422325	0.021452345

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Tejon Ranch
Lebec, California

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Region: Kern (SJV)
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Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Kern (SJV)	2015	MDV	Aggregated	30	DSL	4349.94064	0.021247437	0.024188794	0.245091407	0.084263222	519.4858623	0.0114239	0.010929707
Kern (SJV)	2015	MDV	Aggregated	35	DSL	2855.82495	0.017662129	0.020107159	0.200687596	0.082382087	471.3615827	0.010095877	0.009659134
Kern (SJV)	2015	MDV	Aggregated	40	DSL	1022.8045	0.015327115	0.017448901	0.171615017	0.081740041	440.8939245	0.009239954	0.008840237
Kern (SJV)	2015	MDV	Aggregated	45	DSL	2168.67583	0.013835423	0.01575071	0.152487691	0.08188549	424.2967353	0.008746458	0.00836809
Kern (SJV)	2015	MDV	Aggregated	50	DSL	1365.85031	0.012978697	0.014775384	0.140661216	0.082550308	426.4228747	0.008562615	0.0081922
Kern (SJV)	2015	MDV	Aggregated	55	DSL	377.673625	0.012664843	0.014418081	0.135040271	0.083588393	450.0250988	0.008679242	0.008303782
Kern (SJV)	2015	MDV	Aggregated	60	DSL	389.974162	0.013138217	0.014956987	0.140037768	0.085466696	487.2866251	0.009194901	0.008797134
Kern (SJV)	2015	MDV	Aggregated	65	DSL	9180.26018	0.014402192	0.016395939	0.155665587	0.087928359	547.1545804	0.010178865	0.009738532
Kern (SJV)	2015	MDV	Aggregated	70	DSL	6210.75145	0.01528346	0.017399203	0.166604221	0.089158254	589.0210288	0.010864904	0.010394893
Kern (SJV)	2015	MH	Aggregated	30	DSL	471.696667	0.120100853	0.136726836	0.588901899	6.454829354	1089.788839	0.151271486	0.144727548
Kern (SJV)	2015	MH	Aggregated	35	DSL	536.744349	0.099867397	0.113692392	0.512408661	6.116080492	1030.679336	0.14224173	0.136088416
Kern (SJV)	2015	MH	Aggregated	40	DSL	716.142437	0.085074198	0.096851318	0.45371512	5.87357824	983.6872385	0.140553884	0.134473585
Kern (SJV)	2015	MH	Aggregated	45	DSL	547.282163	0.075467328	0.085914535	0.412104386	5.698300653	948.8125458	0.1461846	0.139860719
Kern (SJV)	2015	MH	Aggregated	50	DSL	645.609385	0.070910351	0.08072672	0.387191272	5.620129749	926.0552581	0.159119592	0.152236149
Kern (SJV)	2015	MH	Aggregated	55	DSL	1084.35525	0.071324009	0.081197642	0.378752014	5.618709254	915.4153753	0.179349581	0.171590997
Kern (SJV)	2015	MH	Aggregated	60	DSL	1211.96497	0.076873408	0.087515264	0.387252741	5.68858252	916.8928975	0.206929668	0.197977982
Kern (SJV)	2015	MH	Aggregated	65	DSL	179.802715	0.087466329	0.0995746	0.4124331	5.82436836	930.4878247	0.241843414	0.231381375
Kern (SJV)	2015	MHDT	Aggregated	30	DSL	35171.1701	0.34453917	0.392231618	1.062887236	5.661001678	1271.539757	0.159278982	0.152388644
Kern (SJV)	2015	MHDT	Aggregated	35	DSL	40021.3276	0.281496811	0.320462691	0.911810965	5.305158143	1204.453641	0.148290717	0.141875726
Kern (SJV)	2015	MHDT	Aggregated	40	DSL	53397.8068	0.234913411	0.267431036	0.798222489	5.048745374	1150.17286	0.145013582	0.138740358
Kern (SJV)	2015	MHDT	Aggregated	45	DSL	40807.0598	0.203670872	0.231863784	0.718629451	4.857120794	1106.635872	0.149442575	0.142977756
Kern (SJV)	2015	MHDT	Aggregated	50	DSL	48138.6431	0.186898186	0.212769357	0.670515869	4.750530869	1072.5283	0.161594566	0.154604057
Kern (SJV)	2015	MHDT	Aggregated	55	DSL	80852.8994	0.183896832	0.209352545	0.652096724	4.708358068	1048.253871	0.181504729	0.173652915
Kern (SJV)	2015	MHDT	Aggregated	60	DSL	90367.8766	0.187604036	0.213572914	0.653164011	4.703330288	1039.011737	0.194284968	0.185880286
Kern (SJV)	2015	MHDT	Aggregated	65	DSL	13406.6495	0.187604036	0.213572914	0.653164011	4.691489849	1039.011737	0.194284968	0.185880286
Kern (SJV)	2015	MHDT	Aggregated	70	DSL	0	0	0	0	0	0	0	0
Kern (SJV)	2015	OBUS	Aggregated	30	DSL	758.144099	0.266291755	0.303152892	0.865827163	6.719679745	1489.831187	0.074874757	0.071635709
Kern (SJV)	2015	OBUS	Aggregated	35	DSL	870.852116	0.206902058	0.235542244	0.696427516	6.388018411	1413.988228	0.06654819	0.063669345
Kern (SJV)	2015	OBUS	Aggregated	40	DSL	1266.44529	0.168826148	0.192195718	0.588246788	6.307666608	1382.281938	0.062686712	0.059974913
Kern (SJV)	2015	OBUS	Aggregated	45	DSL	872.155827	0.132831847	0.151218946	0.466046042	5.902969143	1289.841076	0.060480916	0.057864539
Kern (SJV)	2015	OBUS	Aggregated	50	DSL	1190.54784	0.121740816	0.138592651	0.4282749	6.049055241	1298.770673	0.064778995	0.061976684
Kern (SJV)	2015	OBUS	Aggregated	55	DSL	2216.20325	0.117494616	0.133758677	0.401717934	6.135005843	1294.626614	0.072361209	0.069230895
Kern (SJV)	2015	OBUS	Aggregated	60	DSL	2341.35565	0.116500461	0.132626907	0.380872356	6.0225919	1263.244187	0.076197153	0.072900898
Kern (SJV)	2015	OBUS	Aggregated	65	DSL	299.207825	0.112460858	0.128028127	0.357625249	5.763555702	1215.266053	0.074195092	0.070985445
Kern (SJV)	2015	OBUS	Aggregated	70	DSL	0	0	0	0	0	0	0	0
Kern (SJV)	2015	SBUS	Aggregated	30	DSL	2961.13749	0.160584053	0.182812721	0.527346375	9.023676193	1262.49028	0.083252414	0.079650951
Kern (SJV)	2015	SBUS	Aggregated	35	DSL	3039.23511	0.131004606	0.149138771	0.43664756	8.745915576	1194.857773	0.072803709	0.069654252
Kern (SJV)	2015	SBUS	Aggregated	40	DSL	2051.64437	0.109702998	0.124888513	0.364666438	8.559893083	1140.860457	0.065954635	0.063101467
Kern (SJV)	2015	SBUS	Aggregated	45	DSL	984.329585	0.096146294	0.109455237	0.309859246	8.458914171	1099.414325	0.062706886	0.059994214
Kern (SJV)	2015	SBUS	Aggregated	50	DSL	492.982156	0.089918258	0.102365092	0.271117132	8.434762194	1069.836101	0.06307245	0.060343964
Kern (SJV)	2015	SBUS	Aggregated	55	DSL	733.772435	0.090683859	0.103236671	0.24765745	8.5186472	1051.676773	0.067072285	0.064170768
Kern (SJV)	2015	SBUS	Aggregated	60	DSL	408.37882	0.093714369	0.106686675	0.241255688	8.569432018	1046.43866	0.070390263	0.067345211
Kern (SJV)	2015	SBUS	Aggregated	65	DSL	0	0	0	0	0	0	0	0
Kern (SJV)	2015	SBUS	Aggregated	70	DSL	0	0	0	0	0	0	0	0
Kern (SJV)	2015	UBUS	Aggregated	30	DSL	350.919538	0.482260462	1.96703788	7.020208418	12.7361812	1826.474573	0.143962974	0.137735199
Kern (SJV)	2015	UBUS	Aggregated	35	DSL	444.118009	0.398391121	1.631264862	6.149418411	12.35714095	1727.407671	0.122951783	0.117632943
Kern (SJV)	2015	UBUS	Aggregated	40	DSL	620.752164	0.33822557	1.38542765	5.495245666	12.10966241	1648.649412	0.109000603	0.104285285
Kern (SJV)	2015	UBUS	Aggregated	45	DSL	498.638496	0.301682193	1.2260037	5.038875266	11.96365867	1590.199796	0.102100155	0.097683347

Table A.1. EMFAC2014 Model Output for Kern County at Specific Speeds in Calendar Years 2015 and 2040
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Sub-Area
Region: Kern (SJV)
Calendar Year: 2015, 2040
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Kern (SJV)	2015	UBUS	Aggregated	50	DSL	483.297411	0.288717018	1.151099594	4.770196211	11.97429361	1552.058823	0.102244764	0.0978217
Kern (SJV)	2015	UBUS	Aggregated	55	DSL	892.292735	0.299304436	1.159615003	4.683333884	12.10105008	1534.226491	0.109430742	0.104696816
Kern (SJV)	2015	UBUS	Aggregated	60	DSL	1280.9633	0.333499429	1.253852233	4.790549096	12.32828384	1536.702803	0.123679984	0.118329642
Kern (SJV)	2015	UBUS	Aggregated	65	DSL	187.062199	0.391271892	1.432529102	5.085002222	12.66131412	1559.487757	0.144985957	0.138713929
Kern (SJV)	2040	HHDT	Aggregated	30	DSL	307748.737	0.122946775	0.142106221	0.732091199	1.65943521	1577.737505	0.006188638	0.00592092
Kern (SJV)	2040	HHDT	Aggregated	35	DSL	562441.876	0.090494203	0.105189262	0.540443746	1.10899788	1508.129332	0.00574617	0.005497594
Kern (SJV)	2040	HHDT	Aggregated	40	DSL	562714.893	0.066784454	0.07720164	0.397544913	0.787053353	1440.321197	0.005365477	0.005133368
Kern (SJV)	2040	HHDT	Aggregated	45	DSL	826681.896	0.049294715	0.056609926	0.292352327	0.584182015	1387.560237	0.005032637	0.004814927
Kern (SJV)	2040	HHDT	Aggregated	50	DSL	879936.939	0.036375618	0.041533147	0.215067033	0.447213611	1338.075936	0.004737324	0.00453239
Kern (SJV)	2040	HHDT	Aggregated	55	DSL	1036271.14	0.026825742	0.030539066	0.158361274	0.351551263	1294.621089	0.004472655	0.00427917
Kern (SJV)	2040	HHDT	Aggregated	60	DSL	328444.966	0.023030979	0.026219017	0.135951489	0.315299046	1271.089362	0.004350223	0.004162034
Kern (SJV)	2040	HHDT	Aggregated	65	DSL	176438.94	0.023030979	0.026219017	0.135951489	0.315346991	1271.089362	0.004350223	0.004162034
Kern (SJV)	2040	HHDT	Aggregated	70	DSL	0	0	0	0	0	0	0	0
Kern (SJV)	2040	LDA	Aggregated	30	DSL	31884.0816	0.005046372	0.005744959	0.163659227	0.01008039	193.543821	0.00089734	0.000858522
Kern (SJV)	2040	LDA	Aggregated	35	DSL	22107.2325	0.004014133	0.004569823	0.130155759	0.008771897	174.9597156	0.000811006	0.000775922
Kern (SJV)	2040	LDA	Aggregated	40	DSL	9864.0833	0.003310515	0.003768801	0.107316187	0.007839686	163.7231434	0.000743953	0.00071177
Kern (SJV)	2040	LDA	Aggregated	45	DSL	16390.8535	0.002804386	0.003192607	0.090882135	0.007142873	158.1439791	0.000690189	0.000660332
Kern (SJV)	2040	LDA	Aggregated	50	DSL	9632.23893	0.00242531	0.002761055	0.078566655	0.006603201	158.5465473	0.000646069	0.00061812
Kern (SJV)	2040	LDA	Aggregated	55	DSL	5513.60996	0.00213243	0.00242763	0.069043129	0.006173782	165.9064771	0.000609266	0.00058291
Kern (SJV)	2040	LDA	Aggregated	60	DSL	4480.51139	0.002010966	0.002289351	0.065084356	0.005999573	179.862544	0.000593665	0.000567983
Kern (SJV)	2040	LDA	Aggregated	65	DSL	60245.2016	0.002013612	0.002292364	0.065152391	0.006014771	202.2019012	0.000595285	0.000569533
Kern (SJV)	2040	LDA	Aggregated	70	DSL	44911.0176	0.002015457	0.002294464	0.065200012	0.006022553	218.346079	0.000596414	0.000570614
Kern (SJV)	2040	LDT1	Aggregated	30	DSL	87.8551879	0.017946998	0.020431464	0.183355698	0.053749941	212.7889963	0.005552178	0.005311993
Kern (SJV)	2040	LDT1	Aggregated	35	DSL	60.9155092	0.014358234	0.016345895	0.147176717	0.049865632	192.0502472	0.004999289	0.004783022
Kern (SJV)	2040	LDT1	Aggregated	40	DSL	27.1800487	0.011923762	0.01357441	0.122794863	0.047338186	179.2444381	0.004584225	0.004385914
Kern (SJV)	2040	LDT1	Aggregated	45	DSL	45.1642775	0.010192921	0.011603962	0.105672322	0.045660463	172.8220471	0.004267169	0.004082573
Kern (SJV)	2040	LDT1	Aggregated	50	DSL	26.5412117	0.008924751	0.010160236	0.093430416	0.044550742	173.1091435	0.004025053	0.003850931
Kern (SJV)	2040	LDT1	Aggregated	55	DSL	15.1925103	0.007982596	0.009087655	0.084792446	0.043840504	180.9997118	0.003845155	0.003678815
Kern (SJV)	2040	LDT1	Aggregated	60	DSL	12.3458525	0.007657154	0.008717161	0.082926158	0.044049411	196.05974	0.003806986	0.003642298
Kern (SJV)	2040	LDT1	Aggregated	65	DSL	166.00301	0.007802095	0.008882167	0.08665283	0.044928537	220.2192101	0.003895723	0.003727196
Kern (SJV)	2040	LDT1	Aggregated	70	DSL	123.750338	0.007903151	0.008997212	0.0892613	0.045368563	237.5954743	0.003957592	0.003786389
Kern (SJV)	2040	LDT2	Aggregated	30	DSL	2121.11135	0.017010034	0.019364793	0.173412962	0.035304224	241.8699125	0.004905925	0.004693697
Kern (SJV)	2040	LDT2	Aggregated	35	DSL	1470.69947	0.013525567	0.015397959	0.137891734	0.030516727	218.2968918	0.004435935	0.004244039
Kern (SJV)	2040	LDT2	Aggregated	40	DSL	656.215202	0.011149685	0.012693176	0.113672276	0.027090078	203.7409703	0.004069369	0.00389333
Kern (SJV)	2040	LDT2	Aggregated	45	DSL	1090.41326	0.009439411	0.010746142	0.096238807	0.024514709	196.4408599	0.003773746	0.003610496
Kern (SJV)	2040	LDT2	Aggregated	50	DSL	640.791589	0.008156736	0.009285901	0.08316524	0.02250756	196.7671925	0.003529203	0.003376531
Kern (SJV)	2040	LDT2	Aggregated	55	DSL	366.796849	0.007163409	0.008155065	0.073042645	0.020899023	205.7361294	0.003322842	0.003179097
Kern (SJV)	2040	LDT2	Aggregated	60	DSL	298.069227	0.006747449	0.007681522	0.068808125	0.020213549	222.8543439	0.003231253	0.00309147
Kern (SJV)	2040	LDT2	Aggregated	65	DSL	4007.85516	0.006748052	0.007682209	0.06882364	0.020213928	250.3155803	0.003231622	0.003091824
Kern (SJV)	2040	LDT2	Aggregated	70	DSL	2987.73759	0.006748473	0.007682688	0.0688345	0.020214789	270.0665804	0.00323188	0.00309207
Kern (SJV)	2040	LHDT1	Aggregated	30	DSL	25315.3674	0.058907137	0.067061859	0.281638439	0.431292104	430.5733382	0.009625594	0.009209195
Kern (SJV)	2040	LHDT1	Aggregated	35	DSL	13365.5582	0.047872106	0.054499209	0.232730466	0.440829757	430.5733382	0.00861913	0.00824627
Kern (SJV)	2040	LHDT1	Aggregated	40	DSL	7342.94821	0.040495339	0.046101252	0.201205498	0.452624932	418.7858602	0.007899069	0.007557359
Kern (SJV)	2040	LHDT1	Aggregated	45	DSL	7923.19582	0.035439638	0.040345672	0.181238127	0.464331821	408.4926542	0.007389398	0.007069736
Kern (SJV)	2040	LHDT1	Aggregated	50	DSL	30590.3503	0.032000399	0.036430326	0.170076002	0.477164415	428.2499474	0.007048787	0.00674386
Kern (SJV)	2040	LHDT1	Aggregated	55	DSL	18429.3645	0.029807262	0.033933586	0.166787541	0.493253903	447.5059975	0.006859459	0.006562722
Kern (SJV)	2040	LHDT2	Aggregated	30	DSL	12287.4809	0.048976359	0.055756329	0.218330361	0.098406337	482.0283941	0.008432808	0.008068008
Kern (SJV)	2040	LHDT2	Aggregated	35	DSL	6487.32598	0.039057889	0.04446481	0.174611921	0.092771475	482.0283941	0.007615376	0.007285938

Table A.1. EMFAC2014 Model Output for Kern County at Specific Speeds in Calendar Years 2015 and 2040
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Sub-Area
Region: Kern (SJV)
Calendar Year: 2015, 2040
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Kern (SJV)	2040	LHDT2	Aggregated	40	DSL	3564.09348	0.03231131	0.036784278	0.145011551	0.089261298	464.4224263	0.006985188	0.006683012
Kern (SJV)	2040	LHDT2	Aggregated	45	DSL	3845.73195	0.027482962	0.031287525	0.124016187	0.086807103	446.4240241	0.006485021	0.006204482
Kern (SJV)	2040	LHDT2	Aggregated	50	DSL	14847.8329	0.023900798	0.027209469	0.10870707	0.085306263	462.8665723	0.006080462	0.005817424
Kern (SJV)	2040	LHDT2	Aggregated	55	DSL	8945.17789	0.021178759	0.024110609	0.097465352	0.08489806	479.0891966	0.005750197	0.005501446
Kern (SJV)	2040	MDV	Aggregated	30	DSL	13516.4182	0.006060903	0.006899935	0.190949806	0.011850022	314.222193	0.00119284	0.001141238
Kern (SJV)	2040	MDV	Aggregated	35	DSL	9371.78004	0.004820349	0.005487647	0.151847972	0.010282625	285.1131879	0.001078314	0.001031666
Kern (SJV)	2040	MDV	Aggregated	40	DSL	4181.61879	0.003974622	0.004524843	0.125189548	0.009163697	266.6841697	0.000989183	0.000946392
Kern (SJV)	2040	MDV	Aggregated	45	DSL	6948.47142	0.003366076	0.003832054	0.106004073	0.00832532	256.6450029	0.000917515	0.000877823
Kern (SJV)	2040	MDV	Aggregated	50	DSL	4083.33447	0.002910022	0.003312866	0.091621677	0.007674218	257.9310441	0.000858471	0.000821334
Kern (SJV)	2040	MDV	Aggregated	55	DSL	2337.34999	0.002557304	0.002911321	0.080492738	0.007154503	272.2073568	0.000808938	0.000773944
Kern (SJV)	2040	MDV	Aggregated	60	DSL	1899.39502	0.002410397	0.002744077	0.075851904	0.006938969	294.7457921	0.000787454	0.000753389
Kern (SJV)	2040	MDV	Aggregated	65	DSL	25539.3694	0.002412273	0.002746212	0.075900127	0.006949302	330.9582121	0.000788602	0.000754488
Kern (SJV)	2040	MDV	Aggregated	70	DSL	19038.8452	0.002413581	0.002747701	0.07593388	0.006954687	356.2820336	0.000789403	0.000755254
Kern (SJV)	2040	MH	Aggregated	30	DSL	265.158452	0.054342381	0.061865188	0.172978543	2.701844365	1030.466216	0.02807309	0.026858661
Kern (SJV)	2040	MH	Aggregated	35	DSL	301.724203	0.043657857	0.049701568	0.142522119	2.3692173	974.5743378	0.026239778	0.025104656
Kern (SJV)	2040	MH	Aggregated	40	DSL	402.570622	0.036250741	0.041269059	0.121495465	2.132224219	930.1402535	0.025352277	0.024255548
Kern (SJV)	2040	MH	Aggregated	45	DSL	307.647905	0.03097525	0.035263263	0.106664379	1.950446367	897.1639637	0.025306126	0.024211394
Kern (SJV)	2040	MH	Aggregated	50	DSL	362.921338	0.027215752	0.030983325	0.096291118	1.817505	875.6454683	0.026037415	0.024911048
Kern (SJV)	2040	MH	Aggregated	55	DSL	609.556907	0.024614614	0.028022101	0.089366189	1.7158821	865.5847672	0.027504626	0.026314788
Kern (SJV)	2040	MH	Aggregated	60	DSL	681.291132	0.023916832	0.027227724	0.087992499	1.675564226	866.9818605	0.029954283	0.028658474
Kern (SJV)	2040	MH	Aggregated	65	DSL	101.073875	0.024706296	0.028126475	0.090995484	1.681698824	879.8367482	0.033312833	0.031871735
Kern (SJV)	2040	MHDT	Aggregated	30	DSL	38925.6757	0.053929752	0.061394917	0.283693632	0.882725019	1200.262182	0.003442277	0.003293366
Kern (SJV)	2040	MHDT	Aggregated	35	DSL	44293.5851	0.039744921	0.045246568	0.209074095	0.594850506	1146.539502	0.003196063	0.003057803
Kern (SJV)	2040	MHDT	Aggregated	40	DSL	59097.9971	0.029291623	0.033346283	0.154085017	0.42575541	1101.785633	0.002985772	0.002856609
Kern (SJV)	2040	MHDT	Aggregated	45	DSL	45163.1938	0.021588439	0.024576794	0.113562663	0.317747033	1064.760698	0.002802558	0.00268132
Kern (SJV)	2040	MHDT	Aggregated	50	DSL	53277.4202	0.015912131	0.01811475	0.083701737	0.246314308	1032.303298	0.00264054	0.002526311
Kern (SJV)	2040	MHDT	Aggregated	55	DSL	89483.9076	0.011729722	0.013353395	0.061698013	0.196375169	1003.728767	0.002495611	0.002387652
Kern (SJV)	2040	MHDT	Aggregated	60	DSL	100014.604	0.010071609	0.011465761	0.052973662	0.176697722	990.1073478	0.002428583	0.002323524
Kern (SJV)	2040	MHDT	Aggregated	65	DSL	14837.8029	0.010071609	0.011465761	0.052973662	0.176252892	990.1073478	0.002428583	0.002323524
Kern (SJV)	2040	MHDT	Aggregated	70	DSL	0	0	0	0	0	0	0	0
Kern (SJV)	2040	OBUS	Aggregated	30	DSL	1262.63301	0.073402192	0.083562808	0.408627264	1.082096116	1356.070998	0.004183491	0.004002515
Kern (SJV)	2040	OBUS	Aggregated	35	DSL	1450.06629	0.054378015	0.061905231	0.30298473	0.724999632	1298.916159	0.00389644	0.003727882
Kern (SJV)	2040	OBUS	Aggregated	40	DSL	2105.3008	0.041914604	0.047716586	0.235235028	0.529425305	1275.536247	0.003742588	0.003580685
Kern (SJV)	2040	OBUS	Aggregated	45	DSL	1452.76179	0.029233468	0.033280078	0.16261035	0.37737411	1201.906413	0.003392181	0.003245436
Kern (SJV)	2040	OBUS	Aggregated	50	DSL	1977.64271	0.023219467	0.026433596	0.130715399	0.303549874	1207.301274	0.003346773	0.003201993
Kern (SJV)	2040	OBUS	Aggregated	55	DSL	3675.04901	0.01788275	0.02035815	0.101337272	0.24581908	1199.921637	0.003249657	0.003109078
Kern (SJV)	2040	OBUS	Aggregated	60	DSL	3886.16225	0.01499671	0.017072613	0.08469023	0.216571728	1171.5762	0.003112792	0.002978134
Kern (SJV)	2040	OBUS	Aggregated	65	DSL	497.965935	0.013958434	0.015890614	0.077950109	0.206789052	1132.788684	0.002974793	0.002846104
Kern (SJV)	2040	OBUS	Aggregated	70	DSL	0	0	0	0	0	0	0	0
Kern (SJV)	2040	SBUS	Aggregated	30	DSL	3134.3734	0.051048421	0.058114742	0.265493343	0.810440478	1203.376244	0.003272173	0.00313062
Kern (SJV)	2040	SBUS	Aggregated	35	DSL	3217.03998	0.037621951	0.042829727	0.195663886	0.550730776	1149.80338	0.003038048	0.002906624
Kern (SJV)	2040	SBUS	Aggregated	40	DSL	2171.67206	0.027727291	0.03156541	0.144205328	0.397883183	1105.813909	0.00283764	0.002714885
Kern (SJV)	2040	SBUS	Aggregated	45	DSL	1041.91598	0.020435429	0.023264181	0.106285098	0.301074216	1068.721578	0.002662513	0.002547334
Kern (SJV)	2040	SBUS	Aggregated	50	DSL	521.823171	0.015061751	0.017146657	0.078341935	0.236105277	1036.806133	0.002507059	0.002398605
Kern (SJV)	2040	SBUS	Aggregated	55	DSL	776.700444	0.011101744	0.012638491	0.057751449	0.191289894	1008.90445	0.002367359	0.002264948
Kern (SJV)	2040	SBUS	Aggregated	60	DSL	432.270273	0.009531524	0.010850914	0.049587447	0.173466881	996.1927025	0.002302495	0.00220289
Kern (SJV)	2040	SBUS	Aggregated	65	DSL	0	0	0	0	0	0	0	0
Kern (SJV)	2040	SBUS	Aggregated	70	DSL	0	0	0	0	0	0	0	0

Table A.1. EMFAC2014 Model Output for Kern County at Specific Speeds in Calendar Years 2015 and 2040
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Sub-Area
Region: Kern (SJV)
Calendar Year: 2015, 2040
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Kern (SJV)	2040	UBUS	Aggregated	30	DSL	220.879178	0.051890498	0.621026586	2.662564065	1.474661725	1562.332839	0.010682582	0.010220458
Kern (SJV)	2040	UBUS	Aggregated	35	DSL	279.541063	0.042123844	0.50038427	2.173606836	1.397604375	1477.592829	0.008868165	0.008484532
Kern (SJV)	2040	UBUS	Aggregated	40	DSL	390.719845	0.035253045	0.416382368	1.836333355	1.345502441	1410.22446	0.00772809	0.007393776
Kern (SJV)	2040	UBUS	Aggregated	45	DSL	313.857876	0.031085228	0.35808235	1.596733304	1.309028306	1360.22773	0.007247773	0.006934238
Kern (SJV)	2040	UBUS	Aggregated	50	DSL	304.201742	0.029516745	0.31960684	1.425786655	1.290866342	1327.602641	0.007418292	0.00709738
Kern (SJV)	2040	UBUS	Aggregated	55	DSL	561.635543	0.030487381	0.297541494	1.306634923	1.284510546	1312.349192	0.008233851	0.007877658
Kern (SJV)	2040	UBUS	Aggregated	60	DSL	806.276342	0.034122759	0.298999991	1.274399172	1.294571223	1314.467384	0.009728866	0.009307999
Kern (SJV)	2040	UBUS	Aggregated	65	DSL	117.742503	0.040352782	0.320009461	1.309463751	1.318974063	1333.957216	0.011893069	0.01137858

Abbreviations:
CARB - California Air Resources Board
CalYr - calendar year
CO - carbon monoxide
CO2 - carbon dioxide
DSL - diesel
EMFAC - CARB's mobile source emission inventory model
g - grams
GAS - gasoline
HHDT - heavy-heavy duty truck
LDA - passenger car
LDT1 - light duty trucks (0-3750 pounds)
LDT2- light duty trucks (3751-5750 pounds)
LHDT1 - light-heavy duty trucks (8501-10000 pounds)
LHDT2 - light-heavy duty trucks (10001-14000 pounds)
MCY - motorcycle
MdlYr - model year
MDV - medium duty trucks (5751-8500 pounds)
MH - motor homes
MHDT - medium-heavy duty truck
NOX - oxides of nitrogen
OBUS - other buses
PM10 - particulate matter less than 10 microns in diameter
PM2_5 - particulate matter less than 2.5 microns in diameter
PMBW - particulate matter brake wear
PMTW - particulate matter tire wear
ROG - reactive organic gases
RUNEX - running exhaust
SBUS - school bus
SJV - San Joaquin Valley
TOG - total organic gases
UBUS - urban bus
VehClass - vehicle class
VMT - vehicle miles travelled

Source:
\\wcirvfps1\projects\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]TA.1_EMFAC_Kern_AllSpeeds

Table A.2. EMFAC2014 Model Output for Kern County at Aggregated Speeds in Calendar Years 2015 and 2040
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Sub-Area
Region: Kern (SJV)
Calendar Year: 2015, 2040
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HTSK and RUNLS, g/vehicle/day for IDLEX, RESTL and DIURN

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT
Kern (SJV)	2015	HHDT	Aggregated	Aggregated	GAS	11134.54864
Kern (SJV)	2015	HHDT	Aggregated	Aggregated	DSL	3139093.945
Kern (SJV)	2015	LDA	Aggregated	Aggregated	GAS	9579675.424
Kern (SJV)	2015	LDA	Aggregated	Aggregated	DSL	74935.25997
Kern (SJV)	2015	LDA	Aggregated	Aggregated	ELEC	59733.05453
Kern (SJV)	2015	LDT1	Aggregated	Aggregated	GAS	814944.2014
Kern (SJV)	2015	LDT1	Aggregated	Aggregated	DSL	1423.135109
Kern (SJV)	2015	LDT1	Aggregated	Aggregated	ELEC	381.5720038
Kern (SJV)	2015	LDT2	Aggregated	Aggregated	GAS	3482562.959
Kern (SJV)	2015	LDT2	Aggregated	Aggregated	DSL	4845.557953
Kern (SJV)	2015	LHDT1	Aggregated	Aggregated	GAS	340324.1282
Kern (SJV)	2015	LHDT1	Aggregated	Aggregated	DSL	378434.8468
Kern (SJV)	2015	LHDT2	Aggregated	Aggregated	GAS	80833.03456
Kern (SJV)	2015	LHDT2	Aggregated	Aggregated	DSL	147190.9983
Kern (SJV)	2015	MCY	Aggregated	Aggregated	GAS	128233.6628
Kern (SJV)	2015	MDV	Aggregated	Aggregated	GAS	3715875.791
Kern (SJV)	2015	MDV	Aggregated	Aggregated	DSL	31320.70511
Kern (SJV)	2015	MH	Aggregated	Aggregated	GAS	20354.46137
Kern (SJV)	2015	MH	Aggregated	Aggregated	DSL	6835.234314
Kern (SJV)	2015	MHDT	Aggregated	Aggregated	GAS	52475.61057
Kern (SJV)	2015	MHDT	Aggregated	Aggregated	DSL	509656.3234
Kern (SJV)	2015	OBUS	Aggregated	Aggregated	GAS	24244.14878
Kern (SJV)	2015	OBUS	Aggregated	Aggregated	DSL	12108.03227
Kern (SJV)	2015	SBUS	Aggregated	Aggregated	GAS	6764.469215
Kern (SJV)	2015	SBUS	Aggregated	Aggregated	DSL	16595.3814
Kern (SJV)	2015	UBUS	Aggregated	Aggregated	GAS	15976.67629
Kern (SJV)	2015	UBUS	Aggregated	Aggregated	DSL	39434.14319
Kern (SJV)	2040	HHDT	Aggregated	Aggregated	GAS	8358.071018
Kern (SJV)	2040	HHDT	Aggregated	Aggregated	DSL	5220817.486
Kern (SJV)	2040	LDA	Aggregated	Aggregated	GAS	16530264.26
Kern (SJV)	2040	LDA	Aggregated	Aggregated	DSL	229477.99
Kern (SJV)	2040	LDA	Aggregated	Aggregated	ELEC	2994970.112
Kern (SJV)	2040	LDT1	Aggregated	Aggregated	GAS	1124920.096
Kern (SJV)	2040	LDT1	Aggregated	Aggregated	DSL	632.3165325
Kern (SJV)	2040	LDT1	Aggregated	Aggregated	ELEC	507.2331057
Kern (SJV)	2040	LDT2	Aggregated	Aggregated	GAS	6944932.209
Kern (SJV)	2040	LDT2	Aggregated	Aggregated	DSL	15266.18754
Kern (SJV)	2040	LHDT1	Aggregated	Aggregated	GAS	120340.2295
Kern (SJV)	2040	LHDT1	Aggregated	Aggregated	DSL	201904.8102
Kern (SJV)	2040	LHDT2	Aggregated	Aggregated	GAS	39886.03755
Kern (SJV)	2040	LHDT2	Aggregated	Aggregated	DSL	97999.82193
Kern (SJV)	2040	MCY	Aggregated	Aggregated	GAS	198322.8027
Kern (SJV)	2040	MDV	Aggregated	Aggregated	GAS	3473184.9
Kern (SJV)	2040	MDV	Aggregated	Aggregated	DSL	97281.16101
Kern (SJV)	2040	MH	Aggregated	Aggregated	GAS	13313.28616
Kern (SJV)	2040	MH	Aggregated	Aggregated	DSL	3842.342506
Kern (SJV)	2040	MHDT	Aggregated	Aggregated	GAS	62254.18599
Kern (SJV)	2040	MHDT	Aggregated	Aggregated	DSL	564061.8915
Kern (SJV)	2040	OBUS	Aggregated	Aggregated	GAS	33512.2267

Table A.2. EMFAC2014 Model Output for Kern County at Aggregated Speeds in Calendar Years 2015 and 2040
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Sub-Area
Region: Kern (SJV)
Calendar Year: 2015, 2040
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HTSK and RUNLS, g/vehicle/day for IDLEX, RESTL and DIURN

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT
Kern (SJV)	2040	OBUS	Aggregated	Aggregated	DSL	20127.40857
Kern (SJV)	2040	SBUS	Aggregated	Aggregated	GAS	9274.885333
Kern (SJV)	2040	SBUS	Aggregated	Aggregated	DSL	17566.2637
Kern (SJV)	2040	UBUS	Aggregated	Aggregated	GAS	23469.09926
Kern (SJV)	2040	UBUS	Aggregated	Aggregated	DSL	24821.0207

Notes:
1. Only a portion of the model output that is used in the analyses is shown.

Abbreviations:
CalYr - calendar year
CARB - California Air Resources Board
DIUR - diurnal loss
DSL - diesel
ELEC - electric
EMFAC - CARB's mobile source emission inventory model
g - grams
GAS - gasoline
HHDT - heavy-heavy duty truck
HTSK - hot soak
IDLEX - idling exhaust
LDA - passenger car
LDT1 - light duty trucks (0-3750 pounds)
LDT2- light duty trucks (3751-5750 pounds)
LHDT1 - light-heavy duty trucks (8501-10000 pounds)
LHDT2 - light-heavy duty trucks (10001-14000 pounds)
MCY - motorcycle
MdlYr - model year
MDV - medium duty trucks (5751-8500 pounds)
MH - motor homes
MHDT - medium-heavy duty truck
OBUS - other buses
PMBW - particulate matter brake wear
PMTW - particulate matter tire wear
RESTL - resting loss
RUNEX - running exhaust
RUNLS - running loss
SBUS - school bus
SJV - San Joaquin Valley
STREX - starting exhaust
UBUS - urban bus
VehClass - vehicle class
VMT - vehicle miles travelled

Source:
\\wcirvfps1\projects\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]TA.2_EMFAC_Kern_AggSpeeds

Table A.3. EMFAC2014 Model Output for California at Specific Speeds in Calendar Years 2015 and 2040
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Statewide
Region: California
Calendar Year: 2015, 2040
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Statewide	2015	MH	Aggregated	60	GAS	132072.5163	0.326366068	0.416704964	12.20952172	1.227854924	957.9073786	0.003175045	0.002956109
Statewide	2015	MH	Aggregated	60	DSL	40239.83829	0.081113548	0.092342382	0.387060961	5.875102093	917.2104681	0.195870009	0.187396759
Statewide	2015	MH	Aggregated	65	GAS	60017.24519	0.36743092	0.47014235	14.65942943	1.22984046	975.4744928	0.003558984	0.00331415
Statewide	2015	MH	Aggregated	65	DSL	18469.05639	0.090249008	0.102742496	0.40301658	5.884090779	930.5231038	0.227093973	0.217269989
Statewide	2015	MH	Aggregated	70	GAS	20891.37538	0.405622616	0.520437219	16.7248058	1.335604318	1006.915282	0.003943788	0.003670686
Statewide	2015	MH	Aggregated	70	DSL	6794.075454	0.117152056	0.133369827	0.473336385	6.612679519	956.5975062	0.281541777	0.269362404
Statewide	2015	OBUS	Aggregated	60	GAS	116811.7815	0.087208781	0.124229186	2.43827722	0.737737003	953.5354474	0.000615327	0.000567615
Statewide	2015	OBUS	Aggregated	60	DSL	153832.7327	0.108221806	0.123202288	0.357458514	5.601639088	1250.393495	0.071492131	0.068399413
Statewide	2015	OBUS	Aggregated	65	GAS	53090.84242	0.093552778	0.133473443	2.299064313	0.710320481	970.8377587	0.000676348	0.000623778
Statewide	2015	OBUS	Aggregated	65	DSL	61409.68588	0.105501928	0.120105914	0.348093552	5.420530476	1247.337359	0.069120582	0.066130456
Statewide	2015	OBUS	Aggregated	70	GAS	18760.77472	0.096748639	0.139083722	2.134251951	0.72934213	1001.599102	0.000675572	0.000622457
Statewide	2015	OBUS	Aggregated	70	DSL	7184.989372	0.105887278	0.120544606	0.34819531	5.36091767	1259.003275	0.067687783	0.064759639
Statewide	2015	SBUS	Aggregated	60	GAS	4587.717358	0.161676175	0.235917494	4.536348388	1.106455313	451.7961606	0.001544753	0.001420343
Statewide	2015	SBUS	Aggregated	60	DSL	13298.87322	0.093390876	0.106318404	0.240497237	8.495398947	1046.469118	0.07013229	0.067098398
Statewide	2015	SBUS	Aggregated	65	DSL	0	0	0	0	0	0	0	0
Statewide	2015	SBUS	Aggregated	70	DSL	0	0	0	0	0	0	0	0
Statewide	2015	UBUS	Aggregated	60	GAS	16217.84358	0.488224485	0.684906923	8.719018903	1.94818156	955.6602813	0.001463033	0.001358726
Statewide	2015	UBUS	Aggregated	60	DSL	41925.18306	0.389367188	1.250440304	4.573251003	16.10971657	1602.07203	0.178408933	0.170691041
Statewide	2015	UBUS	Aggregated	65	GAS	6722.92871	0.630526622	0.891540607	10.54648635	2.206409704	973.0871637	0.001755275	0.001628335
Statewide	2015	UBUS	Aggregated	65	DSL	16808.80708	0.468077601	1.855804965	5.822770266	16.04505823	1592.268905	0.173056137	0.165569805
Statewide	2015	UBUS	Aggregated	70	GAS	2797.181693	0.679591513	0.953706051	12.28968886	2.466743462	1004.842727	0.001871507	0.001740298
Statewide	2015	UBUS	Aggregated	70	DSL	4453.45957	0.481470009	2.139229752	6.486275434	13.27785694	1577.873151	0.145073908	0.138798075
Statewide	2040	MH	Aggregated	60	GAS	75934.22532	0.007822881	0.01141513	0.149565328	0.106054948	891.3039114	0.000880203	0.000809315
Statewide	2040	MH	Aggregated	60	DSL	26637.23988	0.023267753	0.02648879	0.081542212	1.626543296	866.4454491	0.025872474	0.024753242
Statewide	2040	MH	Aggregated	65	GAS	29905.44616	0.008931457	0.01303276	0.140932515	0.10981228	907.8599323	0.000996456	0.000916204
Statewide	2040	MH	Aggregated	65	DSL	10705.45039	0.024034619	0.027361816	0.084270541	1.636569057	879.3180545	0.028797606	0.027551835
Statewide	2040	MH	Aggregated	70	GAS	6138.677421	0.010397217	0.015171594	0.148119937	0.121129507	937.3058247	0.001078053	0.00099123
Statewide	2040	MH	Aggregated	70	DSL	2185.087172	0.027932828	0.031799667	0.101558931	1.77290095	904.7705429	0.039792733	0.038071317
Statewide	2040	OBUS	Aggregated	60	GAS	146590.0445	0.007909329	0.011541274	0.159532092	0.091761341	887.5906712	0.000898939	0.000826541
Statewide	2040	OBUS	Aggregated	60	DSL	252718.2659	0.014765826	0.016809769	0.083187089	0.213751102	1162.881274	0.003082648	0.002949294
Statewide	2040	OBUS	Aggregated	65	GAS	61547.50025	0.008935418	0.01303854	0.147848464	0.093761234	903.9774111	0.001018928	0.000936867
Statewide	2040	OBUS	Aggregated	65	DSL	93647.41532	0.014369542	0.01635863	0.080648062	0.20845013	1148.709223	0.003025255	0.002894384
Statewide	2040	OBUS	Aggregated	70	GAS	15255.44137	0.009884307	0.014423158	0.145091248	0.099092537	932.3601024	0.00110617	0.001017082
Statewide	2040	OBUS	Aggregated	70	DSL	8607.373863	0.014476686	0.016480605	0.081364883	0.209852172	1153.121514	0.003036404	0.00290505
Statewide	2040	SBUS	Aggregated	60	GAS	8032.774219	0.006635663	0.009682744	0.132879542	0.082322166	421.1880955	0.000871833	0.000801618
Statewide	2040	SBUS	Aggregated	60	DSL	14411.62367	0.009525989	0.010844613	0.049573993	0.171867523	996.1793823	0.002299052	0.002199596
Statewide	2040	SBUS	Aggregated	65	DSL	0	0	0	0	0	0	0	0
Statewide	2040	SBUS	Aggregated	70	DSL	0	0	0	0	0	0	0	0
Statewide	2040	UBUS	Aggregated	60	GAS	20655.82117	0.01298464	0.018947157	0.355013323	0.324075187	891.1664084	0.000872875	0.000802576
Statewide	2040	UBUS	Aggregated	60	DSL	21631.02881	0.037674715	0.302672797	1.221465068	1.549159924	1326.118773	0.011968972	0.0114512
Statewide	2040	UBUS	Aggregated	65	GAS	8328.071325	0.014616611	0.021328524	0.330419415	0.329669722	907.4016387	0.000990531	0.000910757
Statewide	2040	UBUS	Aggregated	65	DSL	8657.895618	0.041912011	0.380616774	1.408995005	1.305905684	1314.067269	0.009121682	0.008727082

Table A.3. EMFAC2014 Model Output for California at Specific Speeds in Calendar Years 2015 and 2040
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Statewide
Region: California
Calendar Year: 2015, 2040
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Statewide	2040	UBUS	Aggregated	70	GAS	1978.490837	0.017901043	0.02612116	0.359398079	0.358450456	936.7194843	0.001066001	0.000980148
Statewide	2040	UBUS	Aggregated	70	DSL	2009.218753	0.041467645	0.42398783	1.541134851	0.997949393	1316.926619	0.006182405	0.005914957

Abbreviations:

CARB - California Air Resources Board
CalYr - calendar year
CO - carbon monoxide
CO2 - carbon dioxide
DSL - diesel
EMFAC - CARB's mobile source emission inventory model
g - grams
GAS - gasoline
MdlYr - model year
MH - motor homes
NOX - oxides of nitrogen
OBUS - other buses
PM10 - particulate matter less than 10 microns in diameter
PM2_5 - particulate matter less than 2.5 microns in diameter
PMBW - particulate matter brake wear
PMTW - particulate matter tire wear
ROG - reactive organic gases
RUNEX - running exhaust
SBUS - school bus
SJV - San Joaquin Valley
TOG - total organic gases
UBUS - urban bus
VehClass - vehicle class
VMT - vehicle miles travelled

Source:
\\wcirvfps1\projects\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]TA.3_EMFAC_State_AllSpeeds

Table A.4. EMFAC2014 Model Output for Trucks in Kern County at Specific Speeds in Calendar Years 2018, 2019, 2020, 2025, 2030, 2035, 2045, and 2050
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Sub-Area
Region: Kern (SJV)
Calendar Year: 2018, 2019, 2020, 2025, 2030, 2035, 2045, 2050
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Kern (SJV)	2018	HHDT	Aggregated	30	GAS	907.614164	0.509166662	0.732877131	38.62316089	3.440429535	1919.237506	0.000572169	0.000528929
Kern (SJV)	2018	HHDT	Aggregated	30	DSL	207396.2059	0.233841394	0.270317742	0.991719797	5.419259768	1794.077173	0.028855972	0.027607675
Kern (SJV)	2018	HHDT	Aggregated	35	GAS	1616.004668	0.421372054	0.606067528	35.68257642	3.241090908	1840.701824	0.000476673	0.000440765
Kern (SJV)	2018	HHDT	Aggregated	35	DSL	379262.0094	0.174596509	0.203230591	0.744117471	4.772269884	1702.71141	0.026624993	0.025473207
Kern (SJV)	2018	HHDT	Aggregated	50	GAS	1581.42116	0.326417156	0.468530177	28.83429782	3.012422803	1713.536846	0.000376793	0.00034862
Kern (SJV)	2018	HHDT	Aggregated	50	DSL	592180.7002	0.076443762	0.08735411	0.329211662	3.709473921	1484.498289	0.023715013	0.022689112
Kern (SJV)	2018	HHDT	Aggregated	55	GAS	2310.070263	0.334195899	0.479582782	27.2898286	3.009608033	1681.272617	0.000386422	0.000357576
Kern (SJV)	2018	HHDT	Aggregated	55	DSL	697183.1632	0.060055285	0.068368371	0.258238235	3.510937594	1440.828558	0.02382999	0.022799115
Kern (SJV)	2018	LHDT1	Aggregated	30	GAS	36203.64634	0.070021919	0.100174835	1.659068678	0.409717132	691.8343944	0.001581423	0.001456038
Kern (SJV)	2018	LHDT1	Aggregated	30	DSL	41672.79101	0.141656864	0.161266922	0.712958141	3.779410253	486.4705882	0.032335945	0.030937106
Kern (SJV)	2018	LHDT1	Aggregated	35	GAS	13768.55799	0.059046351	0.084364221	1.518432177	0.400340776	691.8343944	0.001316577	0.001212272
Kern (SJV)	2018	LHDT1	Aggregated	35	DSL	22001.66023	0.122235208	0.139156658	0.645867705	3.9507041	486.4705882	0.028407993	0.027179076
Kern (SJV)	2018	LHDT1	Aggregated	50	GAS	37627.80512	0.049364925	0.070504537	1.41539755	0.377509744	723.5107099	0.001039053	0.000956884
Kern (SJV)	2018	LHDT1	Aggregated	50	DSL	50356.18297	0.102827491	0.117062262	0.656647682	4.446034447	483.8455736	0.024486055	0.023426799
Kern (SJV)	2018	LHDT1	Aggregated	55	GAS	11028.3291	0.050148765	0.071475309	1.450883856	0.397713489	762.2990087	0.001065231	0.000981025
Kern (SJV)	2018	LHDT1	Aggregated	55	DSL	30337.42489	0.106149794	0.120844483	0.733264771	4.632835604	505.601454	0.02524796	0.024155744
Kern (SJV)	2018	LHDT2	Aggregated	30	GAS	8807.59639	0.032255868	0.04701097	0.79146613	0.266810099	778.2589761	0.001040292	0.000956566
Kern (SJV)	2018	LHDT2	Aggregated	30	DSL	16395.04999	0.114512998	0.130365435	0.568079868	2.780521327	549.5518188	0.026692397	0.025537695
Kern (SJV)	2018	LHDT2	Aggregated	35	GAS	3349.604637	0.026872473	0.039161341	0.72360539	0.258348511	778.2589761	0.00086048	0.000791229
Kern (SJV)	2018	LHDT2	Aggregated	35	DSL	8655.967373	0.097963557	0.111524997	0.509205514	2.899185937	549.5518188	0.023531896	0.022513917
Kern (SJV)	2018	LHDT2	Aggregated	50	GAS	9154.064686	0.021941599	0.031973801	0.645301829	0.239069121	774.1430571	0.000668847	0.000615023
Kern (SJV)	2018	LHDT2	Aggregated	50	DSL	19811.29934	0.080035317	0.091114887	0.501616698	3.248762573	527.7057737	0.020091729	0.019222569
Kern (SJV)	2018	LHDT2	Aggregated	55	GAS	2682.963774	0.022117994	0.032226293	0.638200285	0.250698388	809.3893351	0.000683374	0.000628382
Kern (SJV)	2018	LHDT2	Aggregated	55	DSL	11935.45202	0.081694867	0.093004175	0.554551849	3.382350635	546.200893	0.020511274	0.019623965
Kern (SJV)	2018	MHDT	Aggregated	30	GAS	3600.888711	0.169798091	0.24393394	4.508803056	0.936433227	1288.125994	0.00150692	0.001388124
Kern (SJV)	2018	MHDT	Aggregated	30	DSL	36809.66271	0.250798923	0.285515483	0.786032598	4.284424016	1272.522904	0.103418655	0.09894481
Kern (SJV)	2018	MHDT	Aggregated	35	GAS	4454.697795	0.142042387	0.203904396	4.155344839	0.892660482	1189.25264	0.001253351	0.001154652
Kern (SJV)	2018	MHDT	Aggregated	35	DSL	41885.77079	0.203723907	0.23192416	0.664915776	3.928022661	1207.697824	0.097936486	0.093699797
Kern (SJV)	2018	MHDT	Aggregated	50	GAS	4959.810425	0.113156328	0.162133464	3.558288724	0.846683272	961.6786322	0.000986955	0.000909431
Kern (SJV)	2018	MHDT	Aggregated	50	DSL	50381.24153	0.128802165	0.146631461	0.473886753	3.367682432	1076.671607	0.109325362	0.104595995
Kern (SJV)	2018	MHDT	Aggregated	55	GAS	6641.311004	0.116008212	0.16611614	3.511568568	0.859729927	935.1720663	0.001011321	0.000931928
Kern (SJV)	2018	MHDT	Aggregated	55	DSL	84619.53202	0.122686276	0.139668986	0.456013046	3.300378561	1049.964108	0.122352335	0.117059427
Kern (SJV)	2019	HHDT	Aggregated	30	GAS	892.4989418	0.484600492	0.702825599	38.89885428	3.434187971	1907.551835	0.000552097	0.000508841
Kern (SJV)	2019	HHDT	Aggregated	30	DSL	215926.2072	0.225822773	0.26096625	0.985693302	5.108309201	1772.97062	0.026445631	0.025301605
Kern (SJV)	2019	HHDT	Aggregated	35	GAS	1589.092054	0.400219873	0.580251523	35.93986772	3.232376104	1829.494335	0.000457425	0.000421641

Table A.4. EMFAC2014 Model Output for Trucks in Kern County at Specific Speeds in Calendar Years 2018, 2019, 2020, 2025, 2030, 2035, 2045, and 2050
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Sub-Area
Region: Kern (SJV)
Calendar Year: 2018, 2019, 2020, 2025, 2030, 2035, 2045, 2050
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Kern (SJV)	2019	HHDT	Aggregated	35	DSL	394827.0239	0.168367376	0.195879382	0.737944455	4.450671279	1683.357003	0.024409222	0.02335329
Kern (SJV)	2019	HHDT	Aggregated	50	GAS	1555.084493	0.308311235	0.446573505	28.88359427	2.998076153	1703.103626	0.000356952	0.000329128
Kern (SJV)	2019	HHDT	Aggregated	50	DSL	616659.6165	0.073074042	0.083494585	0.322322427	3.394265185	1469.431551	0.021622053	0.020686692
Kern (SJV)	2019	HHDT	Aggregated	55	GAS	2271.598821	0.315412971	0.456809323	27.21808388	2.99417534	1671.035844	0.000365026	0.000336596
Kern (SJV)	2019	HHDT	Aggregated	55	DSL	726033.7002	0.057057319	0.064955414	0.250982939	3.198521233	1426.390136	0.021639809	0.020703681
Kern (SJV)	2019	LHDT1	Aggregated	30	GAS	33642.32099	0.064197824	0.092318765	1.522978707	0.389852641	690.0583184	0.001517901	0.001397006
Kern (SJV)	2019	LHDT1	Aggregated	30	DSL	39663.35033	0.138646212	0.157839494	0.700170856	3.592305822	483.7728357	0.031700261	0.030328922
Kern (SJV)	2019	LHDT1	Aggregated	35	GAS	12794.46394	0.054051653	0.077652618	1.393040053	0.380675453	690.0583184	0.00126258	0.001162077
Kern (SJV)	2019	LHDT1	Aggregated	35	DSL	20940.75142	0.119484915	0.136025632	0.633073573	3.753858972	483.7728357	0.027868168	0.026662603
Kern (SJV)	2019	LHDT1	Aggregated	50	GAS	34965.72378	0.04515836	0.064857115	1.29428839	0.358456571	721.6533145	0.000994397	0.000915346
Kern (SJV)	2019	LHDT1	Aggregated	50	DSL	47928.03357	0.100087808	0.113943316	0.64004614	4.222124665	481.1623783	0.0239772	0.022939957
Kern (SJV)	2019	LHDT1	Aggregated	55	GAS	10248.09999	0.045767565	0.065628604	1.320988403	0.377526254	760.342036	0.001018987	0.000938004
Kern (SJV)	2019	LHDT1	Aggregated	55	DSL	28874.56976	0.103155357	0.117435516	0.713476738	4.399019663	502.7976102	0.024676479	0.023608986
Kern (SJV)	2019	LHDT2	Aggregated	30	GAS	8247.830445	0.028143286	0.041023925	0.691805212	0.244826249	774.9499756	0.001006753	0.000925714
Kern (SJV)	2019	LHDT2	Aggregated	30	DSL	15691.25242	0.110027151	0.125258597	0.548239827	2.554718178	545.132131	0.025816698	0.024699879
Kern (SJV)	2019	LHDT2	Aggregated	35	GAS	3136.720835	0.023410465	0.034122176	0.632525869	0.236748727	774.9499756	0.000831947	0.000764981
Kern (SJV)	2019	LHDT2	Aggregated	35	DSL	8284.38883	0.09390014	0.106899066	0.489692602	2.661720694	545.132131	0.022786122	0.021800405
Kern (SJV)	2019	LHDT2	Aggregated	50	GAS	8572.278982	0.019050741	0.027766183	0.560257623	0.218430809	770.8515567	0.000645209	0.000593278
Kern (SJV)	2019	LHDT2	Aggregated	50	DSL	18960.85092	0.076078662	0.086610498	0.477205099	2.978823035	523.4617794	0.019393881	0.01855491
Kern (SJV)	2019	LHDT2	Aggregated	55	GAS	2512.448268	0.019188484	0.027963486	0.551328362	0.228926084	805.9479746	0.000658885	0.000605855
Kern (SJV)	2019	LHDT2	Aggregated	55	DSL	11423.09359	0.077400306	0.088115103	0.525702084	3.100504761	541.8081546	0.019732591	0.018878968
Kern (SJV)	2019	MHDT	Aggregated	30	GAS	3562.565209	0.137231191	0.199003227	3.667819327	0.792748679	1280.357398	0.001375523	0.001265581
Kern (SJV)	2019	MHDT	Aggregated	30	DSL	37366.02947	0.222553145	0.253359814	0.705822528	3.852120368	1269.241994	0.08790329	0.084100632
Kern (SJV)	2019	MHDT	Aggregated	35	GAS	4407.287381	0.114507544	0.16599791	3.38010915	0.754978923	1182.080342	0.00114072	0.001049583
Kern (SJV)	2019	MHDT	Aggregated	35	DSL	42518.86137	0.180345589	0.205309725	0.593457661	3.495823805	1205.37799	0.083856482	0.080228888
Kern (SJV)	2019	MHDT	Aggregated	50	GAS	4907.024204	0.090663206	0.131327441	2.86257033	0.714547129	955.8788168	0.000892128	0.00082092
Kern (SJV)	2019	MHDT	Aggregated	50	DSL	51142.73854	0.111630408	0.127082722	0.416685956	2.939065645	1075.369522	0.094479937	0.090392777
Kern (SJV)	2019	MHDT	Aggregated	55	GAS	6570.628925	0.092776896	0.134353728	2.800238701	0.725257251	929.5321101	0.000912758	0.000839919
Kern (SJV)	2019	MHDT	Aggregated	55	DSL	85898.53028	0.104718213	0.119213714	0.398911801	2.866844027	1048.16894	0.105560378	0.100993883
Kern (SJV)	2020	HHDT	Aggregated	30	GAS	867.1254338	0.45976798	0.670572589	38.76591022	3.400159215	1894.35825	0.00055492	0.000510319
Kern (SJV)	2020	HHDT	Aggregated	30	DSL	224068.7722	0.213154381	0.246340912	0.958998982	4.73582572	1750.92865	0.022403866	0.021434684
Kern (SJV)	2020	HHDT	Aggregated	35	GAS	1543.914589	0.379137565	0.552958047	35.81878302	3.198402497	1816.840634	0.000457806	0.000421015
Kern (SJV)	2020	HHDT	Aggregated	35	DSL	409685.2472	0.158483186	0.184390077	0.715086282	4.074363681	1662.825702	0.020752948	0.019855185
Kern (SJV)	2020	HHDT	Aggregated	50	GAS	1510.873854	0.290863801	0.424181497	28.67969095	2.96227699	1691.324107	0.000353642	0.00032523
Kern (SJV)	2020	HHDT	Aggregated	50	DSL	640026.0376	0.067485418	0.077111119	0.305691867	3.033683526	1452.378128	0.018258321	0.017468474

Table A.4. EMFAC2014 Model Output for Trucks in Kern County at Specific Speeds in Calendar Years 2018, 2019, 2020, 2025, 2030, 2035, 2045, and 2050
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Sub-Area
Region: Kern (SJV)
Calendar Year: 2018, 2019, 2020, 2025, 2030, 2035, 2045, 2050
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Kern (SJV)	2020	HHDT	Aggregated	55	GAS	2207.01787	0.297392522	0.433698752	26.9460037	2.957666107	1659.478122	0.000360814	0.000331828
Kern (SJV)	2020	HHDT	Aggregated	55	DSL	753572.9004	0.051920002	0.05910697	0.235016835	2.842259261	1409.968842	0.018101382	0.017318324
Kern (SJV)	2020	LHDT1	Aggregated	30	GAS	31267.66366	0.058566854	0.084840669	1.392149188	0.371194696	688.1455	0.001458488	0.001341647
Kern (SJV)	2020	LHDT1	Aggregated	30	DSL	37799.31693	0.135087528	0.15378817	0.684295441	3.398098848	481.0255454	0.030936396	0.029598101
Kern (SJV)	2020	LHDT1	Aggregated	35	GAS	11891.36134	0.049206859	0.071246072	1.272277306	0.362229721	688.1455	0.001211909	0.001114848
Kern (SJV)	2020	LHDT1	Aggregated	35	DSL	19956.61216	0.116252273	0.132345484	0.61741606	3.549656505	481.0255454	0.027215334	0.026038011
Kern (SJV)	2020	LHDT1	Aggregated	50	GAS	32497.65351	0.041078526	0.059468084	1.176993041	0.340637601	719.6529158	0.000952193	0.000875981
Kern (SJV)	2020	LHDT1	Aggregated	50	DSL	45675.59007	0.096915927	0.110332339	0.620337861	3.990062054	478.4299126	0.023371865	0.022360809
Kern (SJV)	2020	LHDT1	Aggregated	55	GAS	9524.733556	0.041494474	0.060021433	1.194043971	0.358655282	758.2343935	0.000975217	0.000897173
Kern (SJV)	2020	LHDT1	Aggregated	55	DSL	27517.56986	0.099704442	0.113506879	0.690151488	4.156734892	499.9422804	0.024006514	0.022968003
Kern (SJV)	2020	LHDT2	Aggregated	30	GAS	7743.600627	0.024796135	0.03615982	0.610544736	0.225001466	771.4920573	0.000982911	0.000903773
Kern (SJV)	2020	LHDT2	Aggregated	30	DSL	15053.31039	0.105369849	0.119956567	0.527152138	2.334506204	540.6997323	0.02487856	0.023802324
Kern (SJV)	2020	LHDT2	Aggregated	35	GAS	2944.9579	0.020599553	0.030038495	0.558222155	0.217364134	771.4920573	0.000811619	0.000746274
Kern (SJV)	2020	LHDT2	Aggregated	35	DSL	7947.579522	0.089692036	0.10210842	0.46908713	2.430330737	540.6997323	0.021983397	0.021032405
Kern (SJV)	2020	LHDT2	Aggregated	50	GAS	8048.214053	0.016722025	0.024383442	0.491684876	0.200095461	767.411926	0.00062829	0.000577706
Kern (SJV)	2020	LHDT2	Aggregated	50	DSL	18189.98041	0.072009413	0.081977929	0.451794612	2.716156911	519.2055796	0.018651842	0.017844972
Kern (SJV)	2020	LHDT2	Aggregated	55	GAS	2358.850138	0.016827454	0.024535326	0.481729316	0.20962465	802.3517396	0.000641341	0.000589708
Kern (SJV)	2020	LHDT2	Aggregated	55	DSL	10958.6774	0.072993073	0.08309776	0.495775787	2.826329134	537.4027827	0.018913604	0.01809541
Kern (SJV)	2020	MHDT	Aggregated	30	GAS	3540.06279	0.112123683	0.163610615	3.005641637	0.670254663	1272.967082	0.001294129	0.001189904
Kern (SJV)	2020	MHDT	Aggregated	30	DSL	37852.86127	0.160383805	0.182584753	0.521283255	2.982541655	1265.953559	0.056248773	0.053815476
Kern (SJV)	2020	MHDT	Aggregated	35	GAS	4379.449399	0.093392166	0.13627763	2.769781691	0.637907821	1175.257288	0.001070971	0.000984718
Kern (SJV)	2020	MHDT	Aggregated	35	DSL	43072.828	0.129359087	0.147265474	0.43153803	2.631135412	1203.510562	0.055458947	0.053059817
Kern (SJV)	2020	MHDT	Aggregated	50	GAS	4876.029708	0.073628351	0.107438317	2.32804382	0.602849089	950.3614147	0.000833438	0.000766315
Kern (SJV)	2020	MHDT	Aggregated	50	DSL	51809.06331	0.074572612	0.084895242	0.291971864	2.085292184	1074.646663	0.064925382	0.062116739
Kern (SJV)	2020	MHDT	Aggregated	55	GAS	6529.126515	0.075248315	0.109802165	2.26350752	0.611710063	924.1667831	0.000851763	0.000783165
Kern (SJV)	2020	MHDT	Aggregated	55	DSL	87017.67878	0.065692971	0.074786447	0.275445074	2.004074351	1046.443139	0.071976071	0.068862418
Kern (SJV)	2025	HHDT	Aggregated	30	GAS	705.3578615	0.387299788	0.565146942	36.90515457	3.235870453	1809.538545	0.000825369	0.000758896
Kern (SJV)	2025	HHDT	Aggregated	30	DSL	251921.3095	0.131102774	0.15223321	0.777676588	2.131372123	1621.817268	0.006708219	0.006418024
Kern (SJV)	2025	HHDT	Aggregated	35	GAS	1255.887846	0.318945674	0.465404778	34.10047287	3.041647472	1735.491773	0.00067902	0.000624334
Kern (SJV)	2025	HHDT	Aggregated	35	DSL	460511.872	0.09657027	0.113086091	0.57373627	1.531954046	1545.708985	0.006231107	0.005961552
Kern (SJV)	2025	HHDT	Aggregated	50	GAS	1229.011062	0.243915887	0.355921489	27.21159619	2.812199483	1615.595236	0.000520998	0.000479039
Kern (SJV)	2025	HHDT	Aggregated	50	DSL	719944.5165	0.038796608	0.044376136	0.229050867	0.727544946	1361.094085	0.005135544	0.004913383
Kern (SJV)	2025	HHDT	Aggregated	55	GAS	1795.285139	0.2491924	0.363620966	25.49197395	2.806963433	1585.175152	0.000530748	0.000488003
Kern (SJV)	2025	HHDT	Aggregated	55	DSL	847760.9861	0.028618781	0.032580304	0.168781538	0.600623679	1322.81726	0.004853593	0.004643629
Kern (SJV)	2025	LHDT1	Aggregated	30	GAS	22225.05611	0.034808986	0.05079319	0.888539126	0.269756714	675.8938647	0.001294249	0.001190014

Table A.4. EMFAC2014 Model Output for Trucks in Kern County at Specific Speeds in Calendar Years 2018, 2019, 2020, 2025, 2030, 2035, 2045, and 2050
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Sub-Area
Region: Kern (SJV)
Calendar Year: 2018, 2019, 2020, 2025, 2030, 2035, 2045, 2050
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Kern (SJV)	2025	LHDT1	Aggregated	30	DSL	30424.4166	0.111945008	0.127441949	0.569362077	2.38115077	465.9634332	0.025454682	0.024353524
Kern (SJV)	2025	LHDT1	Aggregated	35	GAS	8452.379935	0.029098889	0.04246103	0.811887213	0.262143456	675.8938647	0.001071108	0.000984844
Kern (SJV)	2025	LHDT1	Aggregated	35	DSL	16062.94324	0.095391178	0.108596514	0.506367348	2.481965045	465.9634332	0.022475726	0.021503436
Kern (SJV)	2025	LHDT1	Aggregated	50	GAS	23099.33293	0.02401873	0.035048075	0.734737766	0.2444451	706.8403274	0.000833614	0.000766477
Kern (SJV)	2025	LHDT1	Aggregated	50	DSL	36763.97602	0.076874855	0.087516911	0.486852905	2.779704963	463.4490761	0.019108473	0.018281849
Kern (SJV)	2025	LHDT1	Aggregated	55	GAS	6770.180849	0.024205406	0.035320472	0.733137932	0.25679336	744.7349065	0.000851959	0.000783345
Kern (SJV)	2025	LHDT1	Aggregated	55	DSL	22148.70737	0.078043484	0.088847317	0.533935858	2.893684451	484.2878379	0.019419112	0.01857905
Kern (SJV)	2025	LHDT2	Aggregated	30	GAS	5943.389223	0.012851082	0.018752268	0.337982081	0.136832767	752.1937327	0.000988864	0.000909224
Kern (SJV)	2025	LHDT2	Aggregated	30	DSL	12684.17801	0.080185401	0.091285748	0.400087998	1.281780446	518.3376099	0.019065681	0.018240908
Kern (SJV)	2025	LHDT2	Aggregated	35	GAS	2260.322024	0.010642501	0.015529513	0.30908575	0.131892537	752.1937327	0.000814637	0.000749029
Kern (SJV)	2025	LHDT2	Aggregated	35	DSL	6696.767077	0.067027022	0.076305808	0.346699124	1.326421351	518.3376099	0.016956436	0.016222908
Kern (SJV)	2025	LHDT2	Aggregated	50	GAS	6177.186941	0.008571815	0.012507972	0.267787065	0.12081264	748.215663	0.000627118	0.000576612
Kern (SJV)	2025	LHDT2	Aggregated	50	DSL	15327.19007	0.050333575	0.057301428	0.305741554	1.467275655	497.7324068	0.014132395	0.013521034
Kern (SJV)	2025	LHDT2	Aggregated	55	GAS	1810.471015	0.008615431	0.012571617	0.259194574	0.126432377	782.281482	0.000639335	0.000587845
Kern (SJV)	2025	LHDT2	Aggregated	55	DSL	9233.969893	0.049598777	0.05646491	0.325164213	1.52360311	515.1770147	0.014053185	0.01344525
Kern (SJV)	2025	MHDT	Aggregated	30	GAS	3575.04524	0.0392994	0.057345592	1.079989566	0.281963832	1242.802951	0.001194148	0.001097975
Kern (SJV)	2025	MHDT	Aggregated	30	DSL	36755.85703	0.056102	0.063867856	0.293670699	1.11679005	1233.176664	0.003776462	0.003613094
Kern (SJV)	2025	MHDT	Aggregated	35	GAS	4422.726561	0.032490263	0.047409715	0.995576294	0.26705869	1147.408481	0.000983136	0.000903957
Kern (SJV)	2025	MHDT	Aggregated	35	DSL	41824.54523	0.041377563	0.047105205	0.216563945	0.810618955	1176.975984	0.003505463	0.003353818
Kern (SJV)	2025	MHDT	Aggregated	50	GAS	4924.214013	0.025180039	0.036742653	0.815073979	0.249562715	927.8417232	0.000755687	0.000694827
Kern (SJV)	2025	MHDT	Aggregated	50	DSL	50307.5979	0.016648483	0.018953031	0.087018409	0.41117365	1057.870594	0.002936573	0.002809538
Kern (SJV)	2025	MHDT	Aggregated	55	GAS	6593.646512	0.025646499	0.037423311	0.776085203	0.252676846	902.2677976	0.000770143	0.000708118
Kern (SJV)	2025	MHDT	Aggregated	55	DSL	84495.84136	0.012322315	0.014028018	0.06430489	0.349158959	1029.487942	0.002806755	0.002685336
Kern (SJV)	2030	HHDT	Aggregated	30	GAS	616.7813023	0.356954923	0.520867786	35.64700969	3.18525791	1729.679755	0.00111116	0.001021671
Kern (SJV)	2030	HHDT	Aggregated	30	DSL	269968.1703	0.126391626	0.146447622	0.751305579	1.8477298	1593.501788	0.006412847	0.00613543
Kern (SJV)	2030	HHDT	Aggregated	35	GAS	1098.177511	0.293775984	0.428677226	32.93830153	2.993146444	1658.900824	0.000913561	0.000839985
Kern (SJV)	2030	HHDT	Aggregated	35	DSL	493457.1749	0.093062115	0.108594766	0.554479348	1.277223598	1518.71408	0.005955476	0.005697845
Kern (SJV)	2030	HHDT	Aggregated	50	GAS	1074.675828	0.224351506	0.327373191	26.24883645	2.765308976	1544.295577	0.000699888	0.000643521
Kern (SJV)	2030	HHDT	Aggregated	50	DSL	771681.282	0.037398168	0.042738641	0.220962497	0.556581837	1338.570156	0.004909266	0.004696893
Kern (SJV)	2030	HHDT	Aggregated	55	GAS	1569.839037	0.229118797	0.33432961	24.56113971	2.759799786	1515.217996	0.000712736	0.000655334
Kern (SJV)	2030	HHDT	Aggregated	55	DSL	908723.9098	0.027583016	0.031401164	0.162754776	0.448367018	1301.02232	0.004637208	0.004436604
Kern (SJV)	2030	LHDT1	Aggregated	30	GAS	17406.72722	0.017540741	0.025595407	0.498757965	0.175077873	660.6338228	0.001251258	0.001150486
Kern (SJV)	2030	LHDT1	Aggregated	30	DSL	26294.04289	0.087366137	0.099460538	0.437555912	1.460189042	450.4195699	0.018716092	0.017906442
Kern (SJV)	2030	LHDT1	Aggregated	35	GAS	6619.928029	0.014476749	0.021124438	0.45634571	0.168600876	660.6338228	0.001030512	0.000947517
Kern (SJV)	2030	LHDT1	Aggregated	35	DSL	13882.26187	0.07334776	0.083501549	0.380675376	1.516749618	450.4195699	0.016599198	0.015881124

Table A.4. EMFAC2014 Model Output for Trucks in Kern County at Specific Speeds in Calendar Years 2018, 2019, 2020, 2025, 2030, 2035, 2045, and 2050
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Sub-Area
Region: Kern (SJV)
Calendar Year: 2018, 2019, 2020, 2025, 2030, 2035, 2045, 2050
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Kern (SJV)	2030	LHDT1	Aggregated	50	GAS	18091.46331	0.011533025	0.016828962	0.387985872	0.154160253	690.8815895	0.000792764	0.000728918
Kern (SJV)	2030	LHDT1	Aggregated	50	DSL	31772.95311	0.055998805	0.063750917	0.340386236	1.688719058	447.9890881	0.013941584	0.013338477
Kern (SJV)	2030	LHDT1	Aggregated	55	GAS	5302.424916	0.011592753	0.016916118	0.370602183	0.161230615	727.920601	0.000808083	0.000743003
Kern (SJV)	2030	LHDT1	Aggregated	55	DSL	19141.83168	0.055582851	0.06327738	0.363886439	1.75586666	468.132699	0.013982241	0.013377376
Kern (SJV)	2030	LHDT2	Aggregated	30	GAS	5117.849335	0.006861976	0.010012979	0.205059332	0.079048628	733.7665769	0.00112636	0.001035647
Kern (SJV)	2030	LHDT2	Aggregated	30	DSL	11573.36905	0.060588392	0.068975856	0.288278274	0.536180081	499.0670859	0.013427978	0.01284709
Kern (SJV)	2030	LHDT2	Aggregated	35	GAS	1946.362107	0.00563727	0.008225891	0.187663464	0.07591745	733.7665769	0.000926489	0.000851872
Kern (SJV)	2030	LHDT2	Aggregated	35	DSL	6110.301886	0.049444571	0.056289357	0.24040029	0.546900887	499.0670859	0.012031441	0.011510966
Kern (SJV)	2030	LHDT2	Aggregated	50	GAS	5319.172427	0.004442706	0.006482787	0.156271116	0.068979575	729.8859615	0.000710593	0.000653364
Kern (SJV)	2030	LHDT2	Aggregated	50	DSL	13984.92098	0.033663457	0.038323607	0.182788245	0.589779815	479.2279339	0.009822186	0.009397283
Kern (SJV)	2030	LHDT2	Aggregated	55	GAS	1558.995639	0.004454976	0.006500691	0.146818303	0.072058324	763.11724	0.000723824	0.000665529
Kern (SJV)	2030	LHDT2	Aggregated	55	DSL	8425.310752	0.031656811	0.036039174	0.18269157	0.609188726	496.0239939	0.009538875	0.009126227
Kern (SJV)	2030	MHDT	Aggregated	30	GAS	3774.644458	0.018215209	0.02657959	0.465380831	0.150184795	1225.01542	0.001243211	0.001143086
Kern (SJV)	2030	MHDT	Aggregated	30	DSL	35890.10527	0.056344946	0.064144432	0.295684302	1.039592682	1216.955672	0.003702472	0.003542305
Kern (SJV)	2030	MHDT	Aggregated	35	GAS	4669.652881	0.014971867	0.021846914	0.429119755	0.141742184	1130.986276	0.001022208	0.000939883
Kern (SJV)	2030	MHDT	Aggregated	35	DSL	40839.40499	0.041537661	0.047287466	0.217969671	0.732348943	1161.679566	0.003437907	0.003289185
Kern (SJV)	2030	MHDT	Aggregated	50	GAS	5199.139001	0.011444021	0.016699088	0.34294845	0.131362728	914.5620524	0.000783272	0.000720189
Kern (SJV)	2030	MHDT	Aggregated	50	DSL	49122.64685	0.016663107	0.018969679	0.08740395	0.343815305	1044.552108	0.002860085	0.002736359
Kern (SJV)	2030	MHDT	Aggregated	55	GAS	6961.77799	0.011620761	0.016956987	0.320042087	0.132791585	889.3541519	0.000797685	0.000733442
Kern (SJV)	2030	MHDT	Aggregated	55	DSL	82505.61642	0.012303412	0.014006498	0.064499567	0.28530894	1016.501812	0.002717568	0.002600007
Kern (SJV)	2035	HHDT	Aggregated	30	GAS	615.3030907	0.352390549	0.514207462	35.22922566	3.244245291	1691.067257	0.00125814	0.001156813
Kern (SJV)	2035	HHDT	Aggregated	30	DSL	288482.6204	0.123810645	0.143241245	0.736850556	1.713815124	1580.703265	0.006241787	0.00597177
Kern (SJV)	2035	HHDT	Aggregated	35	GAS	1095.545559	0.290019477	0.423195741	32.55226364	3.048576138	1621.868359	0.001034403	0.000951095
Kern (SJV)	2035	HHDT	Aggregated	35	DSL	527261.8186	0.09113911	0.106095269	0.543913413	1.158581507	1506.434538	0.005795767	0.005545045
Kern (SJV)	2035	HHDT	Aggregated	50	GAS	1072.100201	0.221482729	0.323187079	25.9411993	2.816519376	1509.821502	0.000792466	0.000728643
Kern (SJV)	2035	HHDT	Aggregated	50	DSL	824737.5504	0.036631461	0.04183867	0.21653435	0.479781023	1328.586111	0.004778324	0.004571616
Kern (SJV)	2035	HHDT	Aggregated	55	GAS	1566.076675	0.22618906	0.330054546	24.27328241	2.810908162	1481.393034	0.000807013	0.000742019
Kern (SJV)	2035	HHDT	Aggregated	55	DSL	971236.355	0.02701504	0.030754567	0.159456002	0.380410843	1291.399551	0.004512181	0.004316986
Kern (SJV)	2035	LHDT1	Aggregated	30	GAS	15721.70698	0.00841263	0.01227569	0.266005027	0.104696303	647.7749684	0.001225975	0.001127239
Kern (SJV)	2035	LHDT1	Aggregated	30	DSL	24986.83302	0.069673051	0.079318136	0.341072684	0.823364334	438.2261819	0.01315528	0.012586188
Kern (SJV)	2035	LHDT1	Aggregated	35	GAS	5979.100342	0.006858167	0.010007422	0.243517574	0.100227014	647.7749684	0.001007958	0.00092678
Kern (SJV)	2035	LHDT1	Aggregated	35	DSL	13192.10441	0.057510832	0.065472259	0.289127087	0.850599788	438.2261819	0.011722921	0.011215793
Kern (SJV)	2035	LHDT1	Aggregated	50	GAS	16340.15869	0.00530628	0.007742912	0.196567224	0.090387041	677.4339798	0.000772206	0.000710015
Kern (SJV)	2035	LHDT1	Aggregated	50	DSL	30193.3589	0.041083977	0.046771376	0.235002373	0.938174186	435.861496	0.009717377	0.009297007
Kern (SJV)	2035	LHDT1	Aggregated	55	GAS	4789.135243	0.005298762	0.007731941	0.179936208	0.094287764	713.7520485	0.000786381	0.000723049

Table A.4. EMFAC2014 Model Output for Trucks in Kern County at Specific Speeds in Calendar Years 2018, 2019, 2020, 2025, 2030, 2035, 2045, and 2050
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Sub-Area
Region: Kern (SJV)
Calendar Year: 2018, 2019, 2020, 2025, 2030, 2035, 2045, 2050
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Kern (SJV)	2035	LHDT1	Aggregated	55	DSL	18190.1944	0.03956483	0.045041929	0.241927651	0.973604611	455.4597958	0.009603887	0.009188427
Kern (SJV)	2035	LHDT2	Aggregated	30	GAS	4962.164108	0.004401498	0.006422656	0.153293447	0.049647901	721.4298092	0.001236732	0.00113713
Kern (SJV)	2035	LHDT2	Aggregated	30	DSL	11597.36541	0.051922852	0.059110715	0.236426215	0.213149706	487.0875647	0.009983813	0.009551917
Kern (SJV)	2035	LHDT2	Aggregated	35	GAS	1887.153676	0.003588202	0.005235895	0.140334372	0.047528525	721.4298092	0.001016802	0.000934912
Kern (SJV)	2035	LHDT2	Aggregated	35	DSL	6122.971061	0.041694439	0.047466347	0.191630105	0.211270974	487.0875647	0.008992546	0.008603533
Kern (SJV)	2035	LHDT2	Aggregated	50	GAS	5157.362942	0.002776252	0.004051101	0.113277812	0.042862324	717.6144383	0.000778982	0.000716245
Kern (SJV)	2035	LHDT2	Aggregated	50	DSL	14013.91749	0.026381601	0.030033698	0.127865933	0.215930626	467.7246283	0.007233453	0.006920537
Kern (SJV)	2035	LHDT2	Aggregated	55	GAS	1511.570916	0.002772319	0.004045361	0.103693685	0.044712081	750.2870016	0.000793282	0.000729393
Kern (SJV)	2035	LHDT2	Aggregated	55	DSL	8442.779895	0.023842278	0.027142849	0.119505129	0.220439412	484.1175186	0.006902485	0.006603886
Kern (SJV)	2035	MHDT	Aggregated	30	GAS	4076.379954	0.012464459	0.01818811	0.286018391	0.110447212	1216.738922	0.001283733	0.001180345
Kern (SJV)	2035	MHDT	Aggregated	30	DSL	36959.44948	0.055293937	0.062947938	0.290636101	0.955629117	1206.554986	0.003570761	0.003416292
Kern (SJV)	2035	MHDT	Aggregated	35	GAS	5042.933078	0.010236886	0.01493764	0.263743158	0.104190331	1123.345062	0.001055444	0.000970442
Kern (SJV)	2035	MHDT	Aggregated	35	DSL	42056.21338	0.040753847	0.046395152	0.214208011	0.656924365	1151.854888	0.003315456	0.003172031
Kern (SJV)	2035	MHDT	Aggregated	50	GAS	5614.744974	0.007809619	0.011395778	0.209966035	0.096456106	908.383052	0.000808586	0.000743465
Kern (SJV)	2035	MHDT	Aggregated	50	DSL	50586.25409	0.016325549	0.018585395	0.08579994	0.28825217	1035.957937	0.002745445	0.002626678
Kern (SJV)	2035	MHDT	Aggregated	55	GAS	7518.284851	0.007926714	0.011566642	0.195292742	0.097485268	883.3454621	0.00082343	0.000757113
Kern (SJV)	2035	MHDT	Aggregated	55	DSL	84963.86787	0.012040381	0.013707057	0.063266974	0.234196004	1008.127147	0.002599315	0.00248687
Kern (SJV)	2045	HHDT	Aggregated	30	GAS	713.978913	0.353300363	0.51553506	34.94967946	3.262462242	1677.444755	0.001311163	0.001205566
Kern (SJV)	2045	HHDT	Aggregated	30	DSL	326840.1435	0.12299739	0.142053687	0.732537156	1.643534014	1575.265162	0.006190658	0.005922853
Kern (SJV)	2045	HHDT	Aggregated	35	GAS	1271.237605	0.290768259	0.424288362	32.29395931	3.065694375	1608.803293	0.001077997	0.000991178
Kern (SJV)	2045	HHDT	Aggregated	35	DSL	597302.961	0.090526825	0.105102719	0.540782437	1.092243006	1505.668401	0.005748152	0.005499489
Kern (SJV)	2045	HHDT	Aggregated	50	GAS	1244.032328	0.222054561	0.324021494	25.73535419	2.832334578	1497.659037	0.000825864	0.000759351
Kern (SJV)	2045	HHDT	Aggregated	50	DSL	934635.5824	0.036388205	0.041537418	0.215167853	0.435136627	1336.338018	0.004739341	0.004534319
Kern (SJV)	2045	HHDT	Aggregated	55	GAS	1817.227541	0.226773043	0.330906691	24.08067233	2.826691856	1469.459576	0.000841024	0.000773291
Kern (SJV)	2045	HHDT	Aggregated	55	DSL	1100715.907	0.026833463	0.030547855	0.158427868	0.340642962	1293.02997	0.004473924	0.004280384
Kern (SJV)	2045	LHDT1	Aggregated	30	GAS	16389.60126	0.003842102	0.005606387	0.145347402	0.042132733	635.8681673	0.001277375	0.001174499
Kern (SJV)	2045	LHDT1	Aggregated	30	DSL	26666.56739	0.053219144	0.060586457	0.252022691	0.22483617	426.5397599	0.007738548	0.007403782
Kern (SJV)	2045	LHDT1	Aggregated	35	GAS	6233.106282	0.003132169	0.004570454	0.133060068	0.040334166	635.8681673	0.001050217	0.000965636
Kern (SJV)	2045	LHDT1	Aggregated	35	DSL	14078.94074	0.042783664	0.048706357	0.204576061	0.225176768	426.5397599	0.006957098	0.006656137
Kern (SJV)	2045	LHDT1	Aggregated	50	GAS	17034.32622	0.002423412	0.003536238	0.107405998	0.036374284	664.9820141	0.000804582	0.000739783
Kern (SJV)	2045	LHDT1	Aggregated	50	DSL	32223.10084	0.027215862	0.030983449	0.137515114	0.234776256	424.2381345	0.005626054	0.005382673
Kern (SJV)	2045	LHDT1	Aggregated	55	GAS	4992.588727	0.002419979	0.003531227	0.09831867	0.037944045	700.6325176	0.000819351	0.000753363
Kern (SJV)	2045	LHDT1	Aggregated	55	DSL	19413.02624	0.024671491	0.028086852	0.129058898	0.240745078	443.3137954	0.005403029	0.005169297
Kern (SJV)	2045	LHDT2	Aggregated	30	GAS	5600.660616	0.00350277	0.005111234	0.137016342	0.033091815	714.434597	0.001306262	0.00120106
Kern (SJV)	2045	LHDT2	Aggregated	30	DSL	13289.67241	0.048201149	0.054873803	0.213999037	0.066455968	480.4316029	0.00791624	0.007573787

Table A.4. EMFAC2014 Model Output for Trucks in Kern County at Specific Speeds in Calendar Years 2018, 2019, 2020, 2025, 2030, 2035, 2045, and 2050
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Sub-Area
Region: Kern (SJV)
Calendar Year: 2018, 2019, 2020, 2025, 2030, 2035, 2045, 2050
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Kern (SJV)	2045	LHDT2	Aggregated	35	GAS	2129.979388	0.002855538	0.004166794	0.125433296	0.031679187	714.434597	0.001073967	0.000987473
Kern (SJV)	2045	LHDT2	Aggregated	35	DSL	7016.445258	0.038362815	0.043673514	0.170487356	0.059973955	480.4316029	0.007154828	0.006845313
Kern (SJV)	2045	LHDT2	Aggregated	50	GAS	5820.976268	0.002209378	0.00322392	0.101249673	0.028569024	710.6562212	0.000822777	0.000756513
Kern (SJV)	2045	LHDT2	Aggregated	50	DSL	16058.85181	0.023242988	0.026460597	0.103917257	0.049533457	461.3332575	0.005699221	0.005452676
Kern (SJV)	2045	LHDT2	Aggregated	55	GAS	1706.06927	0.002206248	0.003219351	0.092683215	0.029801943	743.0119809	0.00083788	0.0007704
Kern (SJV)	2045	LHDT2	Aggregated	55	DSL	9674.764484	0.020471177	0.023305074	0.091909324	0.047859909	477.5021419	0.005373986	0.00514151
Kern (SJV)	2045	MHDT	Aggregated	30	GAS	4848.236073	0.010183409	0.014859607	0.213917092	0.093007307	1212.758434	0.001309974	0.001204472
Kern (SJV)	2045	MHDT	Aggregated	30	DSL	41288.93251	0.053262404	0.060635192	0.280284716	0.848192917	1196.998001	0.003380929	0.003234671
Kern (SJV)	2045	MHDT	Aggregated	35	GAS	5997.804507	0.008363491	0.012203987	0.197257138	0.087738404	1119.670106	0.001077019	0.000990279
Kern (SJV)	2045	MHDT	Aggregated	35	DSL	46982.73866	0.039251562	0.044684916	0.206554212	0.565614652	1143.433572	0.003138996	0.003003204
Kern (SJV)	2045	MHDT	Aggregated	50	GAS	6677.888085	0.006380425	0.009310301	0.157036488	0.081225434	905.4113317	0.000825115	0.000758662
Kern (SJV)	2045	MHDT	Aggregated	50	DSL	56512.00059	0.015710535	0.017885248	0.082674263	0.226764398	1029.545792	0.002590669	0.002478598
Kern (SJV)	2045	MHDT	Aggregated	55	GAS	8941.860236	0.006476091	0.009449897	0.14606213	0.082092089	880.4556507	0.000840261	0.000772589
Kern (SJV)	2045	MHDT	Aggregated	55	DSL	94916.65745	0.011578595	0.013181349	0.060930927	0.178789799	1001.061696	0.002446566	0.002340729
Kern (SJV)	2050	HHDT	Aggregated	30	GAS	779.0806734	0.353718024	0.516144511	34.99458761	3.265544808	1677.024288	0.001312802	0.001207073
Kern (SJV)	2050	HHDT	Aggregated	30	DSL	345738.9595	0.123096082	0.142007121	0.733225221	1.638323056	1577.941304	0.006195403	0.005927392
Kern (SJV)	2050	HHDT	Aggregated	35	GAS	1387.151121	0.291111997	0.424789943	32.33545502	3.068591023	1608.400032	0.001079344	0.000992417
Kern (SJV)	2050	HHDT	Aggregated	35	DSL	631809.2609	0.090592148	0.104998073	0.541284441	1.085985558	1508.119594	0.005751953	0.005503126
Kern (SJV)	2050	HHDT	Aggregated	50	GAS	1357.465222	0.222317067	0.324404542	25.76842251	2.835010734	1497.283635	0.000826896	0.0007603
Kern (SJV)	2050	HHDT	Aggregated	50	DSL	988793.8243	0.036417104	0.041555762	0.215357099	0.430720238	1338.929158	0.004742842	0.004537669
Kern (SJV)	2050	HHDT	Aggregated	55	GAS	1982.925308	0.227041127	0.33129788	24.11161449	2.829362681	1469.091243	0.000842075	0.000774257
Kern (SJV)	2050	HHDT	Aggregated	55	DSL	1164526.857	0.026854865	0.030572219	0.158563978	0.336671745	1295.613986	0.004476946	0.004283275
Kern (SJV)	2050	LHDT1	Aggregated	30	GAS	17470.36181	0.003499515	0.005106484	0.139639314	0.034135625	633.6154932	0.001297058	0.001192597
Kern (SJV)	2050	LHDT1	Aggregated	30	DSL	28443.29066	0.049611849	0.056479791	0.231590199	0.091364804	424.1056214	0.006553508	0.006270006
Kern (SJV)	2050	LHDT1	Aggregated	35	GAS	6644.128809	0.002852884	0.004162922	0.127834528	0.032678439	633.6154932	0.0010664	0.000980516
Kern (SJV)	2050	LHDT1	Aggregated	35	DSL	15016.98355	0.039546132	0.045020642	0.185082875	0.085560405	424.1056214	0.005916775	0.005660818
Kern (SJV)	2050	LHDT1	Aggregated	50	GAS	18157.60112	0.002207325	0.003220923	0.103187946	0.029470172	662.6261992	0.00081698	0.000751183
Kern (SJV)	2050	LHDT1	Aggregated	50	DSL	34370.04132	0.02414346	0.027485724	0.114776034	0.077474099	421.8171307	0.004727566	0.004523054
Kern (SJV)	2050	LHDT1	Aggregated	55	GAS	5321.809238	0.002204197	0.003216359	0.094457495	0.030741981	698.1504046	0.000831977	0.000764972
Kern (SJV)	2050	LHDT1	Aggregated	55	DSL	20706.46513	0.021363689	0.024321139	0.102651291	0.076795993	440.7839324	0.004474663	0.004281091
Kern (SJV)	2050	LHDT2	Aggregated	30	GAS	6082.428219	0.003449556	0.005033584	0.136584797	0.031919211	713.9193606	0.001311133	0.001205538
Kern (SJV)	2050	LHDT2	Aggregated	30	DSL	14448.97011	0.047962872	0.054602541	0.212940271	0.055645309	479.951209	0.007767351	0.007431339
Kern (SJV)	2050	LHDT2	Aggregated	35	GAS	2313.19975	0.002812156	0.004103492	0.125038233	0.03055664	713.9193606	0.001077972	0.000991155
Kern (SJV)	2050	LHDT2	Aggregated	35	DSL	7628.510674	0.038146091	0.043426789	0.169404572	0.048836496	479.951209	0.007022516	0.006718725
Kern (SJV)	2050	LHDT2	Aggregated	50	GAS	6321.695375	0.002175813	0.003174941	0.100930778	0.027556685	710.1437097	0.000825845	0.000759334

Table A.4. EMFAC2014 Model Output for Trucks in Kern County at Specific Speeds in Calendar Years 2018, 2019, 2020, 2025, 2030, 2035, 2045, and 2050
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Sub-Area
Region: Kern (SJV)
Calendar Year: 2018, 2019, 2020, 2025, 2030, 2035, 2045, 2050
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Kern (SJV)	2050	LHDT2	Aggregated	50	DSL	17459.71328	0.023029602	0.026217671	0.10244919	0.037308279	460.8719604	0.005588703	0.005346938
Kern (SJV)	2050	LHDT2	Aggregated	55	GAS	1852.824976	0.00217273	0.003170443	0.092391301	0.028745915	742.4761351	0.000841005	0.000773273
Kern (SJV)	2050	LHDT2	Aggregated	55	DSL	10518.723	0.020238773	0.023040497	0.090142299	0.035185619	477.0246772	0.005263817	0.005036106
Kern (SJV)	2050	MHDT	Aggregated	30	GAS	5292.992829	0.010112181	0.014755671	0.212054063	0.092466063	1212.469484	0.001312528	0.001206821
Kern (SJV)	2050	MHDT	Aggregated	30	DSL	43484.15155	0.053064587	0.060409993	0.279291506	0.836111313	1196.014615	0.003361796	0.003216366
Kern (SJV)	2050	MHDT	Aggregated	35	GAS	6548.01783	0.008304993	0.012118626	0.195539203	0.087227822	1119.403335	0.001079119	0.00099221
Kern (SJV)	2050	MHDT	Aggregated	35	DSL	49480.68172	0.039104952	0.044518012	0.205818487	0.555121745	1142.497606	0.003120983	0.002985971
Kern (SJV)	2050	MHDT	Aggregated	50	GAS	7290.48941	0.006335797	0.00924518	0.155668839	0.080752753	905.1956096	0.000826724	0.000760142
Kern (SJV)	2050	MHDT	Aggregated	50	DSL	59516.58831	0.015650054	0.017816396	0.082370147	0.219499731	1028.711081	0.002574118	0.002462763
Kern (SJV)	2050	MHDT	Aggregated	55	GAS	9762.14883	0.006430794	0.009383799	0.144790058	0.081614364	880.2458746	0.0008419	0.000774096
Kern (SJV)	2050	MHDT	Aggregated	55	DSL	99963.1152	0.011533098	0.013129554	0.060701853	0.172216685	1000.251826	0.002429963	0.002324844

Abbreviations:
CARB - California Air Resources Board
CalYr - calendar year
CO - carbon monoxide
CO2 - carbon dioxide
DSL - diesel
EMFAC - CARB's mobile source emission inventory model
g - grams
GAS - gasoline
HHDT - heavy-heavy duty truck
LDA - passenger car
LDT1 - light duty trucks (0-3750 pounds)
LDT2- light duty trucks (3751-5750 pounds)
LHDT1 - light-heavy duty trucks (8501-10000 pounds)
LHDT2 - light-heavy duty trucks (10001-14000 pounds)
MCY - motorcycle
MdlYr - model year
MDV - medium duty trucks (5751-8500 pounds)
MH - motor homes
MHDT - medium-heavy duty truck
NOX - oxides of nitrogen
OBUS - other buses
PM10 - particulate matter less than 10 microns in diameter
PM2_5 - particulate matter less than 2.5 microns in diameter
PMBW - particulate matter brake wear
PMTW - particulate matter tire wear
ROG - reactive organic gases
RUNEX - running exhaust
SBUS - school bus
SJV - San Joaquin Valley
TOG - total organic gases
UBUS - urban bus
VehClass - vehicle class
VMT - vehicle miles travelled

Source:
\\wcirvfps1\projects\T\Tejon Ranch\Technical_Work\Emissions\[EmissionFactorComparison.xlsx]TA.4_EMFAC_Kern_AllSpds_AllYrs

Table A.5. EMFAC2014 Model Output for Trucks in Kern County at Aggregated Speeds in Calendar Years 2018, 2019, 2020, 2025, 2030, 2035, 2045, and 2050
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Sub-Area
Region: Kern (SJV)
Calendar Year: 2018, 2019, 2020, 2025, 2030, 2035, 2045, 2050
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HTSK and RUNLS, g/vehicle/day for IDLEX, RESTL and DIURN

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT
Kern (SJV)	2018	HHDT	Aggregated	Aggregated	GAS	11563.16701
Kern (SJV)	2018	HHDT	Aggregated	Aggregated	DSL	3528287.296
Kern (SJV)	2018	LHDT1	Aggregated	Aggregated	GAS	277802.6794
Kern (SJV)	2018	LHDT1	Aggregated	Aggregated	DSL	332364.7974
Kern (SJV)	2018	LHDT2	Aggregated	Aggregated	GAS	67583.63102
Kern (SJV)	2018	LHDT2	Aggregated	Aggregated	DSL	130760.0795
Kern (SJV)	2018	MHDT	Aggregated	Aggregated	GAS	50479.49749
Kern (SJV)	2018	MHDT	Aggregated	Aggregated	DSL	533399.2955
Kern (SJV)	2019	HHDT	Aggregated	Aggregated	GAS	11370.59637
Kern (SJV)	2019	HHDT	Aggregated	Aggregated	DSL	3672832.232
Kern (SJV)	2019	LHDT1	Aggregated	Aggregated	GAS	258148.7738
Kern (SJV)	2019	LHDT1	Aggregated	Aggregated	DSL	316338.3367
Kern (SJV)	2019	LHDT2	Aggregated	Aggregated	GAS	63288.35982
Kern (SJV)	2019	LHDT2	Aggregated	Aggregated	DSL	125146.8837
Kern (SJV)	2019	MHDT	Aggregated	Aggregated	GAS	49942.2548
Kern (SJV)	2019	MHDT	Aggregated	Aggregated	DSL	541461.4622
Kern (SJV)	2020	HHDT	Aggregated	Aggregated	GAS	11047.33334
Kern (SJV)	2020	HHDT	Aggregated	Aggregated	DSL	3810668.538
Kern (SJV)	2020	LHDT1	Aggregated	Aggregated	GAS	239927.2344
Kern (SJV)	2020	LHDT1	Aggregated	Aggregated	DSL	301471.5839
Kern (SJV)	2020	LHDT2	Aggregated	Aggregated	GAS	59419.23589
Kern (SJV)	2020	LHDT2	Aggregated	Aggregated	DSL	120058.9242
Kern (SJV)	2020	MHDT	Aggregated	Aggregated	GAS	49626.8019
Kern (SJV)	2020	MHDT	Aggregated	Aggregated	DSL	548516.0157
Kern (SJV)	2025	HHDT	Aggregated	Aggregated	GAS	8986.385493
Kern (SJV)	2025	HHDT	Aggregated	Aggregated	DSL	4280008.853
Kern (SJV)	2025	LHDT1	Aggregated	Aggregated	GAS	170540.2842
Kern (SJV)	2025	LHDT1	Aggregated	Aggregated	DSL	242652.4553
Kern (SJV)	2025	LHDT2	Aggregated	Aggregated	GAS	45605.61207
Kern (SJV)	2025	LHDT2	Aggregated	Aggregated	DSL	101163.7126
Kern (SJV)	2025	MHDT	Aggregated	Aggregated	GAS	50117.20764
Kern (SJV)	2025	MHDT	Aggregated	Aggregated	DSL	532619.6113
Kern (SJV)	2030	HHDT	Aggregated	Aggregated	GAS	7857.904264
Kern (SJV)	2030	HHDT	Aggregated	Aggregated	DSL	4582894.15
Kern (SJV)	2030	LHDT1	Aggregated	Aggregated	GAS	133567.6361
Kern (SJV)	2030	LHDT1	Aggregated	Aggregated	DSL	209710.3176
Kern (SJV)	2030	LHDT2	Aggregated	Aggregated	GAS	39270.96858
Kern (SJV)	2030	LHDT2	Aggregated	Aggregated	DSL	92304.36371
Kern (SJV)	2030	MHDT	Aggregated	Aggregated	GAS	52915.31362
Kern (SJV)	2030	MHDT	Aggregated	Aggregated	DSL	520074.2266
Kern (SJV)	2035	HHDT	Aggregated	Aggregated	GAS	7839.071583
Kern (SJV)	2035	HHDT	Aggregated	Aggregated	DSL	4894986.735
Kern (SJV)	2035	LHDT1	Aggregated	Aggregated	GAS	120637.9126
Kern (SJV)	2035	LHDT1	Aggregated	Aggregated	DSL	199284.5569
Kern (SJV)	2035	LHDT2	Aggregated	Aggregated	GAS	38076.34379
Kern (SJV)	2035	LHDT2	Aggregated	Aggregated	DSL	92495.74872
Kern (SJV)	2035	MHDT	Aggregated	Aggregated	GAS	57145.22946
Kern (SJV)	2035	MHDT	Aggregated	Aggregated	DSL	535569.8168
Kern (SJV)	2045	HHDT	Aggregated	Aggregated	GAS	9096.219233
Kern (SJV)	2045	HHDT	Aggregated	Aggregated	DSL	5544271.636
Kern (SJV)	2045	LHDT1	Aggregated	Aggregated	GAS	125762.8887
Kern (SJV)	2045	LHDT1	Aggregated	Aggregated	DSL	212681.4176
Kern (SJV)	2045	LHDT2	Aggregated	Aggregated	GAS	42975.74091

Table A.5. EMFAC2014 Model Output for Trucks in Kern County at Aggregated Speeds in Calendar Years 2018, 2019, 2020, 2025, 2030, 2035, 2045, and 2050
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Sub-Area
Region: Kern (SJV)
Calendar Year: 2018, 2019, 2020, 2025, 2030, 2035, 2045, 2050
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HTSK and RUNLS, g/vehicle/day for IDLEX, RESTL and DIURN

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT
Kern (SJV)	2045	LHDT2	Aggregated	Aggregated	DSL	105992.8834
Kern (SJV)	2045	MHDT	Aggregated	Aggregated	GAS	67965.58859
Kern (SJV)	2045	MHDT	Aggregated	Aggregated	DSL	598307.2348
Kern (SJV)	2050	HHDT	Aggregated	Aggregated	GAS	9925.627321
Kern (SJV)	2050	HHDT	Aggregated	Aggregated	DSL	5864846.076
Kern (SJV)	2050	LHDT1	Aggregated	Aggregated	GAS	134055.9256
Kern (SJV)	2050	LHDT1	Aggregated	Aggregated	DSL	226851.8213
Kern (SJV)	2050	LHDT2	Aggregated	Aggregated	GAS	46672.50476
Kern (SJV)	2050	LHDT2	Aggregated	Aggregated	DSL	115238.9582
Kern (SJV)	2050	MHDT	Aggregated	Aggregated	GAS	74200.46541
Kern (SJV)	2050	MHDT	Aggregated	Aggregated	DSL	630117.5857

Notes:
1. Only a portion of the model output that is used in the analyses is shown.

Abbreviations:
CalYr - calendar year
CARB - California Air Resources Board
DIUR - diurnal loss
DSL - diesel
ELEC - electric
EMFAC - CARB's mobile source emission inventory model
g - grams
GAS - gasoline
HHDT - heavy-heavy duty truck
HTSK - hot soak
IDLEX - idling exhaust
LDA - passenger car
LDT1 - light duty trucks (0-3750 pounds)
LDT2- light duty trucks (3751-5750 pounds)
LHDT1 - light-heavy duty trucks (8501-10000 pounds)
LHDT2 - light-heavy duty trucks (10001-14000 pounds)
MCY - motorcycle
MdlYr - model year
MDV - medium duty trucks (5751-8500 pounds)
MH - motor homes
MHDT - medium-heavy duty truck
OBUS - other buses
PMBW - particulate matter brake wear
PMTW - particulate matter tire wear
RESTL - resting loss
RUNEX - running exhaust
RUNLS - running loss
SBUS - school bus
SJV - San Joaquin Valley
STREX - starting exhaust
UBUS - urban bus
VehClass - vehicle class
VMT - vehicle miles travelled

Source:
\\wcirvfps1\projects\T\Tejon Ranch\Technical_Work\Emissions\[EmissionFactorComparison.xlsx]TA.5_EMFAC_Kern_AggSpds_AllYrs

Table A.6. Vehicle Miles Travelled by Trucks in Kern County
Tejon Ranch
Lebec, California

		Vehicle Miles Travelled							
EMFAC Vehicle Class		LHDT1	LHDT1	LHDT2	LHDT2	MHDT	MHDT	HHDT	HHDT
Fuel		GAS	DSL	GAS	DSL	GAS	DSL	GAS	DSL
Calendar Year	2015	340,324	378,435	80,833	147,191	52,476	509,656	11,135	3,139,094
	2018	277,803	332,365	67,584	130,760	50,479	533,399	11,563	3,528,287
	2019	258,149	316,338	63,288	125,147	49,942	541,461	11,371	3,672,832
	2020	239,927	301,472	59,419	120,059	49,627	548,516	11,047	3,810,669
	2025	170,540	242,652	45,606	101,164	50,117	532,620	8,986	4,280,009
	2030	133,568	209,710	39,271	92,304	52,915	520,074	7,858	4,582,894
	2035	120,638	199,285	38,076	92,496	57,145	535,570	7,839	4,894,987
	2040	120,340	201,905	39,886	98,000	62,254	564,062	8,358	5,220,817
	2045	125,763	212,681	42,976	105,993	67,966	598,307	9,096	5,544,272
	2050	134,056	226,852	46,673	115,239	74,200	630,118	9,926	5,864,846

Notes:

1. Vehicle miles travelled for each combination of vehicle class, fuel, and calendar year are obtained from EMFAC2014 Model Output Table A.2 and Table A.5.

Abbreviations:

CARB - California Air Resources Board

DSL - diesel

EMFAC - CARB's mobile source emission inventory model

GAS - gasoline

HHDT - heavy-heavy duty truck

LHDT1 - light-heavy duty trucks (8501-10000 pounds)

LHDT2 - light-heavy duty trucks (10001-14000 pounds)

MHDT - medium-heavy duty truck

Source:

\\wcirvfps1\projects\T\Tejon Ranch\Technical_Work\Emissions\[EmissionFactorComparison.xlsx]TA.6_Truck_VMT

Table A.7. Diesel Particulate Matter Emission Factors for Trucks from Calendar Year 2018 to 2050
Tejon Ranch
Lebec, California

Calendar Year	Speed (mph)	Diesel Particulate Emission Factors[1] (g/mile)								Diesel Particulate Matter Emission Factors for Trucks (g/mile)[2]
		LHDT1 GAS	LHDT1 DSL	LHDT2 GAS	LHDT2 DSL	MHDT GAS	MHDT DSL	HHDT GAS	HHDT DSL	
2018	55	0.00E+00	2.52E-02	0.00E+00	2.05E-02	0.00E+00	1.22E-01	0.00E+00	2.38E-02	3.25E-02
	50	0.00E+00	2.45E-02	0.00E+00	2.01E-02	0.00E+00	1.09E-01	0.00E+00	2.37E-02	3.10E-02
	35	0.00E+00	2.84E-02	0.00E+00	2.35E-02	0.00E+00	9.79E-02	0.00E+00	2.66E-02	3.22E-02
	30	0.00E+00	3.23E-02	0.00E+00	2.67E-02	0.00E+00	1.03E-01	0.00E+00	2.89E-02	3.47E-02
2019	55	0.00E+00	2.47E-02	0.00E+00	1.97E-02	0.00E+00	1.06E-01	0.00E+00	2.16E-02	2.92E-02
	50	0.00E+00	2.40E-02	0.00E+00	1.94E-02	0.00E+00	9.45E-02	0.00E+00	2.16E-02	2.79E-02
	35	0.00E+00	2.79E-02	0.00E+00	2.28E-02	0.00E+00	8.39E-02	0.00E+00	2.44E-02	2.91E-02
	30	0.00E+00	3.17E-02	0.00E+00	2.58E-02	0.00E+00	8.79E-02	0.00E+00	2.64E-02	3.14E-02
2020	55	0.00E+00	2.40E-02	0.00E+00	1.89E-02	0.00E+00	7.20E-02	0.00E+00	1.81E-02	2.29E-02
	50	0.00E+00	2.34E-02	0.00E+00	1.87E-02	0.00E+00	6.49E-02	0.00E+00	1.83E-02	2.23E-02
	35	0.00E+00	2.72E-02	0.00E+00	2.20E-02	0.00E+00	5.55E-02	0.00E+00	2.08E-02	2.34E-02
	30	0.00E+00	3.09E-02	0.00E+00	2.49E-02	0.00E+00	5.62E-02	0.00E+00	2.24E-02	2.50E-02
2021	55	--	--	--	--	--	--	--	--	1.94E-02
	50	--	--	--	--	--	--	--	--	1.89E-02
	35	--	--	--	--	--	--	--	--	2.00E-02
	30	--	--	--	--	--	--	--	--	2.14E-02
2022	55	--	--	--	--	--	--	--	--	1.59E-02
	50	--	--	--	--	--	--	--	--	1.55E-02
	35	--	--	--	--	--	--	--	--	1.67E-02
	30	--	--	--	--	--	--	--	--	1.79E-02
2023	55	--	--	--	--	--	--	--	--	1.23E-02
	50	--	--	--	--	--	--	--	--	1.22E-02
	35	--	--	--	--	--	--	--	--	1.33E-02
	30	--	--	--	--	--	--	--	--	1.43E-02
2024	55	--	--	--	--	--	--	--	--	8.77E-03
	50	--	--	--	--	--	--	--	--	8.81E-03
	35	--	--	--	--	--	--	--	--	9.94E-03
	30	--	--	--	--	--	--	--	--	1.07E-02
2025	55	0.00E+00	1.94E-02	0.00E+00	1.41E-02	0.00E+00	2.81E-03	0.00E+00	4.85E-03	5.23E-03
	50	0.00E+00	1.91E-02	0.00E+00	1.41E-02	0.00E+00	2.94E-03	0.00E+00	5.14E-03	5.45E-03
	35	0.00E+00	2.25E-02	0.00E+00	1.70E-02	0.00E+00	3.51E-03	0.00E+00	6.23E-03	6.57E-03
	30	0.00E+00	2.55E-02	0.00E+00	1.91E-02	0.00E+00	3.78E-03	0.00E+00	6.71E-03	7.15E-03
2026	55	--	--	--	--	--	--	--	--	5.12E-03
	50	--	--	--	--	--	--	--	--	5.35E-03
	35	--	--	--	--	--	--	--	--	6.45E-03
	30	--	--	--	--	--	--	--	--	7.01E-03
2027	55	--	--	--	--	--	--	--	--	5.02E-03
	50	--	--	--	--	--	--	--	--	5.24E-03
	35	--	--	--	--	--	--	--	--	6.33E-03
	30	--	--	--	--	--	--	--	--	6.88E-03

Table A.7. Diesel Particulate Matter Emission Factors for Trucks from Calendar Year 2018 to 2050
Tejon Ranch
Lebec, California

Calendar Year	Speed (mph)	Diesel Particulate Emission Factors[1] (g/mile)								Diesel Particulate Matter Emission Factors for Trucks (g/mile)[2]
		LHDT1 GAS	LHDT1 DSL	LHDT2 GAS	LHDT2 DSL	MHDT GAS	MHDT DSL	HHDT GAS	HHDT DSL	
2028	55	--	--	--	--	--	--	--	--	4.91E-03
	50	--	--	--	--	--	--	--	--	5.14E-03
	35	--	--	--	--	--	--	--	--	6.21E-03
	30	--	--	--	--	--	--	--	--	6.74E-03
2029	55	--	--	--	--	--	--	--	--	4.80E-03
	50	--	--	--	--	--	--	--	--	5.04E-03
	35	--	--	--	--	--	--	--	--	6.09E-03
	30	--	--	--	--	--	--	--	--	6.61E-03
2030	55	0.00E+00	1.40E-02	0.00E+00	9.54E-03	0.00E+00	2.72E-03	0.00E+00	4.64E-03	4.70E-03
	50	0.00E+00	1.39E-02	0.00E+00	9.82E-03	0.00E+00	2.86E-03	0.00E+00	4.91E-03	4.93E-03
	35	0.00E+00	1.66E-02	0.00E+00	1.20E-02	0.00E+00	3.44E-03	0.00E+00	5.96E-03	5.97E-03
	30	0.00E+00	1.87E-02	0.00E+00	1.34E-02	0.00E+00	3.70E-03	0.00E+00	6.41E-03	6.47E-03
2031	55	--	--	--	--	--	--	--	--	4.63E-03
	50	--	--	--	--	--	--	--	--	4.87E-03
	35	--	--	--	--	--	--	--	--	5.90E-03
	30	--	--	--	--	--	--	--	--	6.39E-03
2032	55	--	--	--	--	--	--	--	--	4.57E-03
	50	--	--	--	--	--	--	--	--	4.81E-03
	35	--	--	--	--	--	--	--	--	5.82E-03
	30	--	--	--	--	--	--	--	--	6.30E-03
2033	55	--	--	--	--	--	--	--	--	4.51E-03
	50	--	--	--	--	--	--	--	--	4.74E-03
	35	--	--	--	--	--	--	--	--	5.75E-03
	30	--	--	--	--	--	--	--	--	6.22E-03
2034	55	--	--	--	--	--	--	--	--	4.44E-03
	50	--	--	--	--	--	--	--	--	4.68E-03
	35	--	--	--	--	--	--	--	--	5.68E-03
	30	--	--	--	--	--	--	--	--	6.14E-03
2035	55	0.00E+00	9.60E-03	0.00E+00	6.90E-03	0.00E+00	2.60E-03	0.00E+00	4.51E-03	4.38E-03
	50	0.00E+00	9.72E-03	0.00E+00	7.23E-03	0.00E+00	2.75E-03	0.00E+00	4.78E-03	4.62E-03
	35	0.00E+00	1.17E-02	0.00E+00	8.99E-03	0.00E+00	3.32E-03	0.00E+00	5.80E-03	5.60E-03
	30	0.00E+00	1.32E-02	0.00E+00	9.98E-03	0.00E+00	3.57E-03	0.00E+00	6.24E-03	6.06E-03
2036	55	--	--	--	--	--	--	--	--	4.35E-03
	50	--	--	--	--	--	--	--	--	4.59E-03
	35	--	--	--	--	--	--	--	--	5.57E-03
	30	--	--	--	--	--	--	--	--	6.02E-03
2037	55	--	--	--	--	--	--	--	--	4.32E-03
	50	--	--	--	--	--	--	--	--	4.56E-03
	35	--	--	--	--	--	--	--	--	5.53E-03
	30	--	--	--	--	--	--	--	--	5.98E-03

Table A.7. Diesel Particulate Matter Emission Factors for Trucks from Calendar Year 2018 to 2050
Tejon Ranch
Lebec, California

Calendar Year	Speed (mph)	Diesel Particulate Emission Factors[1] (g/mile)								Diesel Particulate Matter Emission Factors for Trucks (g/mile)[2]
		LHDT1 GAS	LHDT1 DSL	LHDT2 GAS	LHDT2 DSL	MHDT GAS	MHDT DSL	HHDT GAS	HHDT DSL	
2038	55	--	--	--	--	--	--	--	--	4.29E-03
	50	--	--	--	--	--	--	--	--	4.53E-03
	35	--	--	--	--	--	--	--	--	5.50E-03
	30	--	--	--	--	--	--	--	--	5.94E-03
2039	55	--	--	--	--	--	--	--	--	4.26E-03
	50	--	--	--	--	--	--	--	--	4.50E-03
	35	--	--	--	--	--	--	--	--	5.46E-03
	30	--	--	--	--	--	--	--	--	5.90E-03
2040	55	0.00E+00	6.86E-03	0.00E+00	5.75E-03	0.00E+00	2.50E-03	0.00E+00	4.47E-03	4.23E-03
	50	0.00E+00	7.05E-03	0.00E+00	6.08E-03	0.00E+00	2.64E-03	0.00E+00	4.74E-03	4.47E-03
	35	0.00E+00	8.62E-03	0.00E+00	7.62E-03	0.00E+00	3.20E-03	0.00E+00	5.75E-03	5.43E-03
	30	0.00E+00	9.63E-03	0.00E+00	8.43E-03	0.00E+00	3.44E-03	0.00E+00	6.19E-03	5.86E-03
2041	55	--	--	--	--	--	--	--	--	4.22E-03
	50	--	--	--	--	--	--	--	--	4.46E-03
	35	--	--	--	--	--	--	--	--	5.42E-03
	30	--	--	--	--	--	--	--	--	5.85E-03
2042	55	--	--	--	--	--	--	--	--	4.21E-03
	50	--	--	--	--	--	--	--	--	4.45E-03
	35	--	--	--	--	--	--	--	--	5.40E-03
	30	--	--	--	--	--	--	--	--	5.83E-03
2043	55	--	--	--	--	--	--	--	--	4.20E-03
	50	--	--	--	--	--	--	--	--	4.44E-03
	35	--	--	--	--	--	--	--	--	5.39E-03
	30	--	--	--	--	--	--	--	--	5.82E-03
2044	55	--	--	--	--	--	--	--	--	4.18E-03
	50	--	--	--	--	--	--	--	--	4.43E-03
	35	--	--	--	--	--	--	--	--	5.38E-03
	30	--	--	--	--	--	--	--	--	5.80E-03
2045	55	0.00E+00	5.40E-03	0.00E+00	5.37E-03	0.00E+00	2.45E-03	0.00E+00	4.47E-03	4.17E-03
	50	0.00E+00	5.63E-03	0.00E+00	5.70E-03	0.00E+00	2.59E-03	0.00E+00	4.74E-03	4.42E-03
	35	0.00E+00	6.96E-03	0.00E+00	7.15E-03	0.00E+00	3.14E-03	0.00E+00	5.75E-03	5.37E-03
	30	0.00E+00	7.74E-03	0.00E+00	7.92E-03	0.00E+00	3.38E-03	0.00E+00	6.19E-03	5.79E-03
2046	55	--	--	--	--	--	--	--	--	4.17E-03
	50	--	--	--	--	--	--	--	--	4.41E-03
	35	--	--	--	--	--	--	--	--	5.36E-03
	30	--	--	--	--	--	--	--	--	5.78E-03
2047	55	--	--	--	--	--	--	--	--	4.16E-03
	50	--	--	--	--	--	--	--	--	4.41E-03
	35	--	--	--	--	--	--	--	--	5.35E-03
	30	--	--	--	--	--	--	--	--	5.77E-03

Table A.7. Diesel Particulate Matter Emission Factors for Trucks from Calendar Year 2018 to 2050
Tejon Ranch
Lebec, California

Calendar Year	Speed (mph)	Diesel Particulate Emission Factors[1] (g/mile)								Diesel Particulate Matter Emission Factors for Trucks (g/mile)[2]
		LHDT1 GAS	LHDT1 DSL	LHDT2 GAS	LHDT2 DSL	MHDT GAS	MHDT DSL	HHDT GAS	HHDT DSL	
2048	55	--	--	--	--	--	--	--	--	4.15E-03
	50	--	--	--	--	--	--	--	--	4.40E-03
	35	--	--	--	--	--	--	--	--	5.34E-03
	30	--	--	--	--	--	--	--	--	5.77E-03
2049	55	--	--	--	--	--	--	--	--	4.15E-03
	50	--	--	--	--	--	--	--	--	4.39E-03
	35	--	--	--	--	--	--	--	--	5.34E-03
	30	--	--	--	--	--	--	--	--	5.76E-03
2050 and Beyond[3]	55	0.00E+00	4.47E-03	0.00E+00	5.26E-03	0.00E+00	2.43E-03	0.00E+00	4.48E-03	4.14E-03
	50	0.00E+00	4.73E-03	0.00E+00	5.59E-03	0.00E+00	2.57E-03	0.00E+00	4.74E-03	4.39E-03
	35	0.00E+00	5.92E-03	0.00E+00	7.02E-03	0.00E+00	3.12E-03	0.00E+00	5.75E-03	5.33E-03
	30	0.00E+00	6.55E-03	0.00E+00	7.77E-03	0.00E+00	3.36E-03	0.00E+00	6.20E-03	5.75E-03

Notes:

1. For purposes of this analysis, diesel particulate matter emissions are assumed to be equal to PM_{10} running exhaust emissions from diesel vehicles. Therefore, emission factors for the gasoline vehicles are set to zero. For diesel vehicles, emission factors for each combination of vehicle class, speed, and calendar year are obtained from EMFAC2014 Model Output Table A.1 and Table A.4.
2. Emission factors for calendar years 2018, 2019, 2020, 2025, 2030, 2035, 2040, 2045, and 2050 are calculated as a VMT weighted average using the VMT data summarized in Table A.6. Emission factors for all other calendar years are estimated by interpolation.
3. Since calendar year 2050 is the furthest future year that can be modeled in EMFAC2014, emission factors for all calendar years beyond 2050 are assumed to equal to that in 2050.

Abbreviations:
CARB - California Air Resources Board
DSL - diesel
EMFAC - CARB's mobile source emission inventory model
g - grams
GAS - gasoline
HHDT - heavy-heavy duty truck
LHDT1 - light-heavy duty trucks (8501-10000 pounds)
LHDT2 - light-heavy duty trucks (10001-14000 pounds)
MHDT - medium-heavy duty truck

Source:
P:\T\Tejon Ranch\Technical_Work\Emissions\[EmissionFactorComparison.xlsx]TA.7_Truck_EF

APPENDIX B
LIST OF AIR DISPERSION MODELING FILES

This appendix is provided in electronic format

List of Tables

Model Run 1: AERMOD Model Run for Receptors in Zone 1
Model Run 2: AERMOD Model Run for Receptors in Zone 2
Model Run 3: AERMOD Model Run for Receptors in Zone 3
Model Run 4: AERMOD Model Run for Receptors in Zone 4
Model Run 5: AERMOD Model Run for Receptors in Zone 5
Model Run 6: AERMOD Model Run for Receptors in Zone 6
Model Run 7: AERMOD Model Run for Receptors in Zone 7
Model Run 8: AERMOD Model Run for Receptors in Zone 8
Model Run 9: AERMOD Model Run for Receptors in Zone 9
Model Run 10: AERMOD Model Run for Receptors in Zone 10
Model Run 11: AERMOD Model Run for Receptors in Zone 11
Model Run 12: AERMOD Model Run for Receptors in Zone 12
Model Run 13: AERMOD Model Run for Receptors in Zone 13
Model Run 14: AERMOD Model Run for Receptors in Zone 14
Model Run 15: AERMOD Model Run for Receptors in Zone 15

APPENDIX C
LIST OF HARP2 MODELING FILES

This appendix is provided in electronic format

List of Tables

Model Run 1: Existing No Project HARP2 Model Run using 2015 Emission Factors
Model Run 2: Future No Project HARP2 Model Run using 2040 Emission Factors
Model Run 3: Existing Plus Project HARP2 Model Run using 2040 Emission Factors
Model Run 4: Future Plus Project HARP2 Model Run using 2040 Emission Factors

APPENDIX D
HEALTH RISK ASSESSMENT RESULTS AT SENSITIVE RECEPTORS

List of Tables

Table D.1: Cancer Risk Estimates at Sensitive Receptors
Table D.2: Chronic Non-Cancer Hazard Index Estimates at Sensitive Receptors

Table D.1. Cancer Risk Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2,3]	Cancer Risk Estimates (in a million)			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[4]	Future Plus Project 2040
321,817.3	3,867,538.8	Resident	33.2	7.0	3.3	8.0
321,812.1	3,867,638.7	Resident	33.2	7.0	3.3	8.0
321,807.0	3,867,738.5	Resident	32.8	6.9	3.2	7.9
321,801.8	3,867,838.4	Resident	33.0	6.9	3.2	8.0
321,796.6	3,867,938.3	Resident	32.6	6.9	3.2	7.9
321,791.4	3,868,038.1	Resident	32.3	6.8	3.2	7.8
321,786.2	3,868,138.0	Resident	32.2	6.8	3.2	7.8
321,753.7	3,868,209.6	Resident	31.5	6.6	3.1	7.6
321,653.7	3,868,211.5	Resident	30.1	6.3	3.0	7.2
321,625.7	3,868,283.4	Resident	30.1	6.3	3.0	7.2
321,626.5	3,868,383.4	Resident	30.0	6.3	2.9	7.2
321,627.2	3,868,483.4	Resident	30.3	6.3	3.0	7.3
321,628.0	3,868,583.4	Resident	30.3	6.3	3.0	7.2
321,628.8	3,868,683.4	Resident	30.9	6.4	3.0	7.4
321,629.6	3,868,783.4	Resident	31.4	6.5	3.0	7.4
321,630.4	3,868,883.4	Resident	31.2	6.4	3.0	7.4
321,636.1	3,868,982.3	Resident	31.4	6.4	3.0	7.3
321,678.4	3,869,073.0	Resident	32.7	6.6	3.1	7.6
321,720.7	3,869,163.6	Resident	33.8	6.7	3.1	7.7
321,762.9	3,869,254.2	Resident	34.3	6.8	3.1	7.7
321,805.2	3,869,344.8	Resident	36.4	7.0	3.3	8.0
321,847.5	3,869,435.5	Resident	41.5	7.8	3.6	8.9
321,873.7	3,869,529.9	Resident	44.3	8.2	3.8	9.4
321,875.9	3,869,629.8	Resident	43.8	8.0	3.8	9.2
321,878.1	3,869,729.8	Resident	51.1	9.1	4.3	10.5
321,880.3	3,869,829.8	Resident	55.0	9.6	4.7	11.2
321,882.5	3,869,929.8	Resident	56.3	9.8	4.8	11.3
321,884.8	3,870,029.8	Resident	62.1	10.6	5.2	12.4
321,887.0	3,870,129.8	Resident	66.9	11.4	5.6	13.3
321,889.2	3,870,229.7	Resident	68.8	11.6	5.8	13.6
321,891.4	3,870,329.7	Resident	73.4	12.3	6.2	14.4
321,893.6	3,870,429.7	Resident	81.4	13.5	6.9	15.9
321,895.8	3,870,529.7	Resident	83.9	13.9	7.1	16.3
321,898.1	3,870,629.7	Resident	86.0	14.2	7.2	16.7
321,900.3	3,870,729.6	Resident	91.1	15.0	7.7	17.7
321,902.5	3,870,829.6	Resident	93.2	15.3	7.8	18.0
321,904.7	3,870,929.6	Resident	92.8	15.3	7.8	17.9
321,906.9	3,871,029.6	Resident	95.9	15.7	8.0	18.5
321,909.1	3,871,129.6	Resident	102.0	16.7	8.6	19.7
321,911.4	3,871,229.6	Resident	105.3	17.2	8.8	20.3
321,913.6	3,871,329.5	Resident	108.8	17.7	9.1	20.9
321,915.8	3,871,429.5	Resident	114.5	18.6	9.6	22.0
321,918.0	3,871,529.5	Resident	120.5	19.6	10.1	23.1
321,920.2	3,871,629.5	Resident	125.1	20.3	10.5	24.0
324,995.6	3,872,185.7	Resident	29.6	4.9	2.5	5.8
325,095.6	3,872,184.1	Resident	28.3	4.7	2.4	5.6
325,195.6	3,872,182.5	Resident	27.1	4.5	2.3	5.3
325,295.6	3,872,180.8	Resident	26.0	4.4	2.2	5.1
325,395.5	3,872,179.2	Resident	24.9	4.2	2.1	4.9
325,495.5	3,872,177.6	Resident	24.0	4.0	2.0	4.7
323,255.1	3,871,224.5	Resident	158.9	25.7	13.3	30.3
323,266.6	3,871,175.8	Resident	159.5	25.8	13.3	30.4
323,278.1	3,871,127.2	Resident	160.5	25.9	13.4	30.6
323,289.7	3,871,078.5	Resident	159.7	25.8	13.3	30.5
323,301.5	3,871,029.9	Resident	159.1	25.7	13.3	30.4
323,313.4	3,870,981.4	Resident	158.6	25.6	13.2	30.3
323,325.0	3,870,932.7	Resident	158.6	25.6	13.2	30.3

Table D.1. Cancer Risk Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2,3]	Cancer Risk Estimates (in a million)			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[4]	Future Plus Project 2040
323,336.6	3,870,884.1	Resident	158.3	25.6	13.2	30.2
323,348.1	3,870,835.4	Resident	159.1	25.7	13.3	30.4
323,359.7	3,870,786.8	Resident	159.8	25.9	13.4	30.5
323,371.2	3,870,738.1	Resident	160.8	26.0	13.4	30.7
323,382.7	3,870,689.5	Resident	161.8	26.2	13.5	30.9
323,394.2	3,870,640.8	Resident	164.5	26.6	13.7	31.4
323,405.7	3,870,592.2	Resident	164.4	26.6	13.7	31.4
323,417.3	3,870,543.5	Resident	164.4	26.6	13.7	31.4
323,428.9	3,870,494.9	Resident	164.9	26.7	13.8	31.5
323,440.6	3,870,446.3	Resident	164.2	26.6	13.7	31.4
323,452.3	3,870,397.6	Resident	164.0	26.6	13.7	31.4
323,371.8	3,867,980.9	Resident	250.5	51.2	23.6	58.5
323,366.1	3,868,030.6	Resident	251.9	51.1	23.5	58.3
323,359.0	3,868,080.1	Resident	253.0	50.8	23.3	57.9
323,349.6	3,868,129.2	Resident	249.6	49.7	22.7	56.6
323,339.2	3,868,178.1	Resident	247.3	48.7	22.1	55.4
323,328.2	3,868,226.8	Resident	245.4	47.7	21.5	54.1
323,317.2	3,868,275.6	Resident	231.5	44.6	20.0	50.5
323,305.6	3,868,324.3	Resident	226.6	43.1	19.2	48.7
323,294.1	3,868,372.9	Resident	219.7	41.2	18.3	46.6
323,282.4	3,868,421.5	Resident	213.6	39.6	17.5	44.7
323,270.2	3,868,470.0	Resident	214.6	39.2	17.3	44.2
323,258.1	3,868,518.5	Resident	217.8	39.2	17.2	44.1
323,246.7	3,868,567.2	Resident	223.3	39.6	17.4	44.6
323,235.7	3,868,616.0	Resident	226.4	39.7	17.6	44.8
323,224.5	3,868,664.7	Resident	229.9	39.9	17.9	45.2
322,618.4	3,871,193.2	Resident	266.0	42.9	22.2	50.6
322,606.8	3,871,241.9	Resident	266.0	42.8	22.2	50.6
322,595.3	3,871,290.5	Resident	266.6	42.9	22.2	50.7
322,583.8	3,871,339.2	Resident	265.7	42.8	22.1	50.6
322,572.2	3,871,387.8	Resident	265.5	42.7	22.1	50.5
322,560.5	3,871,436.4	Resident	268.2	43.2	22.3	51.0
323,311.5	3,871,203.3	Resident	141.9	23.0	11.9	27.1
323,323.0	3,871,154.6	Resident	142.3	23.0	11.9	27.2
323,334.5	3,871,106.0	Resident	142.3	23.0	11.9	27.2
323,346.3	3,871,057.4	Resident	141.8	23.0	11.9	27.1
323,358.2	3,871,008.8	Resident	141.8	23.0	11.9	27.1
323,369.9	3,870,960.2	Resident	141.6	22.9	11.8	27.1
323,381.4	3,870,911.6	Resident	141.7	23.0	11.8	27.1
323,393.0	3,870,862.9	Resident	141.8	23.0	11.9	27.1
323,404.5	3,870,814.3	Resident	142.7	23.1	11.9	27.3
323,416.1	3,870,765.6	Resident	143.4	23.3	12.0	27.4
323,427.6	3,870,717.0	Resident	144.7	23.5	12.1	27.7
323,439.1	3,870,668.3	Resident	145.8	23.7	12.2	27.9
323,450.6	3,870,619.6	Resident	147.0	23.9	12.3	28.1
323,462.2	3,870,571.0	Resident	148.0	24.0	12.4	28.3
323,473.7	3,870,522.3	Resident	147.8	24.0	12.4	28.3
323,485.4	3,870,473.7	Resident	147.4	23.9	12.3	28.2
323,497.1	3,870,425.1	Resident	147.3	23.9	12.3	28.2
323,508.8	3,870,376.5	Resident	147.8	24.0	12.4	28.3
323,765.9	3,869,306.9	Resident	159.2	26.3	13.3	30.9
323,777.5	3,869,258.3	Resident	159.7	26.4	13.4	31.0
323,800.5	3,869,160.9	Resident	161.4	26.8	13.5	31.4
323,811.9	3,869,112.2	Resident	162.4	27.0	13.6	31.6
323,823.2	3,869,063.6	Resident	163.2	27.1	13.7	31.8
323,834.8	3,869,014.9	Resident	162.3	27.1	13.6	31.7
323,846.4	3,868,966.3	Resident	160.8	26.9	13.4	31.4

Table D.1. Cancer Risk Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2,3]	Cancer Risk Estimates (in a million)			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[4]	Future Plus Project 2040
323,857.9	3,868,917.6	Resident	151.4	25.4	12.7	29.7
323,869.3	3,868,868.9	Resident	144.1	24.4	12.0	28.3
323,880.7	3,868,820.2	Resident	148.2	25.1	12.4	29.2
323,892.1	3,868,771.5	Resident	149.0	25.3	12.4	29.4
323,903.5	3,868,722.9	Resident	152.1	25.9	12.7	30.0
323,915.2	3,868,674.3	Resident	154.1	26.3	12.8	30.5
323,927.3	3,868,625.7	Resident	153.9	26.4	12.8	30.5
323,939.4	3,868,577.2	Resident	153.7	26.5	12.7	30.6
323,951.6	3,868,528.7	Resident	150.8	26.2	12.4	30.1
323,963.9	3,868,480.3	Resident	146.2	25.6	12.0	29.3
323,976.0	3,868,431.7	Resident	149.9	26.4	12.3	30.2
323,990.3	3,868,383.9	Resident	150.8	26.7	12.4	30.5
324,006.7	3,868,336.6	Resident	134.2	24.2	11.1	27.6
324,025.0	3,868,290.1	Resident	120.6	22.2	10.2	25.3
323,319.9	3,867,996.1	Resident	223.3	45.6	21.1	52.2
323,313.5	3,868,045.7	Resident	223.0	45.2	20.8	51.7
323,305.2	3,868,095.0	Resident	220.8	44.4	20.4	50.7
323,295.6	3,868,144.1	Resident	219.6	43.8	20.0	49.9
323,284.6	3,868,192.8	Resident	217.3	42.9	19.5	48.8
323,273.6	3,868,241.6	Resident	210.6	41.2	18.7	46.8
323,262.3	3,868,290.3	Resident	198.8	38.5	17.4	43.7
323,250.7	3,868,339.0	Resident	191.9	36.7	16.5	41.7
323,239.2	3,868,387.6	Resident	185.6	35.2	15.7	39.8
323,227.2	3,868,436.2	Resident	185.9	34.7	15.5	39.2
323,215.0	3,868,484.7	Resident	189.1	34.8	15.4	39.3
323,203.1	3,868,533.2	Resident	188.8	34.3	15.2	38.7
323,192.1	3,868,582.0	Resident	193.2	34.6	15.3	39.1
323,181.0	3,868,630.8	Resident	195.0	34.5	15.4	39.0
322,680.2	3,870,721.7	Resident	235.6	38.1	19.6	44.9
322,668.6	3,870,770.4	Resident	233.7	37.8	19.5	44.6
322,656.9	3,870,819.0	Resident	232.3	37.5	19.4	44.3
322,645.1	3,870,867.6	Resident	233.0	37.6	19.4	44.4
322,633.1	3,870,916.1	Resident	235.2	38.0	19.6	44.8
322,621.2	3,870,964.7	Resident	236.5	38.2	19.7	45.1
322,586.6	3,871,110.6	Resident	239.8	38.7	20.0	45.7
322,575.1	3,871,159.3	Resident	239.8	38.7	20.0	45.7
322,563.5	3,871,207.9	Resident	238.6	38.5	19.9	45.4
322,551.9	3,871,256.6	Resident	239.3	38.6	19.9	45.6
322,540.4	3,871,305.2	Resident	239.0	38.5	19.9	45.5
322,528.9	3,871,353.9	Resident	239.2	38.5	19.9	45.5
322,517.2	3,871,402.5	Resident	241.1	38.9	20.1	45.9
322,505.5	3,871,451.1	Resident	240.6	38.8	20.0	45.8
323,356.4	3,871,230.8	Resident	127.7	20.7	10.7	24.4
323,367.9	3,871,182.1	Resident	127.9	20.7	10.7	24.5
323,379.3	3,871,133.5	Resident	128.4	20.8	10.7	24.6
323,391.1	3,871,084.9	Resident	128.5	20.8	10.7	24.6
323,403.0	3,871,036.3	Resident	128.3	20.8	10.7	24.6
323,414.7	3,870,987.7	Resident	128.4	20.8	10.7	24.6
323,426.3	3,870,939.0	Resident	128.1	20.8	10.7	24.5
323,437.8	3,870,890.4	Resident	128.4	20.9	10.7	24.6
323,449.4	3,870,841.7	Resident	129.3	21.0	10.8	24.8
323,461.0	3,870,793.1	Resident	129.6	21.0	10.8	24.8
323,472.5	3,870,744.4	Resident	130.7	21.2	10.9	25.0
323,484.0	3,870,695.8	Resident	131.5	21.4	11.0	25.2
323,495.5	3,870,647.1	Resident	132.7	21.6	11.1	25.4
323,507.0	3,870,598.5	Resident	133.5	21.7	11.2	25.6
323,518.6	3,870,549.8	Resident	133.9	21.8	11.2	25.7

Table D.1. Cancer Risk Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2,3]	Cancer Risk Estimates (in a million)			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[4]	Future Plus Project 2040
323,530.2	3,870,501.2	Resident	133.8	21.8	11.2	25.7
323,541.9	3,870,452.6	Resident	133.7	21.8	11.2	25.7
323,553.6	3,870,404.0	Resident	134.1	21.8	11.2	25.7
323,565.3	3,870,355.3	Resident	133.8	21.8	11.2	25.7
323,762.6	3,869,528.5	Resident	144.1	23.7	12.1	27.9
323,774.5	3,869,479.9	Resident	144.2	23.8	12.1	27.9
323,786.6	3,869,431.4	Resident	143.7	23.7	12.0	27.9
323,798.7	3,869,382.9	Resident	143.6	23.8	12.0	27.9
323,810.8	3,869,334.4	Resident	143.7	23.8	12.1	27.9
323,822.3	3,869,285.7	Resident	144.3	23.9	12.1	28.1
323,845.4	3,869,188.4	Resident	146.3	24.3	12.3	28.5
323,856.8	3,869,139.7	Resident	147.0	24.5	12.3	28.6
323,868.2	3,869,091.0	Resident	147.4	24.6	12.4	28.8
323,879.6	3,869,042.4	Resident	146.4	24.5	12.3	28.6
323,891.2	3,868,993.7	Resident	144.2	24.2	12.1	28.2
323,902.8	3,868,945.1	Resident	141.2	23.8	11.8	27.7
323,914.2	3,868,896.4	Resident	119.4	20.3	10.0	23.6
323,925.7	3,868,847.7	Resident	126.9	21.6	10.6	25.1
323,937.0	3,868,799.0	Resident	130.0	22.2	10.9	25.8
323,948.4	3,868,750.3	Resident	133.7	22.8	11.2	26.5
323,959.9	3,868,701.7	Resident	136.6	23.4	11.4	27.1
323,972.0	3,868,653.2	Resident	138.2	23.7	11.5	27.5
323,984.1	3,868,604.7	Resident	139.6	24.1	11.6	27.8
323,996.2	3,868,556.1	Resident	140.0	24.3	11.6	28.0
324,008.6	3,868,507.7	Resident	139.7	24.3	11.6	28.0
324,020.7	3,868,459.2	Resident	135.2	23.8	11.2	27.3
324,034.1	3,868,411.0	Resident	131.7	23.4	10.9	26.7
324,050.2	3,868,363.7	Resident	126.7	22.8	10.5	26.0
324,067.9	3,868,316.9	Resident	117.1	21.4	9.9	24.4
324,089.2	3,868,271.7	Resident	109.5	20.2	9.4	23.1
323,267.7	3,868,011.4	Resident	199.0	40.7	18.8	46.5
323,251.4	3,868,110.0	Resident	197.1	39.7	18.3	45.3
323,241.0	3,868,158.9	Resident	194.7	38.9	17.8	44.4
323,230.0	3,868,207.7	Resident	190.8	37.8	17.2	43.0
323,219.0	3,868,256.4	Resident	181.7	35.7	16.2	40.6
323,207.4	3,868,305.1	Resident	174.2	33.9	15.4	38.5
323,195.8	3,868,353.7	Resident	168.9	32.5	14.7	36.9
323,184.1	3,868,402.3	Resident	168.2	32.0	14.4	36.3
323,172.0	3,868,450.8	Resident	172.3	32.3	14.4	36.5
323,159.8	3,868,499.3	Resident	168.2	31.2	13.9	35.2
323,148.5	3,868,548.1	Resident	167.3	30.6	13.6	34.6
323,137.5	3,868,596.8	Resident	168.6	30.5	13.6	34.5
323,126.3	3,868,645.6	Resident	167.4	30.0	13.4	33.9
323,115.1	3,868,694.3	Resident	164.2	29.2	13.1	33.1
323,103.8	3,868,743.0	Resident	163.8	28.8	13.1	32.8
323,092.2	3,868,791.7	Resident	162.3	28.4	13.0	32.3
323,080.3	3,868,840.2	Resident	160.6	27.9	13.0	31.9
323,068.4	3,868,888.8	Resident	162.4	28.0	13.2	32.1
323,056.7	3,868,937.4	Resident	164.2	28.1	13.4	32.4
323,045.0	3,868,986.0	Resident	164.5	28.0	13.5	32.4
323,020.9	3,869,083.0	Resident	166.3	28.1	13.7	32.6
323,008.7	3,869,131.6	Resident	158.2	26.7	13.1	31.0
322,997.5	3,869,180.3	Resident	160.5	27.0	13.3	31.4
322,986.2	3,869,229.0	Resident	162.9	27.3	13.5	31.8
322,974.7	3,869,277.7	Resident	168.3	28.1	14.0	32.8
322,963.3	3,869,326.3	Resident	174.6	29.0	14.5	34.0
322,951.7	3,869,375.0	Resident	181.5	30.1	15.1	35.2

Table D.1. Cancer Risk Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2,3]	Cancer Risk Estimates (in a million)			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[4]	Future Plus Project 2040
322,940.2	3,869,423.6	Resident	184.2	30.4	15.4	35.7
322,928.3	3,869,472.2	Resident	185.9	30.7	15.5	36.0
322,916.4	3,869,520.8	Resident	185.5	30.6	15.5	35.9
322,904.5	3,869,569.3	Resident	183.6	30.2	15.3	35.5
322,892.7	3,869,617.9	Resident	180.2	29.7	15.1	34.8
322,881.0	3,869,666.5	Resident	177.3	29.1	14.8	34.3
322,869.2	3,869,715.1	Resident	177.6	29.2	14.8	34.3
322,636.9	3,870,687.8	Resident	214.2	34.7	17.9	40.9
322,625.3	3,870,736.5	Resident	211.2	34.2	17.6	40.3
322,613.6	3,870,785.1	Resident	208.7	33.8	17.4	39.8
322,601.9	3,870,833.7	Resident	209.4	33.9	17.5	40.0
322,590.0	3,870,882.3	Resident	211.8	34.2	17.7	40.4
322,578.0	3,870,930.8	Resident	214.5	34.7	17.9	40.9
322,566.3	3,870,979.4	Resident	216.3	34.9	18.0	41.3
322,543.3	3,871,076.8	Resident	220.4	35.6	18.4	42.0
322,531.7	3,871,125.4	Resident	220.6	35.6	18.4	42.1
322,520.2	3,871,174.0	Resident	219.2	35.4	18.3	41.8
322,508.6	3,871,222.7	Resident	217.4	35.1	18.1	41.5
322,497.0	3,871,271.3	Resident	216.2	34.9	18.0	41.2
322,485.6	3,871,320.0	Resident	215.7	34.8	18.0	41.1
322,474.0	3,871,368.6	Resident	217.5	35.1	18.1	41.4
322,462.2	3,871,417.3	Resident	216.9	35.0	18.1	41.3
322,450.5	3,871,465.9	Resident	218.2	35.2	18.2	41.6
323,412.7	3,871,209.6	Resident	116.8	19.0	9.8	22.4
323,424.2	3,871,160.9	Resident	116.8	19.0	9.8	22.4
323,435.8	3,871,112.3	Resident	117.3	19.0	9.8	22.5
323,447.7	3,871,063.7	Resident	117.2	19.0	9.8	22.5
323,459.6	3,871,015.2	Resident	117.1	19.0	9.8	22.4
323,471.2	3,870,966.5	Resident	117.2	19.1	9.8	22.5
323,482.7	3,870,917.9	Resident	117.6	19.1	9.8	22.6
323,494.3	3,870,869.2	Resident	118.0	19.2	9.9	22.6
323,505.8	3,870,820.6	Resident	118.4	19.3	9.9	22.7
323,517.4	3,870,771.9	Resident	119.2	19.4	10.0	22.9
323,528.9	3,870,723.3	Resident	119.8	19.5	10.0	23.0
323,540.3	3,870,674.6	Resident	120.7	19.6	10.1	23.2
323,551.9	3,870,625.9	Resident	121.3	19.8	10.2	23.3
323,563.5	3,870,577.3	Resident	121.7	19.8	10.2	23.4
323,575.1	3,870,528.7	Resident	121.7	19.8	10.2	23.4
323,586.8	3,870,480.0	Resident	122.9	20.0	10.3	23.6
323,598.5	3,870,431.4	Resident	123.1	20.1	10.3	23.7
323,610.1	3,870,382.8	Resident	122.9	20.1	10.3	23.6
323,773.1	3,869,702.0	Resident	129.7	21.4	10.9	25.1
323,784.8	3,869,653.4	Resident	130.1	21.5	10.9	25.2
323,796.2	3,869,604.7	Resident	130.4	21.5	10.9	25.3
323,807.5	3,869,556.0	Resident	130.8	21.6	11.0	25.4
323,819.2	3,869,507.4	Resident	131.0	21.7	11.0	25.4
323,831.3	3,869,458.9	Resident	130.7	21.6	11.0	25.4
323,843.4	3,869,410.3	Resident	130.6	21.6	11.0	25.4
323,855.5	3,869,361.8	Resident	130.4	21.6	10.9	25.4
323,867.2	3,869,313.2	Resident	131.2	21.8	11.0	25.5
323,878.7	3,869,264.6	Resident	132.7	22.1	11.1	25.9
323,890.3	3,869,215.9	Resident	133.7	22.3	11.2	26.1
323,901.7	3,869,167.2	Resident	134.1	22.4	11.3	26.2
323,913.1	3,869,118.5	Resident	133.9	22.4	11.2	26.2
323,924.5	3,869,069.8	Resident	133.2	22.3	11.2	26.1
323,936.1	3,869,021.2	Resident	131.3	22.0	11.0	25.8
323,947.7	3,868,972.6	Resident	129.0	21.7	10.8	25.4

Table D.1. Cancer Risk Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2,3]	Cancer Risk Estimates (in a million)			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[4]	Future Plus Project 2040
323,959.2	3,868,923.9	Resident	127.2	21.5	10.7	25.1
323,970.6	3,868,875.2	Resident	111.9	19.1	9.4	22.2
323,982.0	3,868,826.5	Resident	117.0	20.0	9.8	23.2
323,993.3	3,868,777.8	Resident	118.7	20.4	9.9	23.6
324,004.7	3,868,729.1	Resident	122.1	21.0	10.2	24.3
324,016.7	3,868,680.6	Resident	123.9	21.3	10.4	24.7
324,028.8	3,868,632.1	Resident	127.3	22.0	10.6	25.4
324,040.9	3,868,583.6	Resident	128.2	22.2	10.7	25.7
324,053.2	3,868,535.1	Resident	128.0	22.3	10.7	25.7
324,065.4	3,868,486.6	Resident	122.5	21.6	10.2	24.8
324,077.9	3,868,438.2	Resident	119.9	21.3	10.0	24.4
324,155.0	3,868,254.1	Resident	99.7	18.5	8.6	21.2
323,224.6	3,867,927.2	Resident	182.7	37.8	17.6	43.3
323,215.2	3,868,026.7	Resident	178.1	36.5	16.9	41.7
323,207.1	3,868,076.0	Resident	178.4	36.3	16.7	41.4
323,197.4	3,868,125.1	Resident	177.1	35.7	16.5	40.8
323,186.4	3,868,173.8	Resident	172.7	34.6	15.9	39.5
323,175.4	3,868,222.6	Resident	166.0	33.0	15.2	37.7
323,164.0	3,868,271.3	Resident	159.8	31.6	14.4	35.9
323,152.5	3,868,320.0	Resident	155.4	30.4	13.8	34.6
323,140.9	3,868,368.6	Resident	153.1	29.6	13.4	33.6
323,128.9	3,868,417.1	Resident	153.1	29.2	13.2	33.2
323,116.7	3,868,465.6	Resident	149.7	28.3	12.7	32.1
323,104.9	3,868,514.2	Resident	148.3	27.7	12.4	31.4
323,093.9	3,868,563.0	Resident	148.0	27.3	12.2	30.9
323,082.8	3,868,611.8	Resident	147.2	26.9	12.0	30.4
323,071.6	3,868,660.5	Resident	144.9	26.2	11.8	29.7
323,060.3	3,868,709.2	Resident	140.1	25.2	11.4	28.6
323,049.0	3,868,757.9	Resident	137.6	24.6	11.2	27.9
323,037.1	3,868,806.5	Resident	138.5	24.5	11.2	27.9
323,025.1	3,868,855.0	Resident	140.0	24.6	11.4	28.1
323,013.4	3,868,903.6	Resident	141.5	24.6	11.5	28.2
323,001.7	3,868,952.2	Resident	142.2	24.6	11.6	28.3
322,977.7	3,869,049.3	Resident	143.4	24.5	11.8	28.3
322,965.6	3,869,097.8	Resident	141.9	24.2	11.7	28.0
322,954.0	3,869,146.5	Resident	140.9	23.9	11.6	27.8
322,942.8	3,869,195.2	Resident	141.9	24.0	11.7	27.9
322,931.3	3,869,243.9	Resident	143.6	24.2	11.9	28.2
322,919.9	3,869,292.6	Resident	150.4	25.2	12.5	29.4
322,908.4	3,869,341.2	Resident	156.1	26.1	13.0	30.5
322,896.8	3,869,389.9	Resident	159.9	26.6	13.3	31.1
322,885.1	3,869,438.5	Resident	162.4	27.0	13.6	31.6
322,873.2	3,869,487.0	Resident	164.5	27.3	13.7	31.9
322,861.3	3,869,535.6	Resident	164.8	27.3	13.8	32.0
322,849.4	3,869,584.2	Resident	162.9	26.9	13.6	31.6
322,837.7	3,869,632.8	Resident	160.8	26.6	13.4	31.2
322,825.9	3,869,681.4	Resident	160.2	26.4	13.4	31.0
322,814.2	3,869,730.0	Resident	164.5	27.1	13.8	31.8
322,605.1	3,870,605.4	Resident	197.8	32.1	16.5	37.8
322,593.6	3,870,654.1	Resident	197.8	32.0	16.5	37.8
322,582.0	3,870,702.7	Resident	193.3	31.3	16.1	37.0
322,570.3	3,870,751.3	Resident	190.8	30.9	15.9	36.5
322,558.6	3,870,799.9	Resident	189.9	30.8	15.9	36.3
322,546.8	3,870,848.5	Resident	191.8	31.1	16.0	36.7
322,534.8	3,870,897.1	Resident	193.7	31.3	16.2	37.0
322,522.9	3,870,945.6	Resident	195.7	31.7	16.3	37.4
322,511.4	3,870,994.3	Resident	199.9	32.3	16.7	38.2

Table D.1. Cancer Risk Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2,3]	Cancer Risk Estimates (in a million)			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[4]	Future Plus Project 2040
322,499.9	3,871,043.0	Resident	204.9	33.1	17.1	39.1
322,488.4	3,871,091.6	Resident	203.5	32.9	17.0	38.8
322,476.8	3,871,140.3	Resident	201.9	32.6	16.8	38.5
322,465.2	3,871,188.9	Resident	200.5	32.4	16.7	38.2
322,453.7	3,871,237.6	Resident	198.6	32.1	16.6	37.9
322,442.2	3,871,286.2	Resident	197.1	31.8	16.4	37.6
322,430.7	3,871,334.9	Resident	198.6	32.1	16.6	37.9
322,418.9	3,871,383.5	Resident	198.2	32.0	16.5	37.8
322,407.2	3,871,432.1	Resident	198.2	32.0	16.5	37.8
322,395.5	3,871,480.7	Resident	197.6	31.9	16.5	37.7
323,469.1	3,871,188.4	Resident	107.6	17.5	9.0	20.6
323,480.6	3,871,139.8	Resident	107.6	17.5	9.0	20.6
323,492.5	3,871,091.2	Resident	108.0	17.6	9.0	20.7
323,504.4	3,871,042.6	Resident	107.8	17.5	9.0	20.7
323,516.0	3,870,994.0	Resident	108.0	17.6	9.0	20.7
323,527.6	3,870,945.3	Resident	108.5	17.7	9.1	20.8
323,539.1	3,870,896.7	Resident	108.7	17.7	9.1	20.9
323,550.7	3,870,848.1	Resident	109.3	17.8	9.2	21.0
323,562.3	3,870,799.4	Resident	109.8	17.9	9.2	21.1
323,573.7	3,870,750.7	Resident	110.3	18.0	9.2	21.2
323,585.2	3,870,702.1	Resident	110.7	18.1	9.3	21.3
323,596.8	3,870,653.4	Resident	111.3	18.2	9.3	21.4
323,608.3	3,870,604.8	Resident	111.7	18.2	9.4	21.5
323,619.9	3,870,556.1	Resident	112.1	18.3	9.4	21.6
323,631.6	3,870,507.5	Resident	113.2	18.5	9.5	21.8
323,643.3	3,870,458.9	Resident	114.1	18.7	9.6	22.0
323,655.0	3,870,410.3	Resident	113.3	18.5	9.5	21.8
323,666.6	3,870,361.6	Resident	113.3	18.5	9.5	21.8
323,829.6	3,869,680.9	Resident	119.3	19.7	10.0	23.1
323,841.1	3,869,632.2	Resident	119.6	19.8	10.1	23.2
323,852.5	3,869,583.5	Resident	119.9	19.8	10.1	23.3
323,863.9	3,869,534.8	Resident	120.4	19.9	10.1	23.4
323,876.0	3,869,486.3	Resident	120.5	20.0	10.1	23.5
323,888.1	3,869,437.8	Resident	120.3	20.0	10.1	23.4
323,900.2	3,869,389.3	Resident	119.7	19.9	10.1	23.3
323,912.1	3,869,340.7	Resident	120.0	20.0	10.1	23.4
323,923.6	3,869,292.0	Resident	121.3	20.2	10.2	23.7
323,946.7	3,869,194.7	Resident	122.8	20.5	10.3	24.0
323,958.0	3,869,146.0	Resident	122.7	20.5	10.3	24.0
323,969.4	3,869,097.3	Resident	122.3	20.5	10.3	24.0
323,980.9	3,869,048.7	Resident	120.7	20.3	10.1	23.7
323,992.5	3,869,000.0	Resident	118.9	20.1	10.0	23.4
324,004.1	3,868,951.4	Resident	117.3	19.9	9.9	23.2
324,015.5	3,868,902.7	Resident	113.7	19.3	9.6	22.5
324,026.9	3,868,854.0	Resident	103.6	17.8	8.7	20.7
324,038.3	3,868,805.3	Resident	108.2	18.6	9.1	21.6
324,049.6	3,868,756.6	Resident	112.8	19.4	9.5	22.5
324,061.4	3,868,708.0	Resident	116.2	20.0	9.8	23.2
324,073.5	3,868,659.5	Resident	118.7	20.5	10.0	23.7
323,173.0	3,867,842.9	Resident	168.3	35.0	16.3	40.2
323,174.5	3,867,892.9	Resident	164.9	34.3	16.0	39.3
323,162.6	3,868,042.2	Resident	162.4	33.3	15.4	38.1
323,153.2	3,868,091.3	Resident	163.0	33.1	15.3	37.9
323,142.7	3,868,140.2	Resident	156.0	31.6	14.6	36.1
323,131.7	3,868,189.0	Resident	148.8	30.0	13.8	34.3
323,120.6	3,868,237.7	Resident	145.0	29.0	13.4	33.1
323,109.1	3,868,286.4	Resident	141.8	28.1	12.9	32.1

Table D.1. Cancer Risk Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2,3]	Cancer Risk Estimates (in a million)			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[4]	Future Plus Project 2040
323,097.5	3,868,335.0	Resident	139.0	27.3	12.5	31.1
323,085.7	3,868,383.6	Resident	136.4	26.5	12.1	30.2
323,073.5	3,868,432.1	Resident	133.3	25.7	11.6	29.2
323,061.4	3,868,480.6	Resident	130.9	25.0	11.3	28.3
323,050.2	3,868,529.4	Resident	130.4	24.6	11.1	27.9
323,039.2	3,868,578.1	Resident	130.5	24.3	10.9	27.6
323,028.0	3,868,626.9	Resident	132.1	24.3	10.9	27.6
323,016.8	3,868,675.6	Resident	124.5	22.8	10.3	25.9
323,005.5	3,868,724.3	Resident	118.7	21.6	9.8	24.6
322,993.9	3,868,772.9	Resident	119.1	21.5	9.8	24.5
322,981.9	3,868,821.5	Resident	121.4	21.7	9.9	24.7
322,970.0	3,868,870.1	Resident	123.3	21.8	10.1	24.9
322,958.4	3,868,918.7	Resident	123.7	21.8	10.1	24.9
322,934.6	3,869,015.8	Resident	126.1	21.9	10.4	25.1
322,922.5	3,869,064.3	Resident	126.5	21.8	10.4	25.2
322,910.4	3,869,112.8	Resident	127.7	21.9	10.5	25.3
322,899.2	3,869,161.6	Resident	127.5	21.8	10.5	25.2
322,887.9	3,869,210.3	Resident	129.2	22.0	10.7	25.5
322,876.4	3,869,259.0	Resident	133.8	22.6	11.1	26.3
322,864.9	3,869,307.6	Resident	140.0	23.5	11.6	27.4
322,853.4	3,869,356.3	Resident	141.7	23.8	11.8	27.7
322,841.8	3,869,404.9	Resident	143.8	24.0	12.0	28.1
322,830.0	3,869,453.5	Resident	146.6	24.4	12.2	28.6
322,818.0	3,869,502.1	Resident	148.5	24.7	12.4	28.9
322,806.2	3,869,550.6	Resident	147.9	24.6	12.4	28.8
322,794.3	3,869,599.2	Resident	146.5	24.3	12.3	28.5
322,782.6	3,869,647.8	Resident	147.1	24.4	12.3	28.6
322,770.9	3,869,696.4	Resident	149.4	24.7	12.5	29.0
322,573.2	3,870,523.2	Resident	178.3	29.0	14.9	34.2
322,561.7	3,870,571.8	Resident	180.7	29.3	15.1	34.6
322,550.2	3,870,620.5	Resident	183.1	29.7	15.3	35.0
322,538.6	3,870,669.1	Resident	177.3	28.8	14.8	33.9
322,527.0	3,870,717.8	Resident	174.0	28.2	14.5	33.3
322,515.3	3,870,766.4	Resident	173.7	28.2	14.5	33.2
322,503.5	3,870,815.0	Resident	174.7	28.3	14.6	33.4
322,491.6	3,870,863.6	Resident	175.8	28.5	14.7	33.6
322,479.7	3,870,912.1	Resident	177.9	28.8	14.8	34.0
322,468.0	3,870,960.7	Resident	182.0	29.5	15.2	34.8
322,456.5	3,871,009.4	Resident	186.3	30.2	15.5	35.6
322,445.0	3,871,058.0	Resident	187.1	30.3	15.6	35.7
322,433.4	3,871,106.7	Resident	186.2	30.1	15.5	35.6
322,421.8	3,871,155.3	Resident	185.1	30.0	15.5	35.4
322,410.2	3,871,204.0	Resident	183.2	29.6	15.3	35.0
322,398.7	3,871,252.6	Resident	182.2	29.5	15.2	34.8
322,387.3	3,871,301.3	Resident	182.6	29.5	15.2	34.8
322,375.6	3,871,349.9	Resident	182.2	29.5	15.2	34.8
322,363.9	3,871,398.5	Resident	182.2	29.5	15.2	34.8
322,352.1	3,871,447.2	Resident	181.1	29.3	15.1	34.6
322,340.5	3,871,495.8	Resident	180.0	29.1	15.0	34.3
323,593.9	3,871,097.5	Resident	94.0	15.3	7.9	18.1
323,617.3	3,871,000.3	Resident	94.6	15.4	7.9	18.2
323,640.4	3,870,903.0	Resident	95.4	15.6	8.0	18.4
323,663.5	3,870,805.7	Resident	95.7	15.6	8.0	18.4
323,686.5	3,870,708.4	Resident	96.0	15.7	8.1	18.5
323,709.6	3,870,611.1	Resident	96.7	15.8	8.1	18.7
323,732.9	3,870,513.8	Resident	97.3	16.0	8.2	18.8
323,779.6	3,870,319.3	Resident	98.5	16.2	8.3	19.0

Table D.1. Cancer Risk Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2,3]	Cancer Risk Estimates (in a million)			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[4]	Future Plus Project 2040
323,802.5	3,870,222.0	Resident	98.7	16.2	8.3	19.1
323,825.7	3,870,124.7	Resident	99.1	16.3	8.3	19.2
323,942.3	3,869,638.5	Resident	103.0	17.1	8.7	20.1
323,965.3	3,869,541.2	Resident	104.2	17.3	8.8	20.3
323,989.5	3,869,444.1	Resident	104.6	17.4	8.8	20.4
324,013.4	3,869,347.0	Resident	102.0	17.1	8.6	20.0
324,036.4	3,869,249.7	Resident	103.4	17.4	8.7	20.3
324,059.2	3,869,152.3	Resident	104.4	17.6	8.8	20.6
324,353.8	3,868,202.1	Resident	75.6	14.2	6.6	16.3
323,062.5	3,867,678.1	Resident	140.4	29.5	13.7	33.8
323,070.1	3,867,777.7	Resident	141.7	29.6	13.8	34.0
323,070.4	3,867,977.5	Resident	137.8	28.5	13.3	32.7
323,032.6	3,868,173.8	Resident	121.2	24.7	11.5	28.3
323,009.9	3,868,271.2	Resident	118.3	23.8	11.0	27.2
322,986.4	3,868,368.4	Resident	109.6	21.8	10.0	24.9
322,962.2	3,868,465.4	Resident	105.0	20.5	9.4	23.4
322,940.1	3,868,562.9	Resident	103.0	19.8	9.0	22.5
322,917.6	3,868,660.4	Resident	98.3	18.5	8.4	21.1
322,894.6	3,868,757.7	Resident	97.9	18.1	8.3	20.6
322,870.8	3,868,854.8	Resident	97.0	17.7	8.1	20.1
322,847.5	3,868,952.1	Resident	99.7	17.8	8.3	20.4
322,823.2	3,869,049.1	Resident	104.6	18.4	8.6	21.1
322,800.1	3,869,146.4	Resident	107.3	18.6	8.9	21.5
322,777.2	3,869,243.7	Resident	112.4	19.3	9.3	22.3
322,754.2	3,869,341.1	Resident	113.6	19.3	9.5	22.5
322,730.7	3,869,438.3	Resident	121.1	20.4	10.1	23.8
322,706.9	3,869,535.4	Resident	122.3	20.5	10.2	23.9
322,683.4	3,869,632.6	Resident	125.5	20.9	10.5	24.5
322,497.2	3,870,410.7	Resident	143.7	23.5	12.0	27.7
322,474.1	3,870,508.0	Resident	150.0	24.5	12.5	28.8
322,451.0	3,870,605.3	Resident	151.3	24.6	12.7	29.0
322,427.8	3,870,702.5	Resident	149.3	24.3	12.5	28.6
322,404.3	3,870,799.8	Resident	145.8	23.7	12.2	28.0
322,380.4	3,870,896.9	Resident	150.0	24.4	12.5	28.7
322,334.2	3,871,091.5	Resident	158.6	25.7	13.3	30.4
322,311.1	3,871,188.8	Resident	159.2	25.8	13.3	30.5
322,288.1	3,871,286.1	Resident	159.0	25.8	13.3	30.4
322,264.7	3,871,383.3	Resident	157.8	25.5	13.2	30.2
322,241.4	3,871,480.6	Resident	157.7	25.5	13.2	30.1
322,218.1	3,871,577.8	Resident	159.2	25.8	13.3	30.4
323,707.1	3,871,055.3	Resident	84.0	13.8	7.1	16.2
323,730.2	3,870,958.0	Resident	84.3	13.8	7.1	16.3
323,776.3	3,870,763.3	Resident	84.4	13.9	7.1	16.3
323,799.4	3,870,666.0	Resident	84.8	13.9	7.1	16.4
323,822.6	3,870,568.8	Resident	85.4	14.0	7.2	16.5
323,845.9	3,870,471.5	Resident	86.1	14.2	7.2	16.7
323,869.3	3,870,374.3	Resident	86.5	14.3	7.3	16.8
323,892.4	3,870,277.0	Resident	86.7	14.3	7.3	16.8
323,915.3	3,870,179.6	Resident	87.0	14.4	7.3	16.9
324,032.2	3,869,693.5	Resident	90.6	15.1	7.6	17.7
324,054.9	3,869,596.1	Resident	90.9	15.2	7.7	17.8
324,078.9	3,869,499.0	Resident	91.4	15.3	7.7	17.9
324,103.1	3,869,402.0	Resident	89.4	15.0	7.5	17.6
324,126.2	3,869,304.7	Resident	88.4	14.9	7.5	17.4
324,149.1	3,869,207.3	Resident	90.7	15.3	7.7	17.9
324,438.6	3,868,255.4	Resident	69.7	13.0	6.1	14.9
324,486.2	3,868,167.4	Resident	64.9	12.3	5.8	14.1

Table D.1. Cancer Risk Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2,3]	Cancer Risk Estimates (in a million)			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[4]	Future Plus Project 2040
322,964.1	3,867,713.5	Resident	118.6	24.9	11.6	28.6
322,974.5	3,867,913.1	Resident	118.2	24.6	11.5	28.2
322,964.7	3,868,012.6	Resident	120.2	24.9	11.6	28.5
322,944.4	3,868,110.5	Resident	111.4	22.9	10.7	26.3
322,899.0	3,868,305.3	Resident	96.2	19.5	9.1	22.3
322,874.8	3,868,402.3	Resident	88.6	17.8	8.2	20.3
322,851.9	3,868,499.6	Resident	83.9	16.6	7.7	19.0
322,829.6	3,868,597.1	Resident	81.0	15.8	7.3	18.0
322,807.0	3,868,694.6	Resident	81.1	15.5	7.1	17.7
322,759.8	3,868,888.9	Resident	82.4	15.2	7.0	17.3
322,735.9	3,868,986.0	Resident	88.2	15.9	7.4	18.2
322,712.0	3,869,083.1	Resident	90.2	16.0	7.5	18.4
322,689.4	3,869,180.5	Resident	93.8	16.4	7.8	18.9
322,666.4	3,869,277.9	Resident	97.6	16.9	8.1	19.5
322,643.2	3,869,375.1	Resident	103.6	17.7	8.6	20.6
322,619.4	3,869,472.3	Resident	103.4	17.6	8.6	20.4
322,595.7	3,869,569.4	Resident	106.2	17.9	8.9	20.9
322,572.3	3,869,666.7	Resident	108.3	18.2	9.1	21.2
322,433.0	3,870,250.3	Resident	121.4	20.0	10.2	23.5
322,409.5	3,870,347.5	Resident	130.3	21.4	10.9	25.1
322,386.3	3,870,444.8	Resident	127.5	20.9	10.7	24.6
322,363.2	3,870,542.1	Resident	130.1	21.3	10.9	25.1
322,340.0	3,870,639.4	Resident	131.5	21.5	11.0	25.3
322,316.7	3,870,736.6	Resident	129.5	21.1	10.8	24.9
322,269.5	3,870,931.0	Resident	133.4	21.7	11.2	25.6
322,246.5	3,871,028.3	Resident	136.7	22.2	11.4	26.2
322,223.3	3,871,125.6	Resident	140.9	22.9	11.8	27.0
322,200.2	3,871,222.9	Resident	141.7	23.0	11.8	27.1
322,177.0	3,871,320.2	Resident	140.1	22.7	11.7	26.8
322,153.6	3,871,417.4	Resident	140.3	22.8	11.7	26.9
322,130.5	3,871,514.7	Resident	140.5	22.8	11.7	26.9
322,106.9	3,871,611.9	Resident	138.9	22.5	11.6	26.6
323,819.9	3,871,012.9	Resident	75.5	12.4	6.3	14.6
323,843.0	3,870,915.6	Resident	75.3	12.4	6.3	14.6
323,866.1	3,870,818.3	Resident	75.4	12.4	6.3	14.6
323,889.1	3,870,721.0	Resident	75.6	12.4	6.4	14.6
323,912.2	3,870,623.7	Resident	75.9	12.5	6.4	14.7
323,935.6	3,870,526.5	Resident	76.4	12.6	6.4	14.8
323,958.9	3,870,429.2	Resident	77.0	12.7	6.5	14.9
323,982.2	3,870,332.0	Resident	77.6	12.8	6.5	15.1
324,005.0	3,870,234.6	Resident	77.6	12.9	6.5	15.1
324,052.0	3,870,040.2	Resident	78.2	13.0	6.6	15.3
324,075.2	3,869,942.9	Resident	78.5	13.1	6.6	15.3
324,098.5	3,869,845.7	Resident	78.6	13.1	6.6	15.4
324,121.9	3,869,748.4	Resident	80.1	13.4	6.8	15.7
324,144.8	3,869,651.1	Resident	80.4	13.5	6.8	15.8
324,168.3	3,869,553.9	Resident	80.9	13.6	6.8	15.9
324,431.4	3,868,486.0	Resident	70.5	12.7	6.0	14.6
324,475.8	3,868,396.5	Resident	68.0	12.4	5.8	14.2
324,523.5	3,868,308.6	Resident	64.5	11.9	5.6	13.7
324,571.2	3,868,220.7	Resident	61.8	11.5	5.4	13.2
322,861.1	3,867,648.7	Resident	103.2	21.7	10.1	24.9
322,866.3	3,867,748.5	Resident	102.8	21.6	10.1	24.8
322,872.9	3,867,848.3	Resident	101.2	21.2	9.9	24.3
322,872.4	3,867,948.1	Resident	104.4	21.8	10.2	24.9
322,856.2	3,868,046.8	Resident	99.2	20.6	9.6	23.6
322,834.2	3,868,144.3	Resident	92.9	19.2	9.0	22.0

Table D.1. Cancer Risk Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2,3]	Cancer Risk Estimates (in a million)			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[4]	Future Plus Project 2040
322,811.3	3,868,241.7	Resident	86.9	17.9	8.3	20.5
322,763.7	3,868,435.9	Resident	74.4	15.1	7.0	17.2
322,741.6	3,868,533.5	Resident	70.7	14.2	6.6	16.2
322,719.1	3,868,630.9	Resident	70.7	13.9	6.4	15.9
322,695.9	3,868,728.2	Resident	69.7	13.5	6.2	15.4
322,672.2	3,868,825.4	Resident	71.2	13.5	6.2	15.4
322,648.7	3,868,922.5	Resident	73.7	13.7	6.3	15.7
322,624.4	3,869,019.6	Resident	75.1	13.8	6.4	15.7
322,601.6	3,869,116.9	Resident	78.2	14.1	6.6	16.1
322,578.7	3,869,214.3	Resident	80.5	14.3	6.7	16.4
322,555.6	3,869,311.6	Resident	85.3	14.9	7.1	17.2
322,461.4	3,869,700.4	Resident	95.2	16.1	8.0	18.8
322,438.1	3,869,797.6	Resident	97.2	16.3	8.2	19.1
322,414.6	3,869,894.8	Resident	98.7	16.5	8.3	19.3
322,391.6	3,869,992.1	Resident	101.2	16.9	8.5	19.8
322,322.0	3,870,284.0	Resident	109.1	18.0	9.2	21.2
322,298.6	3,870,381.2	Resident	113.4	18.7	9.5	21.9
322,275.5	3,870,478.5	Resident	114.3	18.8	9.6	22.1
322,252.4	3,870,575.8	Resident	116.3	19.1	9.8	22.5
322,205.6	3,870,770.3	Resident	117.5	19.2	9.8	22.6
322,181.7	3,870,867.4	Resident	116.2	19.0	9.7	22.4
322,158.8	3,870,964.7	Resident	115.8	18.9	9.7	22.3
322,135.6	3,871,062.0	Resident	120.5	19.6	10.1	23.2
322,112.5	3,871,159.3	Resident	125.2	20.4	10.5	24.0
322,089.5	3,871,256.6	Resident	125.0	20.3	10.5	24.0
322,066.0	3,871,353.8	Resident	125.1	20.3	10.5	24.0
322,042.8	3,871,451.1	Resident	127.4	20.7	10.7	24.4
322,019.4	3,871,548.3	Resident	129.3	21.0	10.8	24.8
321,995.9	3,871,645.5	Resident	130.2	21.1	10.9	24.9
323,909.6	3,871,067.9	Resident	68.9	11.3	5.8	13.3
323,932.7	3,870,970.6	Resident	68.3	11.3	5.8	13.2
323,955.8	3,870,873.3	Resident	68.4	11.3	5.8	13.3
323,978.8	3,870,775.9	Resident	68.3	11.3	5.8	13.3
324,001.9	3,870,678.7	Resident	68.4	11.3	5.8	13.3
324,025.2	3,870,581.4	Resident	68.8	11.4	5.8	13.4
324,048.6	3,870,484.2	Resident	69.0	11.4	5.8	13.4
324,071.9	3,870,386.9	Resident	69.5	11.5	5.9	13.5
324,164.9	3,869,997.8	Resident	71.4	11.9	6.0	14.0
324,188.2	3,869,900.6	Resident	71.9	12.0	6.1	14.1
324,211.6	3,869,803.4	Resident	72.3	12.1	6.1	14.2
324,443.1	3,868,830.5	Resident	68.1	11.9	5.8	13.8
324,467.3	3,868,733.5	Resident	67.8	11.9	5.8	13.8
324,491.7	3,868,636.5	Resident	66.5	11.8	5.7	13.6
324,518.3	3,868,540.1	Resident	64.7	11.6	5.6	13.4
324,560.7	3,868,449.8	Resident	61.0	11.1	5.3	12.8
324,608.3	3,868,361.9	Resident	59.5	10.9	5.1	12.5
324,701.9	3,868,185.2	Resident	55.5	10.4	4.9	11.9
324,751.1	3,868,098.1	Resident	51.7	9.8	4.6	11.3
322,758.6	3,867,583.6	Resident	87.5	18.5	8.6	21.2
322,762.4	3,867,683.5	Resident	87.9	18.5	8.6	21.2
322,769.2	3,867,783.3	Resident	91.2	19.1	8.9	22.0
322,774.3	3,867,883.1	Resident	90.5	19.0	8.9	21.7
322,766.7	3,867,982.6	Resident	86.2	18.0	8.4	20.6
322,746.1	3,868,080.4	Resident	82.3	17.1	8.0	19.6
322,723.7	3,868,177.9	Resident	77.7	16.1	7.5	18.4
322,700.5	3,868,275.2	Resident	72.6	15.0	7.0	17.1
322,676.2	3,868,372.2	Resident	68.4	14.0	6.5	16.0

Table D.1. Cancer Risk Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2,3]	Cancer Risk Estimates (in a million)			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[4]	Future Plus Project 2040
322,631.3	3,868,567.1	Resident	63.7	12.8	6.0	14.7
322,608.6	3,868,664.5	Resident	61.8	12.3	5.7	14.0
322,584.7	3,868,761.6	Resident	62.4	12.2	5.6	13.9
322,561.3	3,868,858.8	Resident	62.8	12.1	5.6	13.8
322,537.2	3,868,955.9	Resident	64.3	12.1	5.6	13.8
322,513.7	3,869,053.1	Resident	67.4	12.5	5.8	14.2
322,491.0	3,869,150.5	Resident	67.3	12.3	5.7	14.1
322,350.5	3,869,733.8	Resident	84.2	14.3	7.1	16.7
322,327.3	3,869,831.1	Resident	85.9	14.5	7.2	17.0
322,303.7	3,869,928.3	Resident	87.3	14.7	7.3	17.2
322,211.1	3,870,317.4	Resident	99.0	16.4	8.3	19.2
322,187.8	3,870,414.7	Resident	102.8	17.0	8.6	19.9
322,141.6	3,870,609.3	Resident	105.3	17.3	8.8	20.4
322,118.2	3,870,706.5	Resident	105.7	17.4	8.9	20.4
322,094.4	3,870,803.7	Resident	104.8	17.2	8.8	20.2
322,071.1	3,870,900.9	Resident	103.1	16.9	8.6	19.9
322,048.0	3,870,998.2	Resident	100.9	16.5	8.5	19.5
322,024.9	3,871,095.5	Resident	108.2	17.7	9.1	20.8
322,001.8	3,871,192.8	Resident	111.9	18.3	9.4	21.5
321,978.5	3,871,290.1	Resident	112.2	18.3	9.4	21.6
321,955.2	3,871,387.3	Resident	115.5	18.8	9.7	22.2
321,932.0	3,871,484.6	Resident	119.2	19.4	10.0	22.8
324,022.5	3,871,025.5	Resident	62.2	10.3	5.2	12.1
324,045.6	3,870,928.2	Resident	62.1	10.3	5.2	12.1
324,068.6	3,870,830.9	Resident	62.2	10.3	5.2	12.1
324,091.7	3,870,733.6	Resident	62.2	10.3	5.3	12.1
324,114.9	3,870,636.3	Resident	62.5	10.4	5.3	12.2
324,138.3	3,870,539.1	Resident	62.7	10.4	5.3	12.2
324,161.6	3,870,441.8	Resident	63.0	10.5	5.3	12.3
324,184.7	3,870,344.6	Resident	63.1	10.5	5.3	12.3
324,207.6	3,870,247.2	Resident	63.5	10.6	5.4	12.4
324,231.2	3,870,150.0	Resident	64.0	10.7	5.4	12.5
324,441.4	3,869,274.9	Resident	64.1	11.0	5.5	12.8
324,464.2	3,869,177.5	Resident	64.0	11.0	5.4	12.8
324,487.4	3,869,080.2	Resident	64.0	11.0	5.5	12.9
324,510.3	3,868,982.9	Resident	63.3	11.0	5.4	12.8
324,533.0	3,868,885.5	Resident	62.4	10.9	5.3	12.7
324,556.7	3,868,788.3	Resident	61.8	10.9	5.3	12.6
324,581.0	3,868,691.3	Resident	61.1	10.8	5.2	12.5
324,605.5	3,868,594.4	Resident	60.0	10.7	5.2	12.4
324,645.6	3,868,503.1	Resident	57.6	10.4	5.0	12.0
324,693.2	3,868,415.1	Resident	55.1	10.0	4.8	11.6
324,786.7	3,868,238.4	Resident	52.3	9.7	4.6	11.1
324,836.0	3,868,151.4	Resident	49.3	9.3	4.4	10.6
322,659.8	3,867,617.8	Resident	78.3	16.5	7.7	18.9
322,671.4	3,867,817.4	Resident	78.5	16.5	7.7	18.9
322,674.4	3,867,917.4	Resident	77.9	16.3	7.6	18.7
322,658.1	3,868,016.0	Resident	74.6	15.6	7.3	17.9
322,636.1	3,868,113.5	Resident	70.6	14.7	6.9	16.9
322,613.1	3,868,210.8	Resident	65.9	13.7	6.4	15.7
322,589.2	3,868,307.9	Resident	63.0	13.0	6.1	14.9
322,565.6	3,868,405.1	Resident	59.4	12.2	5.7	14.0
322,543.5	3,868,502.7	Resident	58.1	11.9	5.5	13.6
322,521.0	3,868,600.1	Resident	57.5	11.6	5.4	13.3
322,497.5	3,868,697.3	Resident	56.5	11.3	5.2	12.9
322,473.9	3,868,794.5	Resident	54.9	10.8	5.0	12.4
322,450.2	3,868,891.6	Resident	55.2	10.7	5.0	12.2

Table D.1. Cancer Risk Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2,3]	Cancer Risk Estimates (in a million)			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[4]	Future Plus Project 2040
322,426.0	3,868,988.7	Resident	57.0	10.9	5.0	12.4
322,263.1	3,869,669.5	Resident	72.5	12.5	6.1	14.5
322,239.9	3,869,766.8	Resident	75.5	12.9	6.4	15.0
322,216.3	3,869,863.9	Resident	77.0	13.1	6.5	15.3
322,193.4	3,869,961.3	Resident	78.9	13.3	6.6	15.6
322,100.3	3,870,350.3	Resident	90.9	15.1	7.6	17.7
322,077.3	3,870,447.7	Resident	94.2	15.6	7.9	18.3
322,054.1	3,870,544.9	Resident	96.5	15.9	8.1	18.7
322,030.8	3,870,642.2	Resident	96.0	15.8	8.1	18.6
322,007.2	3,870,739.4	Resident	97.0	16.0	8.1	18.8
321,983.5	3,870,836.5	Resident	96.8	15.9	8.1	18.7
321,960.5	3,870,933.9	Resident	95.7	15.7	8.0	18.5
321,937.4	3,871,031.2	Resident	97.5	16.0	8.2	18.8
321,914.3	3,871,128.4	Resident	102.3	16.7	8.6	19.7
324,327.6	3,870,822.3	Resident	50.9	8.5	4.3	9.9
324,385.7	3,870,579.2	Resident	51.3	8.6	4.3	10.0
324,443.5	3,870,336.0	Resident	52.6	8.8	4.5	10.3
324,618.9	3,869,606.7	Resident	52.4	8.9	4.5	10.4
324,677.4	3,869,363.7	Resident	52.4	9.0	4.5	10.5
324,857.9	3,868,636.2	Resident	49.3	8.8	4.3	10.2
324,976.5	3,868,416.2	Resident	46.6	8.4	4.1	9.8
325,094.8	3,868,196.0	Resident	44.2	8.1	3.9	9.4
322,410.8	3,867,650.0	Resident	57.4	12.1	5.7	13.9
322,424.4	3,867,899.6	Resident	56.4	11.8	5.5	13.6
322,372.0	3,868,143.8	Resident	50.8	10.6	5.0	12.2
322,313.5	3,868,386.9	Resident	48.0	9.9	4.7	11.4
322,256.5	3,868,630.3	Resident	45.8	9.4	4.4	10.7
322,139.4	3,869,116.4	Resident	46.9	9.0	4.2	10.3
322,022.1	3,869,602.5	Resident	54.1	9.7	4.6	11.1
321,906.1	3,870,088.9	Resident	66.2	11.3	5.6	13.1
324,377.5	3,871,689.2	Resident	42.8	7.1	3.6	8.4
324,435.8	3,871,446.1	Resident	42.8	7.1	3.6	8.4
324,609.9	3,870,716.5	Resident	43.5	7.3	3.7	8.6
324,784.5	3,869,987.1	Resident	43.8	7.4	3.7	8.7
324,901.8	3,869,501.1	Resident	43.8	7.5	3.7	8.8
325,307.4	3,868,329.1	Resident	39.4	7.2	3.5	8.3
322,163.9	3,867,729.1	Resident	43.7	9.2	4.3	10.6
322,154.4	3,867,976.6	Resident	41.5	8.7	4.1	10.0
322,095.8	3,868,219.7	Resident	40.0	8.4	3.9	9.6
322,039.4	3,868,463.2	Resident	37.6	7.8	3.7	9.0
321,980.9	3,868,706.3	Resident	37.1	7.6	3.6	8.7
321,921.9	3,868,949.3	Resident	37.0	7.5	3.5	8.6
321,864.3	3,869,192.5	Resident	35.5	7.0	3.3	8.0
324,543.9	3,872,069.8	Resident	37.0	6.2	3.1	7.2
324,602.0	3,871,826.7	Resident	37.1	6.2	3.1	7.3
324,660.2	3,871,583.5	Resident	37.4	6.2	3.2	7.3
324,718.4	3,871,340.4	Resident	37.3	6.2	3.2	7.3
324,950.2	3,870,367.6	Resident	37.9	6.4	3.2	7.5
325,008.6	3,870,124.5	Resident	37.8	6.4	3.2	7.5
325,126.2	3,869,638.5	Resident	37.7	6.5	3.2	7.6
325,241.1	3,869,151.8	Resident	37.9	6.6	3.3	7.7
325,299.7	3,868,908.8	Resident	37.5	6.6	3.2	7.7
325,520.0	3,868,462.1	Resident	36.0	6.5	3.1	7.5
325,637.8	3,868,241.6	Resident	35.2	6.4	3.1	7.4
321,903.7	3,867,557.4	Resident	35.6	7.5	3.5	8.6
321,917.9	3,867,807.0	Resident	36.2	7.6	3.6	8.7
321,879.9	3,868,051.9	Resident	34.4	7.2	3.4	8.3

Table D.1. Cancer Risk Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2,3]	Cancer Risk Estimates (in a million)			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[4]	Future Plus Project 2040
321,821.6	3,868,295.0	Resident	32.8	6.9	3.2	7.9
321,764.2	3,868,538.3	Resident	32.6	6.8	3.2	7.8
321,704.7	3,868,781.2	Resident	32.4	6.7	3.1	7.7
324,826.2	3,871,964.0	Resident	32.7	5.5	2.8	6.4
324,942.3	3,871,477.6	Resident	32.9	5.5	2.8	6.5
325,000.7	3,871,234.6	Resident	32.9	5.5	2.8	6.5
325,174.3	3,870,504.9	Resident	33.3	5.6	2.8	6.6
325,232.8	3,870,261.8	Resident	33.1	5.6	2.8	6.6
325,291.2	3,870,018.7	Resident	33.1	5.7	2.8	6.6
325,349.8	3,869,775.7	Resident	33.2	5.7	2.8	6.7
325,408.2	3,869,532.6	Resident	33.3	5.8	2.9	6.7
325,523.1	3,869,046.0	Resident	33.5	5.9	2.9	6.8
325,732.6	3,868,595.2	Resident	32.7	5.8	2.8	6.7
325,850.2	3,868,374.6	Resident	31.8	5.7	2.8	6.6
325,967.5	3,868,153.8	Resident	31.1	5.6	2.7	6.5
325,391.0	3,871,752.4	Resident	26.5	4.5	2.3	5.2
325,739.4	3,870,293.4	Resident	27.1	4.6	2.3	5.4
325,971.8	3,869,320.7	Resident	27.1	4.7	2.3	5.5
326,392.6	3,868,419.7	Resident	25.8	4.6	2.3	5.3
326,619.9	3,867,974.5	Resident	24.5	4.4	2.2	5.1
326,420.7	3,869,595.6	Resident	23.0	4.0	2.0	4.7
326,582.1	3,869,126.6	Resident	22.8	4.0	2.0	4.7
326,817.8	3,868,685.6	Resident	22.3	3.9	1.9	4.6
327,047.2	3,868,241.4	Resident	21.4	3.8	1.9	4.4
328,364.6	3,867,354.6	Resident	10.6	2.0	1.0	2.3
326,334.9	3,868,717.1	School	3.5	0.6	0.3	0.7
324,761.8	3,871,620.5	School	4.9	0.8	0.4	1.0
324,028.5	3,870,137.4	School	10.8	1.8	0.9	2.1
322,532.0	3,869,408.8	School	12.2	2.1	1.0	2.4
322,508.2	3,869,505.9	School	12.7	2.2	1.1	2.5
322,484.8	3,869,603.1	School	12.6	2.1	1.1	2.5
324,118.1	3,870,192.3	School	9.7	1.6	0.8	1.9
324,141.6	3,870,095.1	School	9.8	1.6	0.8	1.9
322,420.9	3,869,442.2	School	10.8	1.9	0.9	2.2
322,397.3	3,869,539.4	School	11.0	1.9	0.9	2.2
322,333.7	3,869,377.9	School	9.5	1.7	0.8	1.9
322,309.9	3,869,475.0	School	9.9	1.7	0.8	2.0
322,286.5	3,869,572.3	School	10.0	1.7	0.8	2.0
322,147.2	3,870,155.9	School	11.6	1.9	1.0	2.3
322,123.7	3,870,253.1	School	12.0	2.0	1.0	2.3
324,792.3	3,868,877.0	School	7.0	1.2	0.6	1.4
325,857.0	3,869,807.4	School	3.8	0.6	0.3	0.8

Notes:
1. The projection datum is WGS-84.
2. Receptor types are designated based on the Project's conceptual land use map seen in Figure 1.
3. Exposure periods vary with receptor type. Refer to Section 4.2 for further details.
4. Traffic data were provided for calendar year 2015. Since the project will not be built out until calendar year 2040, emission factors from for calendar year 2040 were used for these health risk estimates.

Abbreviations:
UTM - Universal Transverse Mercator
WGS - World Geodetic System

Source:
\\wcirvfps1\projects\T\Tejon Ranch\Report\Appendix D_HRA at Sensitive Receptors\Grapevine_I-5_HRA_Report_Appendix D\[HARP2_Results_Summary.xlsx]D.1_Cancer Summary

Table D.2. Chronic Noncancer Hazard Index Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2]	Chronic Noncancer Hazard Index Estimates			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[3]	Future Plus Project 2040
321817.3	3867538.8	Resident	6.73E-03	1.42E-03	6.64E-04	1.63E-03
321812.1	3867638.7	Resident	6.73E-03	1.42E-03	6.64E-04	1.63E-03
321807.0	3867738.5	Resident	6.66E-03	1.40E-03	6.57E-04	1.61E-03
321801.8	3867838.4	Resident	6.69E-03	1.41E-03	6.59E-04	1.62E-03
321796.6	3867938.3	Resident	6.61E-03	1.39E-03	6.51E-04	1.60E-03
321791.4	3868038.1	Resident	6.55E-03	1.38E-03	6.45E-04	1.58E-03
321786.2	3868138.0	Resident	6.54E-03	1.37E-03	6.43E-04	1.57E-03
321753.7	3868209.6	Resident	6.39E-03	1.34E-03	6.27E-04	1.54E-03
321653.7	3868211.5	Resident	6.10E-03	1.28E-03	5.99E-04	1.47E-03
321625.7	3868283.4	Resident	6.12E-03	1.28E-03	6.00E-04	1.47E-03
321626.5	3868383.4	Resident	6.08E-03	1.27E-03	5.96E-04	1.46E-03
321627.2	3868483.4	Resident	6.15E-03	1.28E-03	6.01E-04	1.47E-03
321628.0	3868583.4	Resident	6.14E-03	1.28E-03	5.99E-04	1.47E-03
321628.8	3868683.4	Resident	6.28E-03	1.30E-03	6.11E-04	1.49E-03
321629.6	3868783.4	Resident	6.36E-03	1.31E-03	6.16E-04	1.51E-03
321630.4	3868883.4	Resident	6.33E-03	1.30E-03	6.09E-04	1.49E-03
321636.1	3868982.3	Resident	6.38E-03	1.30E-03	6.08E-04	1.49E-03
321678.4	3869073.0	Resident	6.63E-03	1.34E-03	6.25E-04	1.53E-03
321720.7	3869163.6	Resident	6.86E-03	1.37E-03	6.37E-04	1.56E-03
321762.9	3869254.2	Resident	6.97E-03	1.37E-03	6.38E-04	1.57E-03
321805.2	3869344.8	Resident	7.39E-03	1.43E-03	6.63E-04	1.63E-03
321847.5	3869435.5	Resident	8.42E-03	1.58E-03	7.35E-04	1.81E-03
321873.7	3869529.9	Resident	8.99E-03	1.66E-03	7.74E-04	1.90E-03
321875.9	3869629.8	Resident	8.88E-03	1.62E-03	7.63E-04	1.86E-03
321878.1	3869729.8	Resident	1.04E-02	1.84E-03	8.80E-04	2.13E-03
321880.3	3869829.8	Resident	1.12E-02	1.96E-03	9.45E-04	2.26E-03
321882.5	3869929.8	Resident	1.14E-02	1.98E-03	9.67E-04	2.30E-03
321884.8	3870029.8	Resident	1.26E-02	2.16E-03	1.06E-03	2.51E-03
321887.0	3870129.8	Resident	1.36E-02	2.30E-03	1.15E-03	2.69E-03
321889.2	3870229.7	Resident	1.40E-02	2.36E-03	1.18E-03	2.76E-03
321891.4	3870329.7	Resident	1.49E-02	2.50E-03	1.26E-03	2.92E-03
321893.6	3870429.7	Resident	1.65E-02	2.75E-03	1.39E-03	3.22E-03
321895.8	3870529.7	Resident	1.70E-02	2.82E-03	1.43E-03	3.32E-03
321898.1	3870629.7	Resident	1.74E-02	2.89E-03	1.47E-03	3.39E-03
321900.3	3870729.6	Resident	1.85E-02	3.05E-03	1.55E-03	3.58E-03
321902.5	3870829.6	Resident	1.89E-02	3.11E-03	1.59E-03	3.66E-03
321904.7	3870929.6	Resident	1.88E-02	3.09E-03	1.58E-03	3.64E-03
321906.9	3871029.6	Resident	1.95E-02	3.19E-03	1.63E-03	3.76E-03
321909.1	3871129.6	Resident	2.07E-02	3.39E-03	1.73E-03	3.99E-03
321911.4	3871229.6	Resident	2.14E-02	3.49E-03	1.79E-03	4.11E-03
321913.6	3871329.5	Resident	2.21E-02	3.60E-03	1.85E-03	4.24E-03
321915.8	3871429.5	Resident	2.32E-02	3.78E-03	1.94E-03	4.46E-03
321918.0	3871529.5	Resident	2.44E-02	3.97E-03	2.04E-03	4.69E-03
321920.2	3871629.5	Resident	2.54E-02	4.12E-03	2.12E-03	4.86E-03
324995.6	3872185.7	Resident	6.00E-03	1.00E-03	5.10E-04	1.18E-03
325095.6	3872184.1	Resident	5.74E-03	9.61E-04	4.89E-04	1.13E-03
325195.6	3872182.5	Resident	5.50E-03	9.21E-04	4.68E-04	1.08E-03
325295.6	3872180.8	Resident	5.27E-03	8.84E-04	4.49E-04	1.04E-03
325395.5	3872179.2	Resident	5.05E-03	8.48E-04	4.30E-04	9.96E-04
325495.5	3872177.6	Resident	4.86E-03	8.17E-04	4.14E-04	9.59E-04
323255.1	3871224.5	Resident	3.22E-02	5.21E-03	2.69E-03	6.15E-03
323266.6	3871175.8	Resident	3.24E-02	5.23E-03	2.70E-03	6.17E-03
323278.1	3871127.2	Resident	3.26E-02	5.26E-03	2.72E-03	6.21E-03
323289.7	3871078.5	Resident	3.24E-02	5.23E-03	2.70E-03	6.18E-03
323301.5	3871029.9	Resident	3.23E-02	5.22E-03	2.70E-03	6.16E-03
323313.4	3870981.4	Resident	3.22E-02	5.20E-03	2.69E-03	6.14E-03
323325.0	3870932.7	Resident	3.22E-02	5.20E-03	2.69E-03	6.14E-03
323336.6	3870884.1	Resident	3.21E-02	5.20E-03	2.68E-03	6.13E-03

Table D.2. Chronic Noncancer Hazard Index Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2]	Chronic Noncancer Hazard Index Estimates			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[3]	Future Plus Project 2040
323348.1	3870835.4	Resident	3.23E-02	5.22E-03	2.70E-03	6.16E-03
323359.7	3870786.8	Resident	3.24E-02	5.25E-03	2.71E-03	6.19E-03
323371.2	3870738.1	Resident	3.26E-02	5.28E-03	2.73E-03	6.23E-03
323382.7	3870689.5	Resident	3.28E-02	5.32E-03	2.74E-03	6.27E-03
323394.2	3870640.8	Resident	3.34E-02	5.40E-03	2.79E-03	6.38E-03
323405.7	3870592.2	Resident	3.33E-02	5.40E-03	2.79E-03	6.37E-03
323417.3	3870543.5	Resident	3.34E-02	5.40E-03	2.79E-03	6.37E-03
323428.9	3870494.9	Resident	3.34E-02	5.42E-03	2.79E-03	6.39E-03
323440.6	3870446.3	Resident	3.33E-02	5.40E-03	2.78E-03	6.37E-03
323452.3	3870397.6	Resident	3.33E-02	5.40E-03	2.78E-03	6.36E-03
323371.8	3867980.9	Resident	5.08E-02	1.04E-02	4.79E-03	1.19E-02
323366.1	3868030.6	Resident	5.11E-02	1.04E-02	4.76E-03	1.18E-02
323359.0	3868080.1	Resident	5.13E-02	1.03E-02	4.72E-03	1.18E-02
323349.6	3868129.2	Resident	5.06E-02	1.01E-02	4.60E-03	1.15E-02
323339.2	3868178.1	Resident	5.02E-02	9.88E-03	4.48E-03	1.12E-02
323328.2	3868226.8	Resident	4.98E-02	9.68E-03	4.37E-03	1.10E-02
323317.2	3868275.6	Resident	4.70E-02	9.04E-03	4.06E-03	1.03E-02
323305.6	3868324.3	Resident	4.60E-02	8.74E-03	3.90E-03	9.89E-03
323294.1	3868372.9	Resident	4.46E-02	8.37E-03	3.72E-03	9.46E-03
323282.4	3868421.5	Resident	4.33E-02	8.03E-03	3.56E-03	9.07E-03
323270.2	3868470.0	Resident	4.35E-02	7.95E-03	3.50E-03	8.96E-03
323258.1	3868518.5	Resident	4.42E-02	7.95E-03	3.49E-03	8.95E-03
323246.7	3868567.2	Resident	4.53E-02	8.04E-03	3.54E-03	9.06E-03
323235.7	3868616.0	Resident	4.59E-02	8.05E-03	3.57E-03	9.09E-03
323224.5	3868664.7	Resident	4.66E-02	8.09E-03	3.63E-03	9.17E-03
322618.4	3871193.2	Resident	5.40E-02	8.69E-03	4.50E-03	1.03E-02
322606.8	3871241.9	Resident	5.40E-02	8.69E-03	4.49E-03	1.03E-02
322595.3	3871290.5	Resident	5.41E-02	8.71E-03	4.50E-03	1.03E-02
322583.8	3871339.2	Resident	5.39E-02	8.68E-03	4.49E-03	1.03E-02
322572.2	3871387.8	Resident	5.39E-02	8.67E-03	4.49E-03	1.02E-02
322560.5	3871436.4	Resident	5.44E-02	8.76E-03	4.53E-03	1.04E-02
323311.5	3871203.3	Resident	2.88E-02	4.66E-03	2.40E-03	5.50E-03
323323.0	3871154.6	Resident	2.89E-02	4.67E-03	2.41E-03	5.51E-03
323334.5	3871106.0	Resident	2.89E-02	4.67E-03	2.41E-03	5.52E-03
323346.3	3871057.4	Resident	2.88E-02	4.66E-03	2.40E-03	5.50E-03
323358.2	3871008.8	Resident	2.88E-02	4.66E-03	2.40E-03	5.50E-03
323369.9	3870960.2	Resident	2.87E-02	4.66E-03	2.40E-03	5.49E-03
323381.4	3870911.6	Resident	2.87E-02	4.66E-03	2.40E-03	5.50E-03
323393.0	3870862.9	Resident	2.88E-02	4.66E-03	2.40E-03	5.50E-03
323404.5	3870814.3	Resident	2.89E-02	4.69E-03	2.42E-03	5.54E-03
323416.1	3870765.6	Resident	2.91E-02	4.72E-03	2.43E-03	5.57E-03
323427.6	3870717.0	Resident	2.94E-02	4.76E-03	2.45E-03	5.62E-03
323439.1	3870668.3	Resident	2.96E-02	4.80E-03	2.47E-03	5.66E-03
323450.6	3870619.6	Resident	2.98E-02	4.84E-03	2.49E-03	5.71E-03
323462.2	3870571.0	Resident	3.00E-02	4.87E-03	2.51E-03	5.75E-03
323473.7	3870522.3	Resident	3.00E-02	4.87E-03	2.51E-03	5.74E-03
323485.4	3870473.7	Resident	2.99E-02	4.86E-03	2.50E-03	5.73E-03
323497.1	3870425.1	Resident	2.99E-02	4.86E-03	2.50E-03	5.72E-03
323508.8	3870376.5	Resident	3.00E-02	4.87E-03	2.51E-03	5.74E-03
323765.9	3869306.9	Resident	3.23E-02	5.34E-03	2.71E-03	6.26E-03
323777.5	3869258.3	Resident	3.24E-02	5.36E-03	2.71E-03	6.29E-03
323800.5	3869160.9	Resident	3.27E-02	5.43E-03	2.74E-03	6.37E-03
323811.9	3869112.2	Resident	3.29E-02	5.47E-03	2.76E-03	6.41E-03
323823.2	3869063.6	Resident	3.31E-02	5.51E-03	2.77E-03	6.45E-03
323834.8	3869014.9	Resident	3.29E-02	5.49E-03	2.75E-03	6.42E-03
323846.4	3868966.3	Resident	3.26E-02	5.45E-03	2.73E-03	6.37E-03
323857.9	3868917.6	Resident	3.07E-02	5.16E-03	2.57E-03	6.02E-03
323869.3	3868868.9	Resident	2.92E-02	4.94E-03	2.44E-03	5.75E-03

Table D.2. Chronic Noncancer Hazard Index Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2]	Chronic Noncancer Hazard Index Estimates			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[3]	Future Plus Project 2040
323880.7	3868820.2	Resident	3.01E-02	5.09E-03	2.51E-03	5.92E-03
323892.1	3868771.5	Resident	3.02E-02	5.13E-03	2.52E-03	5.96E-03
323903.5	3868722.9	Resident	3.09E-02	5.25E-03	2.57E-03	6.09E-03
323915.2	3868674.3	Resident	3.13E-02	5.34E-03	2.60E-03	6.18E-03
323927.3	3868625.7	Resident	3.12E-02	5.35E-03	2.59E-03	6.19E-03
323939.4	3868577.2	Resident	3.12E-02	5.37E-03	2.58E-03	6.20E-03
323951.6	3868528.7	Resident	3.06E-02	5.31E-03	2.52E-03	6.11E-03
323963.9	3868480.3	Resident	2.97E-02	5.20E-03	2.43E-03	5.95E-03
323976.0	3868431.7	Resident	3.04E-02	5.35E-03	2.50E-03	6.12E-03
323990.3	3868383.9	Resident	3.06E-02	5.41E-03	2.51E-03	6.18E-03
324006.7	3868336.6	Resident	2.72E-02	4.92E-03	2.26E-03	5.60E-03
324025.0	3868290.1	Resident	2.45E-02	4.51E-03	2.07E-03	5.14E-03
323319.9	3867996.1	Resident	4.53E-02	9.26E-03	4.27E-03	1.06E-02
323313.5	3868045.7	Resident	4.52E-02	9.18E-03	4.23E-03	1.05E-02
323305.2	3868095.0	Resident	4.48E-02	9.01E-03	4.14E-03	1.03E-02
323295.6	3868144.1	Resident	4.46E-02	8.88E-03	4.06E-03	1.01E-02
323284.6	3868192.8	Resident	4.41E-02	8.70E-03	3.96E-03	9.90E-03
323273.6	3868241.6	Resident	4.27E-02	8.35E-03	3.78E-03	9.49E-03
323262.3	3868290.3	Resident	4.03E-02	7.81E-03	3.53E-03	8.86E-03
323250.7	3868339.0	Resident	3.89E-02	7.45E-03	3.35E-03	8.45E-03
323239.2	3868387.6	Resident	3.77E-02	7.13E-03	3.19E-03	8.08E-03
323227.2	3868436.2	Resident	3.77E-02	7.04E-03	3.14E-03	7.96E-03
323215.0	3868484.7	Resident	3.84E-02	7.06E-03	3.13E-03	7.97E-03
323203.1	3868533.2	Resident	3.83E-02	6.95E-03	3.08E-03	7.85E-03
323192.1	3868582.0	Resident	3.92E-02	7.02E-03	3.11E-03	7.92E-03
323181.0	3868630.8	Resident	3.96E-02	7.00E-03	3.12E-03	7.92E-03
322680.2	3870721.7	Resident	4.78E-02	7.72E-03	3.99E-03	9.12E-03
322668.6	3870770.4	Resident	4.74E-02	7.66E-03	3.95E-03	9.04E-03
322656.9	3870819.0	Resident	4.71E-02	7.61E-03	3.93E-03	8.99E-03
322645.1	3870867.6	Resident	4.73E-02	7.64E-03	3.94E-03	9.02E-03
322633.1	3870916.1	Resident	4.77E-02	7.70E-03	3.98E-03	9.10E-03
322621.2	3870964.7	Resident	4.80E-02	7.75E-03	4.00E-03	9.15E-03
322586.6	3871110.6	Resident	4.86E-02	7.85E-03	4.05E-03	9.27E-03
322575.1	3871159.3	Resident	4.87E-02	7.85E-03	4.05E-03	9.27E-03
322563.5	3871207.9	Resident	4.84E-02	7.81E-03	4.03E-03	9.22E-03
322551.9	3871256.6	Resident	4.86E-02	7.83E-03	4.05E-03	9.25E-03
322540.4	3871305.2	Resident	4.85E-02	7.82E-03	4.04E-03	9.23E-03
322528.9	3871353.9	Resident	4.85E-02	7.82E-03	4.04E-03	9.24E-03
322517.2	3871402.5	Resident	4.89E-02	7.88E-03	4.08E-03	9.31E-03
322505.5	3871451.1	Resident	4.88E-02	7.87E-03	4.07E-03	9.29E-03
323356.4	3871230.8	Resident	2.59E-02	4.20E-03	2.17E-03	4.96E-03
323367.9	3871182.1	Resident	2.59E-02	4.21E-03	2.17E-03	4.96E-03
323379.3	3871133.5	Resident	2.60E-02	4.22E-03	2.18E-03	4.98E-03
323391.1	3871084.9	Resident	2.61E-02	4.23E-03	2.18E-03	4.99E-03
323403.0	3871036.3	Resident	2.60E-02	4.22E-03	2.18E-03	4.98E-03
323414.7	3870987.7	Resident	2.60E-02	4.23E-03	2.18E-03	4.98E-03
323426.3	3870939.0	Resident	2.60E-02	4.22E-03	2.17E-03	4.97E-03
323437.8	3870890.4	Resident	2.61E-02	4.23E-03	2.18E-03	4.99E-03
323449.4	3870841.7	Resident	2.62E-02	4.26E-03	2.19E-03	5.02E-03
323461.0	3870793.1	Resident	2.63E-02	4.27E-03	2.20E-03	5.04E-03
323472.5	3870744.4	Resident	2.65E-02	4.31E-03	2.22E-03	5.08E-03
323484.0	3870695.8	Resident	2.67E-02	4.33E-03	2.23E-03	5.11E-03
323495.5	3870647.1	Resident	2.69E-02	4.38E-03	2.25E-03	5.16E-03
323507.0	3870598.5	Resident	2.71E-02	4.40E-03	2.27E-03	5.19E-03
323518.6	3870549.8	Resident	2.72E-02	4.42E-03	2.27E-03	5.21E-03
323530.2	3870501.2	Resident	2.71E-02	4.42E-03	2.27E-03	5.20E-03
323541.9	3870452.6	Resident	2.71E-02	4.42E-03	2.27E-03	5.20E-03
323553.6	3870404.0	Resident	2.72E-02	4.43E-03	2.28E-03	5.22E-03

Table D.2. Chronic Noncancer Hazard Index Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2]	Chronic Noncancer Hazard Index Estimates			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[3]	Future Plus Project 2040
323565.3	3870355.3	Resident	2.72E-02	4.42E-03	2.27E-03	5.21E-03
323762.6	3869528.5	Resident	2.92E-02	4.82E-03	2.45E-03	5.66E-03
323774.5	3869479.9	Resident	2.93E-02	4.83E-03	2.45E-03	5.67E-03
323786.6	3869431.4	Resident	2.92E-02	4.82E-03	2.44E-03	5.65E-03
323798.7	3869382.9	Resident	2.91E-02	4.82E-03	2.44E-03	5.66E-03
323810.8	3869334.4	Resident	2.92E-02	4.83E-03	2.44E-03	5.66E-03
323822.3	3869285.7	Resident	2.93E-02	4.86E-03	2.46E-03	5.69E-03
323845.4	3869188.4	Resident	2.97E-02	4.93E-03	2.49E-03	5.78E-03
323856.8	3869139.7	Resident	2.98E-02	4.96E-03	2.50E-03	5.81E-03
323868.2	3869091.0	Resident	2.99E-02	4.99E-03	2.51E-03	5.84E-03
323879.6	3869042.4	Resident	2.97E-02	4.96E-03	2.49E-03	5.80E-03
323891.2	3868993.7	Resident	2.93E-02	4.90E-03	2.45E-03	5.73E-03
323902.8	3868945.1	Resident	2.87E-02	4.82E-03	2.40E-03	5.62E-03
323914.2	3868896.4	Resident	2.42E-02	4.13E-03	2.03E-03	4.80E-03
323925.7	3868847.7	Resident	2.58E-02	4.38E-03	2.15E-03	5.09E-03
323937.0	3868799.0	Resident	2.64E-02	4.50E-03	2.20E-03	5.22E-03
323948.4	3868750.3	Resident	2.71E-02	4.63E-03	2.26E-03	5.38E-03
323959.9	3868701.7	Resident	2.77E-02	4.74E-03	2.31E-03	5.50E-03
323972.0	3868653.2	Resident	2.80E-02	4.82E-03	2.34E-03	5.58E-03
323984.1	3868604.7	Resident	2.83E-02	4.88E-03	2.36E-03	5.64E-03
323996.2	3868556.1	Resident	2.84E-02	4.92E-03	2.36E-03	5.68E-03
324008.6	3868507.7	Resident	2.83E-02	4.94E-03	2.35E-03	5.69E-03
324020.7	3868459.2	Resident	2.74E-02	4.82E-03	2.27E-03	5.53E-03
324034.1	3868411.0	Resident	2.67E-02	4.74E-03	2.21E-03	5.42E-03
324050.2	3868363.7	Resident	2.57E-02	4.62E-03	2.13E-03	5.27E-03
324067.9	3868316.9	Resident	2.37E-02	4.33E-03	2.00E-03	4.94E-03
324089.2	3868271.7	Resident	2.22E-02	4.11E-03	1.90E-03	4.69E-03
323267.7	3868011.4	Resident	4.04E-02	8.25E-03	3.82E-03	9.44E-03
323251.4	3868110.0	Resident	4.00E-02	8.05E-03	3.70E-03	9.19E-03
323241.0	3868158.9	Resident	3.95E-02	7.89E-03	3.62E-03	9.00E-03
323230.0	3868207.7	Resident	3.87E-02	7.66E-03	3.50E-03	8.73E-03
323219.0	3868256.4	Resident	3.69E-02	7.24E-03	3.30E-03	8.24E-03
323207.4	3868305.1	Resident	3.53E-02	6.88E-03	3.12E-03	7.82E-03
323195.8	3868353.7	Resident	3.43E-02	6.60E-03	2.98E-03	7.49E-03
323184.1	3868402.3	Resident	3.41E-02	6.49E-03	2.92E-03	7.36E-03
323172.0	3868450.8	Resident	3.50E-02	6.55E-03	2.93E-03	7.41E-03
323159.8	3868499.3	Resident	3.41E-02	6.32E-03	2.82E-03	7.15E-03
323148.5	3868548.1	Resident	3.39E-02	6.21E-03	2.77E-03	7.02E-03
323137.5	3868596.8	Resident	3.42E-02	6.18E-03	2.76E-03	6.99E-03
323126.3	3868645.6	Resident	3.40E-02	6.08E-03	2.72E-03	6.88E-03
323115.1	3868694.3	Resident	3.33E-02	5.91E-03	2.66E-03	6.71E-03
323103.8	3868743.0	Resident	3.32E-02	5.85E-03	2.66E-03	6.65E-03
323092.2	3868791.7	Resident	3.29E-02	5.75E-03	2.64E-03	6.56E-03
323080.3	3868840.2	Resident	3.26E-02	5.66E-03	2.63E-03	6.47E-03
323068.4	3868888.8	Resident	3.29E-02	5.68E-03	2.67E-03	6.52E-03
323056.7	3868937.4	Resident	3.33E-02	5.71E-03	2.71E-03	6.57E-03
323045.0	3868986.0	Resident	3.34E-02	5.69E-03	2.73E-03	6.57E-03
323020.9	3869083.0	Resident	3.37E-02	5.70E-03	2.78E-03	6.61E-03
323008.7	3869131.6	Resident	3.21E-02	5.42E-03	2.65E-03	6.29E-03
322997.5	3869180.3	Resident	3.26E-02	5.47E-03	2.70E-03	6.37E-03
322986.2	3869229.0	Resident	3.30E-02	5.54E-03	2.74E-03	6.45E-03
322974.7	3869277.7	Resident	3.42E-02	5.70E-03	2.84E-03	6.66E-03
322963.3	3869326.3	Resident	3.54E-02	5.89E-03	2.95E-03	6.89E-03
322951.7	3869375.0	Resident	3.68E-02	6.10E-03	3.07E-03	7.15E-03
322940.2	3869423.6	Resident	3.74E-02	6.18E-03	3.12E-03	7.24E-03
322928.3	3869472.2	Resident	3.77E-02	6.22E-03	3.15E-03	7.30E-03
322916.4	3869520.8	Resident	3.76E-02	6.20E-03	3.14E-03	7.28E-03
322904.5	3869569.3	Resident	3.73E-02	6.13E-03	3.11E-03	7.20E-03

Table D.2. Chronic Noncancer Hazard Index Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2]	Chronic Noncancer Hazard Index Estimates			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[3]	Future Plus Project 2040
322892.7	3869617.9	Resident	3.66E-02	6.02E-03	3.05E-03	7.07E-03
322881.0	3869666.5	Resident	3.60E-02	5.91E-03	3.01E-03	6.95E-03
322869.2	3869715.1	Resident	3.60E-02	5.92E-03	3.01E-03	6.96E-03
322636.9	3870687.8	Resident	4.35E-02	7.03E-03	3.63E-03	8.30E-03
322625.3	3870736.5	Resident	4.28E-02	6.93E-03	3.57E-03	8.18E-03
322613.6	3870785.1	Resident	4.23E-02	6.85E-03	3.53E-03	8.08E-03
322601.9	3870833.7	Resident	4.25E-02	6.87E-03	3.54E-03	8.11E-03
322590.0	3870882.3	Resident	4.30E-02	6.95E-03	3.58E-03	8.20E-03
322578.0	3870930.8	Resident	4.35E-02	7.03E-03	3.63E-03	8.31E-03
322566.3	3870979.4	Resident	4.39E-02	7.09E-03	3.66E-03	8.37E-03
322543.3	3871076.8	Resident	4.47E-02	7.22E-03	3.73E-03	8.53E-03
322531.7	3871125.4	Resident	4.48E-02	7.23E-03	3.73E-03	8.53E-03
322520.2	3871174.0	Resident	4.45E-02	7.18E-03	3.71E-03	8.48E-03
322508.6	3871222.7	Resident	4.41E-02	7.12E-03	3.68E-03	8.41E-03
322497.0	3871271.3	Resident	4.39E-02	7.08E-03	3.66E-03	8.36E-03
322485.6	3871320.0	Resident	4.38E-02	7.06E-03	3.65E-03	8.34E-03
322474.0	3871368.6	Resident	4.41E-02	7.12E-03	3.68E-03	8.41E-03
322462.2	3871417.3	Resident	4.40E-02	7.10E-03	3.67E-03	8.38E-03
322450.5	3871465.9	Resident	4.43E-02	7.14E-03	3.69E-03	8.43E-03
323412.7	3871209.6	Resident	2.37E-02	3.85E-03	1.98E-03	4.54E-03
323424.2	3871160.9	Resident	2.37E-02	3.85E-03	1.98E-03	4.54E-03
323435.8	3871112.3	Resident	2.38E-02	3.86E-03	1.99E-03	4.56E-03
323447.7	3871063.7	Resident	2.38E-02	3.86E-03	1.99E-03	4.56E-03
323459.6	3871015.2	Resident	2.38E-02	3.86E-03	1.99E-03	4.55E-03
323471.2	3870966.5	Resident	2.38E-02	3.87E-03	1.99E-03	4.56E-03
323482.7	3870917.9	Resident	2.39E-02	3.88E-03	2.00E-03	4.58E-03
323494.3	3870869.2	Resident	2.39E-02	3.89E-03	2.00E-03	4.59E-03
323505.8	3870820.6	Resident	2.40E-02	3.91E-03	2.01E-03	4.61E-03
323517.4	3870771.9	Resident	2.42E-02	3.94E-03	2.02E-03	4.64E-03
323528.9	3870723.3	Resident	2.43E-02	3.96E-03	2.03E-03	4.66E-03
323540.3	3870674.6	Resident	2.45E-02	3.99E-03	2.05E-03	4.70E-03
323551.9	3870625.9	Resident	2.46E-02	4.01E-03	2.06E-03	4.72E-03
323563.5	3870577.3	Resident	2.47E-02	4.02E-03	2.07E-03	4.74E-03
323575.1	3870528.7	Resident	2.47E-02	4.03E-03	2.07E-03	4.74E-03
323586.8	3870480.0	Resident	2.49E-02	4.06E-03	2.09E-03	4.79E-03
323598.5	3870431.4	Resident	2.50E-02	4.08E-03	2.09E-03	4.80E-03
323610.1	3870382.8	Resident	2.49E-02	4.07E-03	2.09E-03	4.80E-03
323773.1	3869702.0	Resident	2.63E-02	4.33E-03	2.21E-03	5.09E-03
323784.8	3869653.4	Resident	2.64E-02	4.35E-03	2.22E-03	5.11E-03
323796.2	3869604.7	Resident	2.65E-02	4.37E-03	2.22E-03	5.13E-03
323807.5	3869556.0	Resident	2.65E-02	4.38E-03	2.23E-03	5.15E-03
323819.2	3869507.4	Resident	2.66E-02	4.39E-03	2.23E-03	5.16E-03
323831.3	3869458.9	Resident	2.65E-02	4.39E-03	2.23E-03	5.15E-03
323843.4	3869410.3	Resident	2.65E-02	4.39E-03	2.22E-03	5.15E-03
323855.5	3869361.8	Resident	2.65E-02	4.39E-03	2.22E-03	5.15E-03
323867.2	3869313.2	Resident	2.66E-02	4.42E-03	2.23E-03	5.18E-03
323878.7	3869264.6	Resident	2.69E-02	4.48E-03	2.26E-03	5.25E-03
323890.3	3869215.9	Resident	2.71E-02	4.52E-03	2.28E-03	5.29E-03
323901.7	3869167.2	Resident	2.72E-02	4.54E-03	2.28E-03	5.31E-03
323913.1	3869118.5	Resident	2.72E-02	4.54E-03	2.28E-03	5.31E-03
323924.5	3869069.8	Resident	2.70E-02	4.52E-03	2.27E-03	5.29E-03
323936.1	3869021.2	Resident	2.66E-02	4.47E-03	2.23E-03	5.22E-03
323947.7	3868972.6	Resident	2.62E-02	4.41E-03	2.20E-03	5.15E-03
323959.2	3868923.9	Resident	2.58E-02	4.36E-03	2.16E-03	5.09E-03
323970.6	3868875.2	Resident	2.27E-02	3.88E-03	1.90E-03	4.51E-03
323982.0	3868826.5	Resident	2.37E-02	4.06E-03	1.99E-03	4.72E-03
323993.3	3868777.8	Resident	2.41E-02	4.13E-03	2.02E-03	4.79E-03
324004.7	3868729.1	Resident	2.48E-02	4.26E-03	2.07E-03	4.94E-03

Table D.2. Chronic Noncancer Hazard Index Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2]	Chronic Noncancer Hazard Index Estimates			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[3]	Future Plus Project 2040
324016.7	3868680.6	Resident	2.51E-02	4.33E-03	2.10E-03	5.02E-03
324028.8	3868632.1	Resident	2.58E-02	4.46E-03	2.16E-03	5.16E-03
324040.9	3868583.6	Resident	2.60E-02	4.51E-03	2.18E-03	5.21E-03
324053.2	3868535.1	Resident	2.60E-02	4.52E-03	2.17E-03	5.22E-03
324065.4	3868486.6	Resident	2.49E-02	4.37E-03	2.07E-03	5.03E-03
324077.9	3868438.2	Resident	2.43E-02	4.31E-03	2.02E-03	4.94E-03
324155.0	3868254.1	Resident	2.02E-02	3.76E-03	1.74E-03	4.29E-03
323224.6	3867927.2	Resident	3.71E-02	7.67E-03	3.56E-03	8.79E-03
323215.2	3868026.7	Resident	3.61E-02	7.40E-03	3.43E-03	8.46E-03
323207.1	3868076.0	Resident	3.62E-02	7.35E-03	3.40E-03	8.41E-03
323197.4	3868125.1	Resident	3.59E-02	7.25E-03	3.34E-03	8.27E-03
323186.4	3868173.8	Resident	3.50E-02	7.02E-03	3.23E-03	8.01E-03
323175.4	3868222.6	Resident	3.37E-02	6.70E-03	3.07E-03	7.64E-03
323164.0	3868271.3	Resident	3.24E-02	6.40E-03	2.93E-03	7.29E-03
323152.5	3868320.0	Resident	3.15E-02	6.16E-03	2.81E-03	7.01E-03
323140.9	3868368.6	Resident	3.11E-02	6.00E-03	2.72E-03	6.82E-03
323128.9	3868417.1	Resident	3.11E-02	5.93E-03	2.67E-03	6.73E-03
323116.7	3868465.6	Resident	3.04E-02	5.74E-03	2.58E-03	6.51E-03
323104.9	3868514.2	Resident	3.01E-02	5.62E-03	2.52E-03	6.37E-03
323093.9	3868563.0	Resident	3.00E-02	5.54E-03	2.48E-03	6.27E-03
323082.8	3868611.8	Resident	2.99E-02	5.45E-03	2.44E-03	6.17E-03
323071.6	3868660.5	Resident	2.94E-02	5.32E-03	2.39E-03	6.03E-03
323060.3	3868709.2	Resident	2.84E-02	5.11E-03	2.31E-03	5.79E-03
323049.0	3868757.9	Resident	2.79E-02	4.98E-03	2.26E-03	5.66E-03
323037.1	3868806.5	Resident	2.81E-02	4.97E-03	2.28E-03	5.66E-03
323025.1	3868855.0	Resident	2.84E-02	4.98E-03	2.31E-03	5.69E-03
323013.4	3868903.6	Resident	2.87E-02	5.00E-03	2.34E-03	5.73E-03
323001.7	3868952.2	Resident	2.88E-02	4.99E-03	2.35E-03	5.73E-03
322977.7	3869049.3	Resident	2.91E-02	4.98E-03	2.39E-03	5.75E-03
322965.6	3869097.8	Resident	2.88E-02	4.91E-03	2.37E-03	5.68E-03
322954.0	3869146.5	Resident	2.86E-02	4.86E-03	2.36E-03	5.63E-03
322942.8	3869195.2	Resident	2.88E-02	4.87E-03	2.38E-03	5.66E-03
322931.3	3869243.9	Resident	2.91E-02	4.91E-03	2.42E-03	5.71E-03
322919.9	3869292.6	Resident	3.05E-02	5.12E-03	2.54E-03	5.97E-03
322908.4	3869341.2	Resident	3.17E-02	5.29E-03	2.64E-03	6.18E-03
322896.8	3869389.9	Resident	3.24E-02	5.40E-03	2.70E-03	6.32E-03
322885.1	3869438.5	Resident	3.29E-02	5.47E-03	2.75E-03	6.41E-03
322873.2	3869487.0	Resident	3.34E-02	5.53E-03	2.79E-03	6.48E-03
322861.3	3869535.6	Resident	3.34E-02	5.53E-03	2.79E-03	6.48E-03
322849.4	3869584.2	Resident	3.30E-02	5.46E-03	2.76E-03	6.41E-03
322837.7	3869632.8	Resident	3.26E-02	5.39E-03	2.73E-03	6.32E-03
322825.9	3869681.4	Resident	3.25E-02	5.36E-03	2.72E-03	6.29E-03
322814.2	3869730.0	Resident	3.34E-02	5.49E-03	2.79E-03	6.45E-03
322605.1	3870605.4	Resident	4.01E-02	6.51E-03	3.35E-03	7.68E-03
322593.6	3870654.1	Resident	4.01E-02	6.50E-03	3.35E-03	7.67E-03
322582.0	3870702.7	Resident	3.92E-02	6.35E-03	3.27E-03	7.50E-03
322570.3	3870751.3	Resident	3.87E-02	6.27E-03	3.23E-03	7.40E-03
322558.6	3870799.9	Resident	3.85E-02	6.24E-03	3.22E-03	7.36E-03
322546.8	3870848.5	Resident	3.89E-02	6.30E-03	3.25E-03	7.44E-03
322534.8	3870897.1	Resident	3.93E-02	6.36E-03	3.28E-03	7.51E-03
322522.9	3870945.6	Resident	3.97E-02	6.42E-03	3.31E-03	7.58E-03
322511.4	3870994.3	Resident	4.06E-02	6.56E-03	3.38E-03	7.75E-03
322499.9	3871043.0	Resident	4.16E-02	6.72E-03	3.47E-03	7.94E-03
322488.4	3871091.6	Resident	4.13E-02	6.67E-03	3.44E-03	7.88E-03
322476.8	3871140.3	Resident	4.10E-02	6.62E-03	3.42E-03	7.81E-03
322465.2	3871188.9	Resident	4.07E-02	6.57E-03	3.39E-03	7.76E-03
322453.7	3871237.6	Resident	4.03E-02	6.51E-03	3.36E-03	7.68E-03
322442.2	3871286.2	Resident	4.00E-02	6.46E-03	3.34E-03	7.63E-03

Table D.2. Chronic Noncancer Hazard Index Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2]	Chronic Noncancer Hazard Index Estimates			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[3]	Future Plus Project 2040
322430.7	3871334.9	Resident	4.03E-02	6.51E-03	3.36E-03	7.68E-03
322418.9	3871383.5	Resident	4.02E-02	6.49E-03	3.35E-03	7.67E-03
322407.2	3871432.1	Resident	4.02E-02	6.49E-03	3.35E-03	7.67E-03
322395.5	3871480.7	Resident	4.01E-02	6.47E-03	3.34E-03	7.64E-03
323469.1	3871188.4	Resident	2.18E-02	3.55E-03	1.83E-03	4.18E-03
323480.6	3871139.8	Resident	2.18E-02	3.55E-03	1.83E-03	4.19E-03
323492.5	3871091.2	Resident	2.19E-02	3.56E-03	1.83E-03	4.20E-03
323504.4	3871042.6	Resident	2.19E-02	3.56E-03	1.83E-03	4.20E-03
323516.0	3870994.0	Resident	2.19E-02	3.57E-03	1.84E-03	4.21E-03
323527.6	3870945.3	Resident	2.20E-02	3.58E-03	1.84E-03	4.22E-03
323539.1	3870896.7	Resident	2.21E-02	3.59E-03	1.85E-03	4.24E-03
323550.7	3870848.1	Resident	2.22E-02	3.61E-03	1.86E-03	4.26E-03
323562.3	3870799.4	Resident	2.23E-02	3.63E-03	1.87E-03	4.28E-03
323573.7	3870750.7	Resident	2.24E-02	3.65E-03	1.87E-03	4.30E-03
323585.2	3870702.1	Resident	2.24E-02	3.66E-03	1.88E-03	4.31E-03
323596.8	3870653.4	Resident	2.26E-02	3.68E-03	1.89E-03	4.34E-03
323608.3	3870604.8	Resident	2.27E-02	3.70E-03	1.90E-03	4.36E-03
323619.9	3870556.1	Resident	2.28E-02	3.72E-03	1.91E-03	4.38E-03
323631.6	3870507.5	Resident	2.30E-02	3.75E-03	1.92E-03	4.42E-03
323643.3	3870458.9	Resident	2.32E-02	3.78E-03	1.94E-03	4.46E-03
323655.0	3870410.3	Resident	2.30E-02	3.76E-03	1.93E-03	4.43E-03
323666.6	3870361.6	Resident	2.30E-02	3.76E-03	1.93E-03	4.43E-03
323829.6	3869680.9	Resident	2.42E-02	4.00E-03	2.03E-03	4.69E-03
323841.1	3869632.2	Resident	2.43E-02	4.01E-03	2.04E-03	4.71E-03
323852.5	3869583.5	Resident	2.43E-02	4.03E-03	2.04E-03	4.73E-03
323863.9	3869534.8	Resident	2.44E-02	4.05E-03	2.05E-03	4.75E-03
323876.0	3869486.3	Resident	2.44E-02	4.05E-03	2.05E-03	4.76E-03
323888.1	3869437.8	Resident	2.44E-02	4.05E-03	2.05E-03	4.75E-03
323900.2	3869389.3	Resident	2.43E-02	4.04E-03	2.04E-03	4.73E-03
323912.1	3869340.7	Resident	2.43E-02	4.05E-03	2.05E-03	4.75E-03
323923.6	3869292.0	Resident	2.46E-02	4.10E-03	2.07E-03	4.80E-03
323946.7	3869194.7	Resident	2.49E-02	4.16E-03	2.09E-03	4.87E-03
323958.0	3869146.0	Resident	2.49E-02	4.17E-03	2.09E-03	4.88E-03
323969.4	3869097.3	Resident	2.48E-02	4.16E-03	2.08E-03	4.87E-03
323980.9	3869048.7	Resident	2.45E-02	4.12E-03	2.06E-03	4.81E-03
323992.5	3869000.0	Resident	2.41E-02	4.07E-03	2.03E-03	4.75E-03
324004.1	3868951.4	Resident	2.38E-02	4.03E-03	2.00E-03	4.70E-03
324015.5	3868902.7	Resident	2.31E-02	3.92E-03	1.94E-03	4.57E-03
324026.9	3868854.0	Resident	2.10E-02	3.61E-03	1.77E-03	4.19E-03
324038.3	3868805.3	Resident	2.20E-02	3.77E-03	1.84E-03	4.38E-03
324049.6	3868756.6	Resident	2.29E-02	3.93E-03	1.92E-03	4.56E-03
324061.4	3868708.0	Resident	2.36E-02	4.06E-03	1.98E-03	4.71E-03
324073.5	3868659.5	Resident	2.41E-02	4.16E-03	2.02E-03	4.82E-03
323173.0	3867842.9	Resident	3.41E-02	7.11E-03	3.31E-03	8.15E-03
323174.5	3867892.9	Resident	3.34E-02	6.95E-03	3.24E-03	7.97E-03
323162.6	3868042.2	Resident	3.30E-02	6.75E-03	3.13E-03	7.73E-03
323153.2	3868091.3	Resident	3.31E-02	6.72E-03	3.11E-03	7.69E-03
323142.7	3868140.2	Resident	3.17E-02	6.41E-03	2.96E-03	7.32E-03
323131.7	3868189.0	Resident	3.02E-02	6.08E-03	2.81E-03	6.95E-03
323120.6	3868237.7	Resident	2.94E-02	5.88E-03	2.71E-03	6.72E-03
323109.1	3868286.4	Resident	2.88E-02	5.71E-03	2.62E-03	6.51E-03
323097.5	3868335.0	Resident	2.82E-02	5.54E-03	2.53E-03	6.31E-03
323085.7	3868383.6	Resident	2.77E-02	5.38E-03	2.45E-03	6.12E-03
323073.5	3868432.1	Resident	2.70E-02	5.21E-03	2.36E-03	5.92E-03
323061.4	3868480.6	Resident	2.66E-02	5.07E-03	2.29E-03	5.75E-03
323050.2	3868529.4	Resident	2.64E-02	4.99E-03	2.25E-03	5.66E-03
323039.2	3868578.1	Resident	2.65E-02	4.93E-03	2.22E-03	5.59E-03
323028.0	3868626.9	Resident	2.68E-02	4.93E-03	2.22E-03	5.59E-03

Table D.2. Chronic Noncancer Hazard Index Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2]	Chronic Noncancer Hazard Index Estimates			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[3]	Future Plus Project 2040
323016.8	3868675.6	Resident	2.53E-02	4.63E-03	2.09E-03	5.25E-03
323005.5	3868724.3	Resident	2.41E-02	4.39E-03	1.99E-03	4.98E-03
322993.9	3868772.9	Resident	2.42E-02	4.36E-03	1.99E-03	4.96E-03
322981.9	3868821.5	Resident	2.46E-02	4.40E-03	2.02E-03	5.01E-03
322970.0	3868870.1	Resident	2.50E-02	4.43E-03	2.04E-03	5.06E-03
322958.4	3868918.7	Resident	2.51E-02	4.41E-03	2.05E-03	5.05E-03
322934.6	3869015.8	Resident	2.56E-02	4.44E-03	2.10E-03	5.10E-03
322922.5	3869064.3	Resident	2.57E-02	4.43E-03	2.11E-03	5.10E-03
322910.4	3869112.8	Resident	2.59E-02	4.45E-03	2.14E-03	5.14E-03
322899.2	3869161.6	Resident	2.59E-02	4.42E-03	2.14E-03	5.12E-03
322887.9	3869210.3	Resident	2.62E-02	4.46E-03	2.17E-03	5.17E-03
322876.4	3869259.0	Resident	2.71E-02	4.59E-03	2.25E-03	5.34E-03
322864.9	3869307.6	Resident	2.84E-02	4.78E-03	2.36E-03	5.57E-03
322853.4	3869356.3	Resident	2.87E-02	4.82E-03	2.39E-03	5.62E-03
322841.8	3869404.9	Resident	2.92E-02	4.88E-03	2.43E-03	5.70E-03
322830.0	3869453.5	Resident	2.97E-02	4.96E-03	2.48E-03	5.80E-03
322818.0	3869502.1	Resident	3.01E-02	5.01E-03	2.52E-03	5.87E-03
322806.2	3869550.6	Resident	3.00E-02	4.98E-03	2.51E-03	5.84E-03
322794.3	3869599.2	Resident	2.97E-02	4.93E-03	2.49E-03	5.78E-03
322782.6	3869647.8	Resident	2.98E-02	4.94E-03	2.50E-03	5.80E-03
322770.9	3869696.4	Resident	3.03E-02	5.01E-03	2.54E-03	5.88E-03
322573.2	3870523.2	Resident	3.62E-02	5.88E-03	3.02E-03	6.93E-03
322561.7	3870571.8	Resident	3.67E-02	5.95E-03	3.06E-03	7.02E-03
322550.2	3870620.5	Resident	3.71E-02	6.03E-03	3.10E-03	7.11E-03
322538.6	3870669.1	Resident	3.60E-02	5.84E-03	3.00E-03	6.88E-03
322527.0	3870717.8	Resident	3.53E-02	5.73E-03	2.95E-03	6.76E-03
322515.3	3870766.4	Resident	3.52E-02	5.72E-03	2.94E-03	6.75E-03
322503.5	3870815.0	Resident	3.54E-02	5.75E-03	2.96E-03	6.78E-03
322491.6	3870863.6	Resident	3.57E-02	5.78E-03	2.98E-03	6.82E-03
322479.7	3870912.1	Resident	3.61E-02	5.85E-03	3.01E-03	6.90E-03
322468.0	3870960.7	Resident	3.69E-02	5.98E-03	3.08E-03	7.06E-03
322456.5	3871009.4	Resident	3.78E-02	6.12E-03	3.15E-03	7.22E-03
322445.0	3871058.0	Resident	3.80E-02	6.14E-03	3.17E-03	7.25E-03
322433.4	3871106.7	Resident	3.78E-02	6.11E-03	3.15E-03	7.22E-03
322421.8	3871155.3	Resident	3.76E-02	6.08E-03	3.13E-03	7.17E-03
322410.2	3871204.0	Resident	3.72E-02	6.01E-03	3.10E-03	7.10E-03
322398.7	3871252.6	Resident	3.70E-02	5.98E-03	3.08E-03	7.06E-03
322387.3	3871301.3	Resident	3.70E-02	5.99E-03	3.09E-03	7.07E-03
322375.6	3871349.9	Resident	3.70E-02	5.98E-03	3.08E-03	7.06E-03
322363.9	3871398.5	Resident	3.70E-02	5.97E-03	3.08E-03	7.05E-03
322352.1	3871447.2	Resident	3.67E-02	5.94E-03	3.07E-03	7.01E-03
322340.5	3871495.8	Resident	3.65E-02	5.90E-03	3.05E-03	6.97E-03
323593.9	3871097.5	Resident	1.91E-02	3.11E-03	1.60E-03	3.67E-03
323617.3	3871000.3	Resident	1.92E-02	3.13E-03	1.61E-03	3.69E-03
323640.4	3870903.0	Resident	1.94E-02	3.16E-03	1.62E-03	3.72E-03
323663.5	3870805.7	Resident	1.94E-02	3.17E-03	1.63E-03	3.74E-03
323686.5	3870708.4	Resident	1.95E-02	3.19E-03	1.63E-03	3.75E-03
323709.6	3870611.1	Resident	1.96E-02	3.22E-03	1.65E-03	3.79E-03
323732.9	3870513.8	Resident	1.97E-02	3.24E-03	1.66E-03	3.81E-03
323779.6	3870319.3	Resident	2.00E-02	3.28E-03	1.68E-03	3.86E-03
323802.5	3870222.0	Resident	2.00E-02	3.30E-03	1.68E-03	3.88E-03
323825.7	3870124.7	Resident	2.01E-02	3.31E-03	1.69E-03	3.90E-03
323942.3	3869638.5	Resident	2.09E-02	3.47E-03	1.76E-03	4.07E-03
323965.3	3869541.2	Resident	2.11E-02	3.52E-03	1.78E-03	4.12E-03
323989.5	3869444.1	Resident	2.12E-02	3.54E-03	1.79E-03	4.15E-03
324013.4	3869347.0	Resident	2.07E-02	3.46E-03	1.74E-03	4.06E-03
324036.4	3869249.7	Resident	2.10E-02	3.52E-03	1.77E-03	4.12E-03
324059.2	3869152.3	Resident	2.12E-02	3.57E-03	1.78E-03	4.17E-03

Table D.2. Chronic Noncancer Hazard Index Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2]	Chronic Noncancer Hazard Index Estimates			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[3]	Future Plus Project 2040
324353.8	3868202.1	Resident	1.53E-02	2.88E-03	1.35E-03	3.30E-03
323062.5	3867678.1	Resident	2.85E-02	5.98E-03	2.79E-03	6.86E-03
323070.1	3867777.7	Resident	2.88E-02	6.01E-03	2.80E-03	6.90E-03
323070.4	3867977.5	Resident	2.80E-02	5.79E-03	2.70E-03	6.64E-03
323032.6	3868173.8	Resident	2.46E-02	5.02E-03	2.33E-03	5.74E-03
323009.9	3868271.2	Resident	2.40E-02	4.83E-03	2.23E-03	5.52E-03
322986.4	3868368.4	Resident	2.22E-02	4.42E-03	2.04E-03	5.04E-03
322962.2	3868465.4	Resident	2.13E-02	4.16E-03	1.91E-03	4.74E-03
322940.1	3868562.9	Resident	2.09E-02	4.01E-03	1.83E-03	4.56E-03
322917.6	3868660.4	Resident	2.00E-02	3.76E-03	1.71E-03	4.28E-03
322894.6	3868757.7	Resident	1.99E-02	3.68E-03	1.68E-03	4.18E-03
322870.8	3868854.8	Resident	1.97E-02	3.58E-03	1.64E-03	4.08E-03
322847.5	3868952.1	Resident	2.02E-02	3.62E-03	1.68E-03	4.13E-03
322823.2	3869049.1	Resident	2.12E-02	3.73E-03	1.75E-03	4.28E-03
322800.1	3869146.4	Resident	2.18E-02	3.78E-03	1.80E-03	4.35E-03
322777.2	3869243.7	Resident	2.28E-02	3.91E-03	1.89E-03	4.53E-03
322754.2	3869341.1	Resident	2.30E-02	3.92E-03	1.92E-03	4.55E-03
322730.7	3869438.3	Resident	2.46E-02	4.14E-03	2.05E-03	4.83E-03
322706.9	3869535.4	Resident	2.48E-02	4.16E-03	2.07E-03	4.86E-03
322683.4	3869632.6	Resident	2.55E-02	4.25E-03	2.13E-03	4.97E-03
322497.2	3870410.7	Resident	2.92E-02	4.77E-03	2.44E-03	5.61E-03
322474.1	3870508.0	Resident	3.04E-02	4.96E-03	2.54E-03	5.85E-03
322451.0	3870605.3	Resident	3.07E-02	5.00E-03	2.57E-03	5.89E-03
322427.8	3870702.5	Resident	3.03E-02	4.93E-03	2.53E-03	5.81E-03
322404.3	3870799.8	Resident	2.96E-02	4.81E-03	2.47E-03	5.67E-03
322380.4	3870896.9	Resident	3.04E-02	4.95E-03	2.54E-03	5.83E-03
322334.2	3871091.5	Resident	3.22E-02	5.22E-03	2.69E-03	6.16E-03
322311.1	3871188.8	Resident	3.23E-02	5.24E-03	2.70E-03	6.18E-03
322288.1	3871286.1	Resident	3.23E-02	5.23E-03	2.69E-03	6.17E-03
322264.7	3871383.3	Resident	3.20E-02	5.18E-03	2.67E-03	6.12E-03
322241.4	3871480.6	Resident	3.20E-02	5.18E-03	2.67E-03	6.11E-03
322218.1	3871577.8	Resident	3.23E-02	5.22E-03	2.70E-03	6.17E-03
323707.1	3871055.3	Resident	1.70E-02	2.79E-03	1.43E-03	3.29E-03
323730.2	3870958.0	Resident	1.71E-02	2.80E-03	1.44E-03	3.30E-03
323776.3	3870763.3	Resident	1.71E-02	2.81E-03	1.44E-03	3.31E-03
323799.4	3870666.0	Resident	1.72E-02	2.83E-03	1.45E-03	3.33E-03
323822.6	3870568.8	Resident	1.73E-02	2.85E-03	1.46E-03	3.35E-03
323845.9	3870471.5	Resident	1.75E-02	2.87E-03	1.47E-03	3.38E-03
323869.3	3870374.3	Resident	1.76E-02	2.89E-03	1.48E-03	3.40E-03
323892.4	3870277.0	Resident	1.76E-02	2.90E-03	1.48E-03	3.41E-03
323915.3	3870179.6	Resident	1.76E-02	2.92E-03	1.49E-03	3.43E-03
324032.2	3869693.5	Resident	1.84E-02	3.06E-03	1.55E-03	3.59E-03
324054.9	3869596.1	Resident	1.85E-02	3.08E-03	1.56E-03	3.61E-03
324078.9	3869499.0	Resident	1.85E-02	3.10E-03	1.56E-03	3.64E-03
324103.1	3869402.0	Resident	1.81E-02	3.05E-03	1.53E-03	3.56E-03
324126.2	3869304.7	Resident	1.79E-02	3.03E-03	1.51E-03	3.54E-03
324149.1	3869207.3	Resident	1.84E-02	3.11E-03	1.55E-03	3.64E-03
324438.6	3868255.4	Resident	1.41E-02	2.63E-03	1.23E-03	3.02E-03
324486.2	3868167.4	Resident	1.32E-02	2.49E-03	1.17E-03	2.85E-03
322964.1	3867713.5	Resident	2.40E-02	5.05E-03	2.36E-03	5.80E-03
322974.5	3867913.1	Resident	2.40E-02	5.00E-03	2.33E-03	5.73E-03
322964.7	3868012.6	Resident	2.44E-02	5.05E-03	2.35E-03	5.79E-03
322944.4	3868110.5	Resident	2.26E-02	4.65E-03	2.17E-03	5.33E-03
322899.0	3868305.3	Resident	1.95E-02	3.96E-03	1.84E-03	4.53E-03
322874.8	3868402.3	Resident	1.80E-02	3.61E-03	1.67E-03	4.13E-03
322851.9	3868499.6	Resident	1.70E-02	3.37E-03	1.56E-03	3.85E-03
322829.6	3868597.1	Resident	1.64E-02	3.21E-03	1.48E-03	3.66E-03
322807.0	3868694.6	Resident	1.65E-02	3.15E-03	1.45E-03	3.59E-03

Table D.2. Chronic Noncancer Hazard Index Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2]	Chronic Noncancer Hazard Index Estimates			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[3]	Future Plus Project 2040
322759.8	3868888.9	Resident	1.67E-02	3.09E-03	1.42E-03	3.52E-03
322735.9	3868986.0	Resident	1.79E-02	3.23E-03	1.49E-03	3.69E-03
322712.0	3869083.1	Resident	1.83E-02	3.26E-03	1.52E-03	3.73E-03
322689.4	3869180.5	Resident	1.90E-02	3.33E-03	1.58E-03	3.84E-03
322666.4	3869277.9	Resident	1.98E-02	3.43E-03	1.65E-03	3.96E-03
322643.2	3869375.1	Resident	2.10E-02	3.59E-03	1.75E-03	4.17E-03
322619.4	3869472.3	Resident	2.10E-02	3.56E-03	1.75E-03	4.15E-03
322595.7	3869569.4	Resident	2.15E-02	3.63E-03	1.80E-03	4.24E-03
322572.3	3869666.7	Resident	2.20E-02	3.69E-03	1.84E-03	4.31E-03
322433.0	3870250.3	Resident	2.46E-02	4.05E-03	2.07E-03	4.77E-03
322409.5	3870347.5	Resident	2.64E-02	4.33E-03	2.21E-03	5.10E-03
322386.3	3870444.8	Resident	2.59E-02	4.24E-03	2.17E-03	4.99E-03
322363.2	3870542.1	Resident	2.64E-02	4.32E-03	2.21E-03	5.08E-03
322340.0	3870639.4	Resident	2.67E-02	4.36E-03	2.23E-03	5.13E-03
322316.7	3870736.6	Resident	2.63E-02	4.29E-03	2.20E-03	5.05E-03
322269.5	3870931.0	Resident	2.71E-02	4.41E-03	2.26E-03	5.20E-03
322246.5	3871028.3	Resident	2.77E-02	4.51E-03	2.32E-03	5.32E-03
322223.3	3871125.6	Resident	2.86E-02	4.65E-03	2.39E-03	5.48E-03
322200.2	3871222.9	Resident	2.88E-02	4.67E-03	2.40E-03	5.51E-03
322177.0	3871320.2	Resident	2.84E-02	4.61E-03	2.38E-03	5.44E-03
322153.6	3871417.4	Resident	2.85E-02	4.62E-03	2.38E-03	5.45E-03
322130.5	3871514.7	Resident	2.85E-02	4.62E-03	2.38E-03	5.45E-03
322106.9	3871611.9	Resident	2.82E-02	4.57E-03	2.35E-03	5.39E-03
323819.9	3871012.9	Resident	1.53E-02	2.52E-03	1.29E-03	2.96E-03
323843.0	3870915.6	Resident	1.53E-02	2.51E-03	1.28E-03	2.96E-03
323866.1	3870818.3	Resident	1.53E-02	2.52E-03	1.29E-03	2.96E-03
323889.1	3870721.0	Resident	1.53E-02	2.52E-03	1.29E-03	2.97E-03
323912.2	3870623.7	Resident	1.54E-02	2.54E-03	1.30E-03	2.98E-03
323935.6	3870526.5	Resident	1.55E-02	2.56E-03	1.30E-03	3.01E-03
323958.9	3870429.2	Resident	1.56E-02	2.58E-03	1.31E-03	3.03E-03
323982.2	3870332.0	Resident	1.57E-02	2.60E-03	1.33E-03	3.06E-03
324005.0	3870234.6	Resident	1.58E-02	2.61E-03	1.33E-03	3.07E-03
324052.0	3870040.2	Resident	1.59E-02	2.64E-03	1.34E-03	3.09E-03
324075.2	3869942.9	Resident	1.59E-02	2.65E-03	1.34E-03	3.11E-03
324098.5	3869845.7	Resident	1.59E-02	2.66E-03	1.35E-03	3.12E-03
324121.9	3869748.4	Resident	1.63E-02	2.72E-03	1.37E-03	3.18E-03
324144.8	3869651.1	Resident	1.63E-02	2.73E-03	1.38E-03	3.20E-03
324168.3	3869553.9	Resident	1.64E-02	2.75E-03	1.39E-03	3.23E-03
324431.4	3868486.0	Resident	1.43E-02	2.58E-03	1.22E-03	2.97E-03
324475.8	3868396.5	Resident	1.38E-02	2.51E-03	1.19E-03	2.89E-03
324523.5	3868308.6	Resident	1.31E-02	2.42E-03	1.13E-03	2.77E-03
324571.2	3868220.7	Resident	1.25E-02	2.34E-03	1.10E-03	2.68E-03
322861.1	3867648.7	Resident	2.09E-02	4.41E-03	2.06E-03	5.06E-03
322866.3	3867748.5	Resident	2.08E-02	4.38E-03	2.04E-03	5.03E-03
322872.9	3867848.3	Resident	2.05E-02	4.30E-03	2.01E-03	4.94E-03
322872.4	3867948.1	Resident	2.12E-02	4.41E-03	2.06E-03	5.06E-03
322856.2	3868046.8	Resident	2.01E-02	4.18E-03	1.95E-03	4.79E-03
322834.2	3868144.3	Resident	1.88E-02	3.89E-03	1.82E-03	4.46E-03
322811.3	3868241.7	Resident	1.76E-02	3.62E-03	1.69E-03	4.15E-03
322763.7	3868435.9	Resident	1.51E-02	3.05E-03	1.42E-03	3.49E-03
322741.6	3868533.5	Resident	1.43E-02	2.87E-03	1.33E-03	3.28E-03
322719.1	3868630.9	Resident	1.43E-02	2.82E-03	1.30E-03	3.22E-03
322695.9	3868728.2	Resident	1.41E-02	2.74E-03	1.26E-03	3.13E-03
322672.2	3868825.4	Resident	1.45E-02	2.75E-03	1.26E-03	3.13E-03
322648.7	3868922.5	Resident	1.49E-02	2.78E-03	1.28E-03	3.18E-03
322624.4	3869019.6	Resident	1.52E-02	2.79E-03	1.29E-03	3.19E-03
322601.6	3869116.9	Resident	1.59E-02	2.86E-03	1.33E-03	3.27E-03
322578.7	3869214.3	Resident	1.63E-02	2.90E-03	1.37E-03	3.33E-03

Table D.2. Chronic Noncancer Hazard Index Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2]	Chronic Noncancer Hazard Index Estimates			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[3]	Future Plus Project 2040
322555.6	3869311.6	Resident	1.73E-02	3.02E-03	1.44E-03	3.49E-03
322461.4	3869700.4	Resident	1.93E-02	3.26E-03	1.62E-03	3.81E-03
322438.1	3869797.6	Resident	1.97E-02	3.31E-03	1.65E-03	3.87E-03
322414.6	3869894.8	Resident	2.00E-02	3.35E-03	1.68E-03	3.92E-03
322391.6	3869992.1	Resident	2.05E-02	3.42E-03	1.72E-03	4.01E-03
322322.0	3870284.0	Resident	2.21E-02	3.65E-03	1.86E-03	4.29E-03
322298.6	3870381.2	Resident	2.30E-02	3.79E-03	1.93E-03	4.45E-03
322275.5	3870478.5	Resident	2.32E-02	3.81E-03	1.94E-03	4.48E-03
322252.4	3870575.8	Resident	2.36E-02	3.87E-03	1.98E-03	4.56E-03
322205.6	3870770.3	Resident	2.38E-02	3.90E-03	2.00E-03	4.59E-03
322181.7	3870867.4	Resident	2.36E-02	3.85E-03	1.98E-03	4.54E-03
322158.8	3870964.7	Resident	2.35E-02	3.84E-03	1.97E-03	4.52E-03
322135.6	3871062.0	Resident	2.44E-02	3.98E-03	2.05E-03	4.70E-03
322112.5	3871159.3	Resident	2.54E-02	4.14E-03	2.13E-03	4.88E-03
322089.5	3871256.6	Resident	2.54E-02	4.12E-03	2.12E-03	4.86E-03
322066.0	3871353.8	Resident	2.54E-02	4.13E-03	2.12E-03	4.87E-03
322042.8	3871451.1	Resident	2.59E-02	4.20E-03	2.16E-03	4.95E-03
322019.4	3871548.3	Resident	2.62E-02	4.26E-03	2.19E-03	5.02E-03
321995.9	3871645.5	Resident	2.64E-02	4.28E-03	2.21E-03	5.06E-03
323909.6	3871067.9	Resident	1.40E-02	2.30E-03	1.18E-03	2.71E-03
323932.7	3870970.6	Resident	1.39E-02	2.28E-03	1.17E-03	2.69E-03
323955.8	3870873.3	Resident	1.39E-02	2.29E-03	1.17E-03	2.69E-03
323978.8	3870775.9	Resident	1.39E-02	2.29E-03	1.17E-03	2.69E-03
324001.9	3870678.7	Resident	1.39E-02	2.29E-03	1.17E-03	2.69E-03
324025.2	3870581.4	Resident	1.40E-02	2.31E-03	1.18E-03	2.71E-03
324048.6	3870484.2	Resident	1.40E-02	2.32E-03	1.18E-03	2.73E-03
324071.9	3870386.9	Resident	1.41E-02	2.34E-03	1.19E-03	2.75E-03
324164.9	3869997.8	Resident	1.45E-02	2.42E-03	1.22E-03	2.83E-03
324188.2	3869900.6	Resident	1.46E-02	2.44E-03	1.23E-03	2.86E-03
324211.6	3869803.4	Resident	1.47E-02	2.46E-03	1.24E-03	2.88E-03
324443.1	3868830.5	Resident	1.38E-02	2.42E-03	1.18E-03	2.80E-03
324467.3	3868733.5	Resident	1.38E-02	2.42E-03	1.18E-03	2.80E-03
324491.7	3868636.5	Resident	1.35E-02	2.39E-03	1.16E-03	2.77E-03
324518.3	3868540.1	Resident	1.31E-02	2.36E-03	1.13E-03	2.72E-03
324560.7	3868449.8	Resident	1.24E-02	2.25E-03	1.07E-03	2.59E-03
324608.3	3868361.9	Resident	1.21E-02	2.21E-03	1.04E-03	2.54E-03
324701.9	3868185.2	Resident	1.13E-02	2.10E-03	9.89E-04	2.41E-03
324751.1	3868098.1	Resident	1.05E-02	1.99E-03	9.36E-04	2.28E-03
322758.6	3867583.6	Resident	1.78E-02	3.75E-03	1.75E-03	4.30E-03
322762.4	3867683.5	Resident	1.78E-02	3.76E-03	1.75E-03	4.31E-03
322769.2	3867783.3	Resident	1.85E-02	3.88E-03	1.81E-03	4.46E-03
322774.3	3867883.1	Resident	1.84E-02	3.85E-03	1.80E-03	4.41E-03
322766.7	3867982.6	Resident	1.75E-02	3.65E-03	1.71E-03	4.19E-03
322746.1	3868080.4	Resident	1.67E-02	3.47E-03	1.62E-03	3.98E-03
322723.7	3868177.9	Resident	1.58E-02	3.26E-03	1.53E-03	3.74E-03
322700.5	3868275.2	Resident	1.47E-02	3.03E-03	1.42E-03	3.48E-03
322676.2	3868372.2	Resident	1.39E-02	2.84E-03	1.33E-03	3.25E-03
322631.3	3868567.1	Resident	1.29E-02	2.60E-03	1.21E-03	2.97E-03
322608.6	3868664.5	Resident	1.25E-02	2.49E-03	1.15E-03	2.84E-03
322584.7	3868761.6	Resident	1.27E-02	2.47E-03	1.14E-03	2.82E-03
322561.3	3868858.8	Resident	1.27E-02	2.45E-03	1.13E-03	2.79E-03
322537.2	3868955.9	Resident	1.30E-02	2.46E-03	1.13E-03	2.81E-03
322513.7	3869053.1	Resident	1.37E-02	2.53E-03	1.17E-03	2.89E-03
322491.0	3869150.5	Resident	1.37E-02	2.49E-03	1.16E-03	2.85E-03
322350.5	3869733.8	Resident	1.71E-02	2.91E-03	1.44E-03	3.38E-03
322327.3	3869831.1	Resident	1.74E-02	2.95E-03	1.47E-03	3.44E-03
322303.7	3869928.3	Resident	1.77E-02	2.98E-03	1.49E-03	3.48E-03
322211.1	3870317.4	Resident	2.01E-02	3.32E-03	1.69E-03	3.90E-03

Table D.2. Chronic Noncancer Hazard Index Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2]	Chronic Noncancer Hazard Index Estimates			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[3]	Future Plus Project 2040
322187.8	3870414.7	Resident	2.09E-02	3.44E-03	1.75E-03	4.04E-03
322141.6	3870609.3	Resident	2.14E-02	3.51E-03	1.79E-03	4.13E-03
322118.2	3870706.5	Resident	2.14E-02	3.52E-03	1.80E-03	4.14E-03
322094.4	3870803.7	Resident	2.13E-02	3.49E-03	1.78E-03	4.10E-03
322071.1	3870900.9	Resident	2.09E-02	3.43E-03	1.75E-03	4.03E-03
322048.0	3870998.2	Resident	2.05E-02	3.35E-03	1.72E-03	3.95E-03
322024.9	3871095.5	Resident	2.20E-02	3.59E-03	1.84E-03	4.23E-03
322001.8	3871192.8	Resident	2.27E-02	3.70E-03	1.90E-03	4.36E-03
321978.5	3871290.1	Resident	2.28E-02	3.71E-03	1.91E-03	4.37E-03
321955.2	3871387.3	Resident	2.34E-02	3.81E-03	1.96E-03	4.50E-03
321932.0	3871484.6	Resident	2.42E-02	3.93E-03	2.02E-03	4.64E-03
324022.5	3871025.5	Resident	1.26E-02	2.08E-03	1.06E-03	2.45E-03
324045.6	3870928.2	Resident	1.26E-02	2.08E-03	1.06E-03	2.45E-03
324068.6	3870830.9	Resident	1.26E-02	2.09E-03	1.06E-03	2.45E-03
324091.7	3870733.6	Resident	1.26E-02	2.09E-03	1.07E-03	2.46E-03
324114.9	3870636.3	Resident	1.27E-02	2.10E-03	1.07E-03	2.47E-03
324138.3	3870539.1	Resident	1.27E-02	2.11E-03	1.07E-03	2.48E-03
324161.6	3870441.8	Resident	1.28E-02	2.12E-03	1.08E-03	2.49E-03
324184.7	3870344.6	Resident	1.28E-02	2.13E-03	1.08E-03	2.50E-03
324207.6	3870247.2	Resident	1.29E-02	2.15E-03	1.09E-03	2.52E-03
324231.2	3870150.0	Resident	1.30E-02	2.17E-03	1.10E-03	2.54E-03
324441.4	3869274.9	Resident	1.30E-02	2.22E-03	1.11E-03	2.59E-03
324464.2	3869177.5	Resident	1.30E-02	2.23E-03	1.10E-03	2.60E-03
324487.4	3869080.2	Resident	1.30E-02	2.24E-03	1.11E-03	2.61E-03
324510.3	3868982.9	Resident	1.28E-02	2.23E-03	1.10E-03	2.59E-03
324533.0	3868885.5	Resident	1.27E-02	2.21E-03	1.08E-03	2.57E-03
324556.7	3868788.3	Resident	1.25E-02	2.20E-03	1.07E-03	2.56E-03
324581.0	3868691.3	Resident	1.24E-02	2.19E-03	1.06E-03	2.54E-03
324605.5	3868594.4	Resident	1.22E-02	2.17E-03	1.05E-03	2.51E-03
324645.6	3868503.1	Resident	1.17E-02	2.11E-03	1.01E-03	2.43E-03
324693.2	3868415.1	Resident	1.12E-02	2.04E-03	9.68E-04	2.34E-03
324786.7	3868238.4	Resident	1.06E-02	1.97E-03	9.27E-04	2.26E-03
324836.0	3868151.4	Resident	1.00E-02	1.88E-03	8.85E-04	2.16E-03
322659.8	3867617.8	Resident	1.59E-02	3.35E-03	1.56E-03	3.84E-03
322671.4	3867817.4	Resident	1.59E-02	3.35E-03	1.56E-03	3.84E-03
322674.4	3867917.4	Resident	1.58E-02	3.31E-03	1.55E-03	3.80E-03
322658.1	3868016.0	Resident	1.51E-02	3.16E-03	1.48E-03	3.63E-03
322636.1	3868113.5	Resident	1.43E-02	2.98E-03	1.40E-03	3.42E-03
322613.1	3868210.8	Resident	1.34E-02	2.77E-03	1.30E-03	3.18E-03
322589.2	3868307.9	Resident	1.28E-02	2.64E-03	1.24E-03	3.03E-03
322565.6	3868405.1	Resident	1.21E-02	2.48E-03	1.16E-03	2.84E-03
322543.5	3868502.7	Resident	1.18E-02	2.40E-03	1.12E-03	2.75E-03
322521.0	3868600.1	Resident	1.17E-02	2.35E-03	1.10E-03	2.69E-03
322497.5	3868697.3	Resident	1.15E-02	2.29E-03	1.06E-03	2.62E-03
322473.9	3868794.5	Resident	1.11E-02	2.20E-03	1.02E-03	2.51E-03
322450.2	3868891.6	Resident	1.12E-02	2.17E-03	1.01E-03	2.48E-03
322426.0	3868988.7	Resident	1.16E-02	2.20E-03	1.02E-03	2.52E-03
322263.1	3869669.5	Resident	1.47E-02	2.54E-03	1.24E-03	2.95E-03
322239.9	3869766.8	Resident	1.53E-02	2.62E-03	1.29E-03	3.05E-03
322216.3	3869863.9	Resident	1.56E-02	2.65E-03	1.31E-03	3.09E-03
322193.4	3869961.3	Resident	1.60E-02	2.71E-03	1.35E-03	3.16E-03
322100.3	3870350.3	Resident	1.84E-02	3.06E-03	1.55E-03	3.59E-03
322077.3	3870447.7	Resident	1.91E-02	3.16E-03	1.61E-03	3.71E-03
322054.1	3870544.9	Resident	1.96E-02	3.23E-03	1.64E-03	3.80E-03
322030.8	3870642.2	Resident	1.95E-02	3.21E-03	1.64E-03	3.77E-03
322007.2	3870739.4	Resident	1.97E-02	3.24E-03	1.65E-03	3.81E-03
321983.5	3870836.5	Resident	1.96E-02	3.23E-03	1.65E-03	3.80E-03
321960.5	3870933.9	Resident	1.94E-02	3.19E-03	1.63E-03	3.75E-03

Table D.2. Chronic Noncancer Hazard Index Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2]	Chronic Noncancer Hazard Index Estimates			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[3]	Future Plus Project 2040
321937.4	3871031.2	Resident	1.98E-02	3.24E-03	1.66E-03	3.82E-03
321914.3	3871128.4	Resident	2.08E-02	3.39E-03	1.74E-03	4.00E-03
324327.6	3870822.3	Resident	1.03E-02	1.72E-03	8.72E-04	2.02E-03
324385.7	3870579.2	Resident	1.04E-02	1.74E-03	8.81E-04	2.04E-03
324443.5	3870336.0	Resident	1.07E-02	1.79E-03	9.04E-04	2.10E-03
324618.9	3869606.7	Resident	1.06E-02	1.81E-03	9.05E-04	2.11E-03
324677.4	3869363.7	Resident	1.06E-02	1.83E-03	9.07E-04	2.13E-03
324857.9	3868636.2	Resident	1.00E-02	1.79E-03	8.66E-04	2.07E-03
324976.5	3868416.2	Resident	9.45E-03	1.71E-03	8.23E-04	1.98E-03
325094.8	3868196.0	Resident	8.98E-03	1.65E-03	7.89E-04	1.90E-03
322410.8	3867650.0	Resident	1.17E-02	2.46E-03	1.15E-03	2.82E-03
322424.4	3867899.6	Resident	1.14E-02	2.40E-03	1.12E-03	2.76E-03
322372.0	3868143.8	Resident	1.03E-02	2.15E-03	1.01E-03	2.47E-03
322313.5	3868386.9	Resident	9.73E-03	2.02E-03	9.45E-04	2.31E-03
322256.5	3868630.3	Resident	9.29E-03	1.90E-03	8.88E-04	2.18E-03
322139.4	3869116.4	Resident	9.50E-03	1.83E-03	8.46E-04	2.09E-03
322022.1	3869602.5	Resident	1.10E-02	1.96E-03	9.32E-04	2.26E-03
321906.1	3870088.9	Resident	1.34E-02	2.28E-03	1.13E-03	2.67E-03
324377.5	3871689.2	Resident	8.69E-03	1.44E-03	7.35E-04	1.70E-03
324435.8	3871446.1	Resident	8.68E-03	1.44E-03	7.34E-04	1.69E-03
324609.9	3870716.5	Resident	8.83E-03	1.48E-03	7.49E-04	1.73E-03
324784.5	3869987.1	Resident	8.88E-03	1.51E-03	7.56E-04	1.76E-03
324901.8	3869501.1	Resident	8.89E-03	1.53E-03	7.60E-04	1.78E-03
325307.4	3868329.1	Resident	8.00E-03	1.45E-03	7.01E-04	1.68E-03
322163.9	3867729.1	Resident	8.86E-03	1.87E-03	8.73E-04	2.14E-03
322154.4	3867976.6	Resident	8.43E-03	1.77E-03	8.29E-04	2.03E-03
322095.8	3868219.7	Resident	8.11E-03	1.70E-03	7.95E-04	1.95E-03
322039.4	3868463.2	Resident	7.64E-03	1.59E-03	7.44E-04	1.82E-03
321980.9	3868706.3	Resident	7.52E-03	1.55E-03	7.24E-04	1.77E-03
321921.9	3868949.3	Resident	7.50E-03	1.51E-03	7.07E-04	1.73E-03
321864.3	3869192.5	Resident	7.21E-03	1.42E-03	6.62E-04	1.63E-03
324543.9	3872069.8	Resident	7.50E-03	1.25E-03	6.36E-04	1.47E-03
324602.0	3871826.7	Resident	7.53E-03	1.25E-03	6.38E-04	1.47E-03
324660.2	3871583.5	Resident	7.58E-03	1.26E-03	6.42E-04	1.48E-03
324718.4	3871340.4	Resident	7.56E-03	1.26E-03	6.41E-04	1.48E-03
324950.2	3870367.6	Resident	7.70E-03	1.30E-03	6.55E-04	1.52E-03
325008.6	3870124.5	Resident	7.66E-03	1.30E-03	6.53E-04	1.52E-03
325126.2	3869638.5	Resident	7.64E-03	1.31E-03	6.54E-04	1.53E-03
325241.1	3869151.8	Resident	7.68E-03	1.34E-03	6.63E-04	1.56E-03
325299.7	3868908.8	Resident	7.60E-03	1.34E-03	6.58E-04	1.56E-03
325520.0	3868462.1	Resident	7.31E-03	1.31E-03	6.38E-04	1.52E-03
325637.8	3868241.6	Resident	7.14E-03	1.29E-03	6.27E-04	1.49E-03
321903.7	3867557.4	Resident	7.23E-03	1.53E-03	7.13E-04	1.75E-03
321917.9	3867807.0	Resident	7.34E-03	1.55E-03	7.23E-04	1.77E-03
321879.9	3868051.9	Resident	6.98E-03	1.47E-03	6.87E-04	1.68E-03
321821.6	3868295.0	Resident	6.66E-03	1.39E-03	6.53E-04	1.60E-03
321764.2	3868538.3	Resident	6.62E-03	1.38E-03	6.45E-04	1.58E-03
321704.7	3868781.2	Resident	6.57E-03	1.36E-03	6.35E-04	1.55E-03
324826.2	3871964.0	Resident	6.63E-03	1.11E-03	5.63E-04	1.30E-03
324942.3	3871477.6	Resident	6.68E-03	1.12E-03	5.67E-04	1.31E-03
325000.7	3871234.6	Resident	6.67E-03	1.12E-03	5.67E-04	1.31E-03
325174.3	3870504.9	Resident	6.76E-03	1.14E-03	5.76E-04	1.34E-03
325232.8	3870261.8	Resident	6.72E-03	1.14E-03	5.73E-04	1.34E-03
325291.2	3870018.7	Resident	6.72E-03	1.15E-03	5.75E-04	1.34E-03
325349.8	3869775.7	Resident	6.74E-03	1.16E-03	5.78E-04	1.35E-03
325408.2	3869532.6	Resident	6.75E-03	1.17E-03	5.80E-04	1.36E-03
325523.1	3869046.0	Resident	6.79E-03	1.19E-03	5.88E-04	1.39E-03
325732.6	3868595.2	Resident	6.63E-03	1.18E-03	5.77E-04	1.37E-03

Table D.2. Chronic Noncancer Hazard Index Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2]	Chronic Noncancer Hazard Index Estimates			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[3]	Future Plus Project 2040
325850.2	3868374.6	Resident	6.46E-03	1.16E-03	5.65E-04	1.34E-03
325967.5	3868153.8	Resident	6.31E-03	1.14E-03	5.55E-04	1.32E-03
325391.0	3871752.4	Resident	5.38E-03	9.03E-04	4.58E-04	1.06E-03
325739.4	3870293.4	Resident	5.49E-03	9.39E-04	4.70E-04	1.10E-03
325971.8	3869320.7	Resident	5.51E-03	9.62E-04	4.76E-04	1.12E-03
326392.6	3868419.7	Resident	5.24E-03	9.33E-04	4.58E-04	1.08E-03
326619.9	3867974.5	Resident	4.97E-03	8.94E-04	4.37E-04	1.04E-03
326420.7	3869595.6	Resident	4.67E-03	8.12E-04	4.03E-04	9.47E-04
326582.1	3869126.6	Resident	4.62E-03	8.10E-04	4.01E-04	9.44E-04
326817.8	3868685.6	Resident	4.51E-03	7.96E-04	3.93E-04	9.26E-04
327047.2	3868241.4	Resident	4.34E-03	7.72E-04	3.80E-04	8.98E-04
328364.6	3867354.6	Resident	2.16E-03	4.02E-04	1.93E-04	4.64E-04
326334.9	3868717.1	School	5.17E-03	9.15E-04	4.50E-04	1.06E-03
324761.8	3871620.5	School	7.16E-03	1.20E-03	6.07E-04	1.40E-03
324028.5	3870137.4	School	1.58E-02	2.62E-03	1.33E-03	3.07E-03
322532.0	3869408.8	School	1.78E-02	3.08E-03	1.49E-03	3.56E-03
322508.2	3869505.9	School	1.86E-02	3.17E-03	1.55E-03	3.69E-03
322484.8	3869603.1	School	1.85E-02	3.14E-03	1.55E-03	3.66E-03
324118.1	3870192.3	School	1.42E-02	2.36E-03	1.20E-03	2.77E-03
324141.6	3870095.1	School	1.43E-02	2.39E-03	1.21E-03	2.80E-03
322420.9	3869442.2	School	1.58E-02	2.75E-03	1.32E-03	3.17E-03
322397.3	3869539.4	School	1.61E-02	2.78E-03	1.35E-03	3.22E-03
322333.7	3869377.9	School	1.39E-02	2.47E-03	1.17E-03	2.84E-03
322309.9	3869475.0	School	1.45E-02	2.55E-03	1.22E-03	2.94E-03
322286.5	3869572.3	School	1.47E-02	2.55E-03	1.23E-03	2.95E-03
322147.2	3870155.9	School	1.69E-02	2.83E-03	1.42E-03	3.31E-03
322123.7	3870253.1	School	1.75E-02	2.92E-03	1.48E-03	3.43E-03
324792.3	3868877.0	School	1.03E-02	1.81E-03	8.87E-04	2.10E-03
325857.0	3869807.4	School	5.50E-03	9.50E-04	4.73E-04	1.11E-03

Notes:
1. The projection datum is WGS-84.
2. Receptor types are designated based on the Project's conceptual land use map seen in Figure 1.
3. Traffic data were provided for calendar year 2015. Since the project will not be built out until calendar year 2040, emission factors from for calendar year 2040 were used for these health risk estimates.

Abbreviations:
UTM - Universal Transverse Mercator
WGS - World Geodetic System

Source:
\\wcirvfps1\projects\T\Tejon Ranch\Report\Appendix D_HRA at Sensitive Receptors\Grapevine_I-5_HRA_Report_Appendix D\[HARP2_Results_Summary.xlsx]D.2_Chronic Summary

APPENDIX G

Carbon Monoxide Hotspot Analysis

EMFAC2014 - Emission Factor Calculations, Kern County 2015 (5 Miles per Hour)

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT	CO_RUNEX
Kern	2015	HHDT	Aggregated	5	GAS	45.54359144	76.47294315
Kern	2015	HHDT	Aggregated	5	DSL	12458.84642	5.049134292
Kern	2015	LDA	Aggregated	5	GAS	11898.55616	2.266039498
Kern	2015	LDA	Aggregated	5	DSL	98.23024679	3.139145744
Kern	2015	LDT1	Aggregated	5	GAS	1012.995077	7.985990085
Kern	2015	LDT1	Aggregated	5	DSL	1.749488494	3.890040107
Kern	2015	LDT2	Aggregated	5	GAS	4421.140685	3.523074996
Kern	2015	LDT2	Aggregated	5	DSL	5.946910487	1.99142453
Kern	2015	LHDT1	Aggregated	5	GAS	11666.0151	5.680262514
Kern	2015	LHDT1	Aggregated	5	DSL	8805.325934	3.145921773
Kern	2015	LHDT2	Aggregated	5	GAS	2533.899419	2.665389637
Kern	2015	LHDT2	Aggregated	5	DSL	3285.523555	2.973782414
Kern	2015	MCY	Aggregated	5	GAS	181.4831556	65.96329918
Kern	2015	MDV	Aggregated	5	GAS	4504.843674	4.53462952
Kern	2015	MDV	Aggregated	5	DSL	40.19014272	3.244320789
Kern	2015	MH	Aggregated	5	GAS	261.4770955	29.77304378
Kern	2015	MH	Aggregated	5	DSL	70.30850141	2.444911428
Kern	2015	MHDT	Aggregated	5	GAS	520.1982307	18.29035555
Kern	2015	MHDT	Aggregated	5	DSL	4224.557819	4.004044097
Kern	2015	OBUS	Aggregated	5	GAS	264.7511693	5.567962731
Kern	2015	OBUS	Aggregated	5	DSL	116.4515144	3.477527845
Kern	2015	SBUS	Aggregated	5	GAS	84.5942863	18.26007991
Kern	2015	SBUS	Aggregated	5	DSL	209.4394107	1.626072633
Kern	2015	UBUS	Aggregated	5	GAS	286.5856986	14.88336762
Kern	2015	UBUS	Aggregated	5	DSL	617.6375003	32.29878808
						Composite	**4.772971711**

EMFAC2014 - Emission Factor Calculations, Kern County 2040 (5 Miles per Hour)

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT	CO_RUNEX
Kern	2040	HHDT	Aggregated	5	GAS	37.80487908	54.00403348
Kern	2040	HHDT	Aggregated	5	DSL	20297.80283	3.427521704
Kern	2040	LDA	Aggregated	5	GAS	14615.57589	0.564143102
Kern	2040	LDA	Aggregated	5	DSL	202.9199973	2.537939496
Kern	2040	LDT1	Aggregated	5	GAS	998.4452742	0.637636925
Kern	2040	LDT1	Aggregated	5	DSL	0.560504159	2.70172346
Kern	2040	LDT2	Aggregated	5	GAS	6165.111048	0.762877225
Kern	2040	LDT2	Aggregated	5	DSL	13.55080113	2.683709793
Kern	2040	LHDT1	Aggregated	5	GAS	4057.54491	0.244718354
Kern	2040	LHDT1	Aggregated	5	DSL	4382.438318	3.511679173
Kern	2040	LHDT2	Aggregated	5	GAS	1343.846373	0.215684867
Kern	2040	LHDT2	Aggregated	5	DSL	2115.086752	3.290558953
Kern	2040	MCY	Aggregated	5	GAS	181.7785831	43.25854831
Kern	2040	MDV	Aggregated	5	GAS	3079.9361	0.915391248
Kern	2040	MDV	Aggregated	5	DSL	86.46130781	2.949151025
Kern	2040	MH	Aggregated	5	GAS	139.976111	0.372508817
Kern	2040	MH	Aggregated	5	DSL	35.52768353	2.133036078
Kern	2040	MHDT	Aggregated	5	GAS	679.9318228	0.358563527
Kern	2040	MHDT	Aggregated	5	DSL	4806.145463	1.269304406
Kern	2040	OBUS	Aggregated	5	GAS	366.6858576	0.370588999
Kern	2040	OBUS	Aggregated	5	DSL	200.4927203	1.868059895
Kern	2040	SBUS	Aggregated	5	GAS	116.0774167	0.319905572
Kern	2040	SBUS	Aggregated	5	DSL	218.6468762	1.191562141
Kern	2040	UBUS	Aggregated	5	GAS	434.9375188	0.759351066
Kern	2040	UBUS	Aggregated	5	DSL	450.9582126	31.906472
						Composite	**2.188587144**

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: A&D 2015
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	1.0 M/S	Z0=	100. CM	ALT=	408.4 (M)
BRG=	WORST CASE	VD=	0.0 CM/S		
CLAS=	7 (G)	VS=	0.0 CM/S		
MIXH=	1000. M	AMB=	1.3 PPM		
SIGTH=	10. DEGREES	TEMP=	3.3 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (FT) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (FT)	W (FT)
A. WBRA	500	36	30	36	AG	370	4.8	0.0	33.0
B. WBTA	500	18	-30	18	AG	990	4.8	0.0	33.0
C. WBLA	500	-12	-18	-12	AG	80	4.8	0.0	33.0
D. WBD	-30	18	-500	18	AG	2280	4.8	0.0	33.0
E. EBLA	-500	-12	30	-12	AG	440	4.8	0.0	33.0
F. EBTA	-500	-36	0	-36	AG	1510	4.8	0.0	33.0
G. EBRA	-500	-54	-18	-54	AG	510	4.8	0.0	33.0
H. EBD	0	-36	500	-36	AG	2100	4.8	0.0	33.0
I. NBLA	12	-500	12	18	AG	520	4.8	0.0	33.0
J. NBTA	30	-500	30	-12	AG	180	4.8	0.0	33.0
K. NBRA	42	-500	42	-36	AG	70	4.8	0.0	33.0
L. NBD	30	-12	30	500	AG	990	4.8	0.0	33.0
M. SBLA	0	500	0	-36	AG	520	4.8	0.0	33.0
N. SBTA	-18	500	-18	-12	AG	180	4.8	0.0	33.0
O. SBRA	-30	500	-30	18	AG	770	4.8	0.0	33.0
P. SBD	-18	-12	-18	-500	AG	770	4.8	0.0	33.0

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (FT) X	Y	Z
1. 1	-80	80	5.9
2. 2	80	80	5.9
3. 3	-80	-80	5.9
4. 4	80	-80	5.9

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: A&D 2015
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. 1	111.	2.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.2
2. 2	250.	2.1	0.0	0.0	0.0	0.3	0.1	0.1	0.1	0.0
3. 3	54.	2.1	0.0	0.1	0.0	0.0	0.0	0.2	0.1	0.1
4. 4	287.	2.1	0.0	0.0	0.0	0.2	0.1	0.3	0.1	0.1

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P
1. 1	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0
2. 2	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0
3. 3	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
4. 4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: A&D 2040
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	1.0 M/S	Z0=	100. CM	ALT=	408.4 (M)
BRG=	WORST CASE	VD=	0.0 CM/S		
CLAS=	7 (G)	VS=	0.0 CM/S		
MIXH=	1000. M	AMB=	1.3 PPM		
SIGTH=	10. DEGREES	TEMP=	3.3 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (FT) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (FT)	W (FT)
A. WBRA	500	36	30	36	AG	510	2.2	0.0	33.0
B. WBTA	500	18	-30	18	AG	840	2.2	0.0	33.0
C. WBLA	500	-12	-18	-12	AG	80	2.2	0.0	33.0
D. WBD	-30	18	-500	18	AG	1710	2.2	0.0	33.0
E. EBLA	-500	-12	30	-12	AG	520	2.2	0.0	33.0
F. EBTA	-500	-36	0	-36	AG	1370	2.2	0.0	33.0
G. EBRA	-500	-54	-18	-54	AG	470	2.2	0.0	33.0
H. EBD	0	-36	500	-36	AG	1650	2.2	0.0	33.0
I. NBLA	12	-500	12	18	AG	480	2.2	0.0	33.0
J. NBTA	30	-500	30	-12	AG	230	2.2	0.0	33.0
K. NBRA	42	-500	42	-36	AG	70	2.2	0.0	33.0
L. NBD	30	-12	30	500	AG	1260	2.2	0.0	33.0
M. SBLA	0	500	0	-36	AG	210	2.2	0.0	33.0
N. SBTA	-18	500	-18	-12	AG	100	2.2	0.0	33.0
O. SBRA	-30	500	-30	18	AG	390	2.2	0.0	33.0
P. SBD	-18	-12	-18	-500	AG	650	2.2	0.0	33.0

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (FT) X	Y	Z
1. 1	-80	80	5.9
2. 2	80	80	5.9
3. 3	-80	-80	5.9
4. 4	80	-80	5.9

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: A&D 2040
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. 1	161.	1.6	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
2. 2	249.	1.6	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0
3. 3	53.	1.7	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
4. 4	286.	1.7	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P
1. 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
2. 2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
3. 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: I&A 2015
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	1.0 M/S	Z0=	100. CM	ALT=	405.4 (M)
BRG=	WORST CASE	VD=	0.0 CM/S		
CLAS=	7 (G)	VS=	0.0 CM/S		
MIXH=	1000. M	AMB=	1.3 PPM		
SIGTH=	10. DEGREES	TEMP=	3.3 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (FT) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (FT)	W (FT)
A. WBTA	*	500	12	0	12	* AG	1150	4.8	0.0	33.0
B. WBLA	*	500	0	-12	0	* AG	30	4.8	0.0	33.0
C. WBD	*	0	12	-500	12	* AG	1170	4.8	0.0	33.0
D. EBTA	*	-500	-12	0	-12	* AG	1710	4.8	0.0	33.0
E. EBRA	*	-500	-24	-12	-24	* AG	20	4.8	0.0	33.0
F. EBD	*	0	-12	500	-12	* AG	1730	4.8	0.0	33.0
G. NBLA	*	0	-500	0	12	* AG	20	4.8	0.0	33.0
H. NBRA	*	24	-500	24	-12	* AG	20	4.8	0.0	33.0
I. SBD	*	-12	0	-12	-500	* AG	50	4.8	0.0	33.0

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (FT) X	Y	Z
1. 1	*	-60	60	5.9
2. 2	*	60	60	5.9
3. 3	*	-60	-60	5.9
4. 4	*	60	-60	5.9

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: I&A 2015
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. 1	108.	1.8	0.2	0.0	0.0	0.0	0.0	0.2	0.0	0.0
2. 2	252.	1.8	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0
3. 3	72.	1.8	0.2	0.0	0.0	0.0	0.0	0.3	0.0	0.0
4. 4	287.	1.8	0.0	0.0	0.2	0.3	0.0	0.0	0.0	0.0

RECEPTOR	CONC/LINK (PPM) I
1. 1	0.0
2. 2	0.0
3. 3	0.0
4. 4	0.0

APPENDIX H

Voluntary Emissions Reduction Agreement

VOLUNTARY EMISSION REDUCTION AGREEMENT 20160029

This Voluntary Emission Reduction Agreement ("Agreement") is entered into as of February 18, 2016 by and between Tejon Ranchcorp ("Developer") and the SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, an air pollution control district formed pursuant to California Health and Safety Code section 40150, et seq. ("District").

RECITALS

WHEREAS, the Developer is presently seeking governmental approval of land use entitlements ("Entitlements") which will permit the development of the Grapevine project ("Project") located in the County of Kern, California, as more particularly described on Exhibit A attached hereto, and

WHEREAS, the Project incorporates the design features specified on Exhibit B attached hereto and incorporated herein ("Emission Reduction Design Features"), in order to significantly reduce the air quality impacts associated with the Project; and

WHEREAS, despite incorporation of various requirements and mitigation measures, without additional emission reductions, the Project would cause impacts on air quality within the geographical boundaries of the San Joaquin Valley Unified Air Pollution Control District, as depicted on Exhibit C attached hereto and incorporated herein (the "District Boundaries"); and

WHEREAS, Developer has volunteered to commit additional emission reductions as a means of further reducing such impacts on air quality as set forth in greater detail herein; and

WHEREAS, Developer desires to fully comply with all requirements of the California Environmental Quality Act, codified at California Public Resources Code section 21000, et seq. ("CEQA"), including all requirements relating to the mitigation of air quality impacts arising from or in connection with the Project and each project phase; and

WHEREAS, District is an air pollution control district formed by the counties of

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Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus and Tulare, pursuant to California Health and Safety Code section 40150, et seq.; and

WHEREAS, District is responsible for developing and implementing air quality control measures within the District Boundaries, including air quality control measures for stationary sources, transportation sources, and indirect sources and incentive programs; and

WHEREAS, the District's incentive programs have been developed around several core principles, including cost-effectiveness, integrity, effective program administration, excellent customer service, the efficient use of District resources, fiscal transparency, and public accountability; and

WHEREAS, the District's incentive programs are regularly audited by independent outside agencies, including professional accountancy corporations on behalf of the federal government, the California Air Resources Board (ARB), the California Department of Finance, and the California Bureau of State Audits; and

WHEREAS, District has determined that with appropriate funding, District can provide reductions of emissions through its incentive programs from certain projects in types and in sufficient quantities to fully mitigate Project construction and operational key air quality criteria pollutant impacts (VOC/ROG, NO_x, and PM_{10}) from the Project ("Project Air Impacts"); and

WHEREAS, Developer and District desire to enter into this Agreement in order to develop and implement air quality mitigation measures which will fully mitigate the Project construction and operational Air Impacts. As a result of the implementation of this Agreement, the development of the Project will result in no net increase in criteria pollutant emissions over the criteria pollutant emissions which would otherwise exist without the development of the Project.

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AGREEMENT

NOW THEREFORE, in exchange of the mutual covenants herein contained, Developer and District hereby agree as follows:

1. Mitigation of Project Related Impacts on Air Quality

The Developer shall fully mitigate the project's emissions from construction and operations, as further described below, by achieving surplus, quantifiable and enforceable emission reductions. An overview of the Agreement is attached hereto in Exhibit D. "Surplus" emission reductions are reductions that are not otherwise required by existing laws or regulations. The determination of whether emission reductions are surplus shall be performed by District.

For the purpose of this agreement, full mitigation means the emission reductions achieved by the mitigation measures equals, or is greater than, the sum of all NOx, VOC/ROG, and PM10 emissions (which include the subset of PM2.5 emissions) identified as Estimated Emissions in Paragraph 1.3 or identified in the annual Total Project Emissions Tracking Report required by Paragraph 2.3, whichever is greater.

Developer may fully mitigate the entire Project related air impacts at one time, or Developer may fully mitigate each Project Phase at a time. For the purpose of this agreement, a Project Phase is any subset of the total Project including: any tentative subdivision map application (or commercial site plan application), or a combination of tentative tract map and commercial site plan applications, which would result in Project related air impacts if approved by the Lead Agency ("Project Phase").

1.1 Stationary Source Emissions

Stationary Source Emissions shall be fully mitigated under this Agreement. Stationary Source Emissions are emissions from stationary sources as defined in District Rule 2201 (New and Modified Stationary Source Review Rule), or in any other District Rule for which a District permit and emission offsets are required. "Stationary Source Emissions" include all construction emissions and operational potential emissions from Stationary Sources, except for emissions that trigger offsets under the

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District's permitting process.

The Developer shall determine, for each Project Phase as described in Section 1 above, estimated Stationary Source Emissions. Stationary Source owners and operators shall be required to estimate their Stationary Source Emissions as part of the Master Developer Review process and Special Use Permit process included in the Grapevine Special Plan to confirm that actual stationary source emissions are within the Stationary Source Emission estimates included for that Project Phase. Any Stationary Source Emissions that exceed the emission estimates identified by the Developer for that Project Phase ("Excess Stationary Source Emissions") will trigger the need for the stationary source operator to enter into a VERA or otherwise fully offset their Excess Stationary Source Emissions to the satisfaction of the District based on a mitigation measure or project approval condition proposed by Developer and required by the County. To assure that Excess Stationary Source Emissions on the Grapevine Project are fully offset by corresponding emission reductions, Developer agrees to have this mitigation measure, or an alternate mechanism acceptable to the District, placed as a condition of approval from the County as part of the EIR review process described in Paragraphs 9.3 and 9.4 herein. Developer shall confirm the County's concurrence with this mitigation measure requirement as a condition of this Agreement.

1.2 Other Source Emissions

Other Source Emissions shall be fully mitigated under this Agreement. Other Source Emissions are all Non-Stationary Source emissions, including but not limited to sources that are subject to District Rule 9510 Indirect Source Review. Other Source Emissions include all construction emissions and operational emissions from Other Sources.

1.3 Estimated Emissions and Adjustments

The Estimated Emissions to be mitigated include Stationary Source Emissions and Other Source Emissions and shall be based on the air quality impact assessment

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contained in a certified final EIR ("Estimated Emissions"). The preliminary Estimated Emissions for those sources are:

	VOC	NOx	PM10
Construction (tons)	253.08	315.58	8.03
Operational (tons/year)	345.91	554.55	363.16

These Estimated Emissions may be adjusted as part of the annual reporting process to more accurately quantify Project related air emissions, subject to District review and approval, if:

(1) the Lead Agency approves a revised air quality impact assessment for the Project, following consultation between the District and the Lead Agency confirming such revised assessment,

(2) the Lead Agency certifies a new or modified environmental assessment under CEQA demonstrating a revised Project or Project Phase, following consultation between the District and the Lead Agency confirming such new or modified assessment,

(3) the District approves a revised air quality assessment submitted by the Developer for a Project Phase or a portion thereof for a Project Phase that is not yet developed, as allowable and in accordance with the certified EIR, or

(4) the Stationary Sources that are developed within the Project (or a Project Phase) result in different potential emissions than the estimated potential emissions for such Stationary Sources, for a Project Phase or a portion thereof.

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2. Tracking and Reporting Emissions

2.1 Project Phase Estimated Emissions Tracking

To ensure sufficient mitigation is provided, the Developer shall track the estimated emissions, emission reductions, and excess emission reductions as allowed per Paragraph 6 (Excess Emission Reductions) for each Project Phase and/or portions of the Project Phase not yet developed ("Tracking Report"). As such, the Tracking Report shall be provided for each Project Phase and/or portions of the Project Phase that are developed and not yet developed.

The Tracking Report shall include the following information:

(1) The Estimated Emissions in the Final EIR;

(2) Estimated Stationary Source Potential Emissions per Paragraph 1.1 (Stationary Source Emissions);

(3) Estimated Other Source Emissions per Paragraph 1.2 (Other Source Emissions);

(4) Estimated Project Phase start date;

(5) If any, the updated Estimated Emissions after adjustments made in accordance to Paragraph 1.3 (Estimated Emissions and Adjustments);

(6) If applicable, the Excess Emissions Reductions per Paragraph 6 (Excess Emissions Reductions) that are transferred to and/or from another Project Phase;

(7) If applicable, the Estimated Emissions Reductions transferred to and/or from a portion of a Project Phase not yet developed;

(8) If applicable, the Excess Emissions Reductions per Paragraph 6 (Excess Emissions Reductions) that are transferred to another VERAs entered into between the District and Tejon Ranchcorp or its affiliated entities for development projects located on Tejon Ranch;

(9) Estimated Mitigation Cost per Paragraph 4 (Mitigation Cost);

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(10) Map of Project Phase;

(11) Any other description of the development within the Project Phase that is requested by the District and available as part of the County Project entitlement approval process, such as use and building permits; and

(12) Any Excess Stationary Source Emissions and the identity of the Stationary Source required to obtain additional offsets in accordance with Paragraph 1.1.

2.2 Project Phase Emissions Reporting

The Tracking Report shall be provided to the District for review and approval. The report shall be in a format acceptable to the District and shall be due 90 days prior to the start of each Project Phase or portion of a Project Phase.

2.3 Total Project Emissions Tracking

Developer shall track the estimated emissions, emission reductions, and excess emission reductions as allowed per Paragraph 6 (Excess Emission Reductions) for the Project. The Total Project Emissions Tracking Report shall include the following information:

(1) If any, the updated Estimated Emissions after adjustments made in accordance to Paragraph 1.3 (Estimated Emissions and Adjustments);

(2) Emissions reductions achieved by the District to date for the Project in accordance with this Agreement;

(4) If applicable, the Excess Emissions Reductions per Paragraph 6 (Excess Emissions Reductions) that are transferred to another VERAs entered into between the District and Tejon Ranchcorp or its affiliated entities for development projects located on Tejon Ranch;

(5) If applicable, the Estimated Excess Emission Reductions transferred to and/or from a portion of a Project Phase not yet developed; and

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(6) Any other description of the development within the Project that is requested by the District and available as part of the County Project entitlement approval process, such as use and building permits, that is necessary to determine the emissions and/or mitigation status of the total Project to date.

2.4 Total Project Emissions Reporting

Developer shall provide a total project summary report containing the information per Paragraph 2.3 (Total Project Emissions Tracking) annually, by April 30 for the preceding year. The total project summary report shall be in a form approved by the District and be subject to the District's review and approval.

3. Emission Reduction Project Selection

Developer may mitigate Project Air Impacts by any combination of the following (collectively, "Mitigation Measures"): (1) providing District with a list of emission reduction proposals and sufficient funds to execute the proposals, and/or (2) providing sufficient funds to the District to execute emissions reduction projects ("Air Quality Mitigation Funds") through the District's incentive programs. District shall credit Developer for all VOC/ROG, NOx, and PM10 emission reductions achieved under this Agreement prior to the date Developer receives final discretionary approval of the Project from all applicable public agencies.

3.1 Developer Provides Emission Reduction Proposals

3.1.1 If the Developer chooses to provide emission reduction proposals, the Developer shall submit complete proposals to District on District grant application forms. Each proposal shall contain the following: (1) an estimate of emission reductions to be achieved using District's methodology and approved by the District; (2) an estimated funding cost calculated by using the cost per ton per Paragraph 4 (Mitigation Cost) multiplied by the estimate of emission reductions to be achieved, plus an administrative cost of four (4) percent; and (3) a representation by Developer that the owner/operator of the identified emission reduction proposal equipment has

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expressed interest in entering into a written funding agreement with the District by submitting to the District a completed District grant application form.

A grant application form is required to be submitted for each piece of equipment that is to be replaced. Each grant application form shall be completely filled out and shall contain at the minimum the following: (1) engine model year of existing equipment; (2) brand of existing equipment; (3) horsepower of existing equipment; (4) hours per year that the equipment is used; (5) quote for new replacement equipment; (6) IRS Form W-9; and (7) signature by the owner/operator. The District reserves the right to accept or reject the projects proposed by the Developer.

3.1.2 The Developer shall provide emission reduction proposals no later than upon application to the Lead Agency for the first construction permit and before occurrence of the first Project related emissions generating activity for Project, or for the first construction permit and before occurrence of the first Project related emissions generating activity for a Project Phase if mitigating by Project Phase.

3.1.3 On the date of submittal of each emission reduction proposal, Developer shall advance to District a monetary sum equal to the total estimated cost specified in the emission reduction proposal ("Emission Reduction Proposal Advance") plus an administrative cost of four (4) percent. District shall use Emission Reduction Proposal Advances to execute Funding Agreements, as set forth in Paragraph 5.1 (Funding Agreements).

3.2 District Provides Emission Reduction Projects

3.2.1 If Developer chooses to mitigate through District emission reduction projects, Developer shall advance funds to District in accordance to Paragraph 4 (Mitigation Cost).

3.2.2 The funds shall be provided to the District no later than applying to Lead Agency for the first construction permit and before occurrence of the first Project related emissions generating activity for Project, or for the first construction permit and before occurrence of the first Project related emissions generating activity for a Project

Phase if mitigating by Project Phase.

4. Mitigation Cost

Developer shall advance to District a monetary sum equal to District's cost per ton as set forth in Table 1 (Emission Reduction Cost Schedule) below, multiplied by the Estimated Emissions, plus an administrative cost of four (4) percent ("Air Quality Mitigation Funds").

Table 1. Emission Reduction Cost Schedule

Criteria Pollutants	Construction Rate $/ton	Operational Rate $/ton
NOx or VOC/ROG	$9,350	$93,500
PM10	$9,011	$90,110

5. Use of Funds

5.1 Funding Agreements

Upon District's receipt of each Emission Reduction Proposal Advance or Air Quality Mitigation Funds, District shall use diligent efforts to (1) enter into Funding Agreements with the owners and/or operators of the pollution source equipment as identified in the emissions reduction proposals or as identified by the District inventory of emissions reduction projects from its incentive programs, within one hundred eighty (180) days of receiving funding; (2) determine the types and quantities of permanent reduction in emissions which would be realized by the Funding Agreements, (3) perform the determination of surplus emission reductions of NOx, VOC/ROG, and PM10 for each emissions reduction proposal and/or emissions reduction project, and (4) advise Developer of such determination in writing.

District shall notify Developer or designee in writing of Funding Agreements entered into by the District.

5.2 Unused Emission Reduction Proposal Advance

If District is unable to enter into Funding Agreements with owners or operators identified in Developer's emissions reduction proposals, District shall notify Developer and use any unused portion of the Emissions Reduction Proposal Advance to fund

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emissions reduction projects through the District's incentive programs in accordance with Paragraph 3.2 (District Provides Emission Reduction Projects).

5.3 Insufficient Emission Reductions with Funds Provided

In the event District is unable to achieve the required reductions to mitigate the Estimated Emissions for Project, or for each Project Phase if mitigating by Project Phase, District shall provide Developer a written statement of the amount of emission reductions that have been achieved from each emissions reduction proposal and/or emissions reduction project. Within ninety (90) days, Developer shall submit to District additional Mitigation Measures in accordance with Paragraph 3 (Emission Reduction Project Selection).

6. Excess Emission Reductions

Developer shall be credited with all emission reductions achieved by District through this Agreement that exceed the amount of required emission reductions for the Project Phase or portion of a Project Phase not yet developed ("Excess Emission Reductions").

Excess Emission Reductions may be applied to a subsequent Project Phase, or Developer may transfer surplus Excess Emission Reductions achieved under this Agreement to other similar voluntary emission reduction agreements entered into between the District and Tejon Ranchcorp or its affiliated entities for development projects located on Tejon Ranch (Tejon Projects). Developer must provide District written request, and be granted District approval (which approval shall not be unreasonably withheld) prior to any such transfers.

Developer shall have two years from the date District notifies Developer of Excess Emission Reductions to provide District with a written request for the transfer of Excess Emission Reductions, after such time Developer's transfer rights shall be deemed waived.

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7. Refund of Air Quality Mitigation Funds

Upon verification by District that Project Air Impacts have been fully mitigated, District shall refund to Developer any unused Emissions Reduction Proposal Advance or Air Quality Mitigation Funds. District shall have sixty (60) days to refund to Developer.

8. District Rule 9510 (Indirect Source Review)

Developer acknowledges that except as provided for in this Agreement, Developer is subject to all applicable provisions of District Rule 9510 (Indirect Source Review), that are in effect at the time of submitting an Air Impact Assessment application. District acknowledges that to the extent that the emission reductions provided under this Agreement equals or exceeds emission reductions that would otherwise be achieved through compliance with District Rule 9510, by entering into and meeting the obligations set forth in this Agreement, Developer shall be considered to be in compliance with District Rule 9510 emission reduction requirements.

8.1 Air Impact Assessment

Developer shall submit Air Impact Assessment applications as required by District Rule 9510.

8.2 Rule 9510 Equivalency

District shall calculate the amount of emission reductions required pursuant to District Rule 9510 to confirm the adequacy of the emission reductions achieved under this Agreement.

9. CEQA

9.1 Administrative Draft Air Assessment Protocol

Developer may submit to District an administrative Draft Air Assessment Protocol (Protocol) reflecting the methodology, including air quality impact modeling, to be utilized in the preparation of the Air Quality Assessment for the Project. If a Protocol is submitted, District shall review and provide Developer written comments regarding the technical merit of Protocol within sixty (60) business days following District receipt

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of Protocol. After Developer incorporates District recommendations, Developer shall provide District a final draft Protocol for review. If appropriate, District shall provide Developer written confirmation regarding the correctness of the Protocol. If Developer submits a Protocol to District for review, Developer shall provide District written notification of any subsequent changes to the Protocol before completing the Air Quality Assessment.

9.2 Air Quality Assessment

When Developer submits to District a Draft Air Assessment Protocol per Paragraph 9.1 (Administrative Draft Air Assessment Protocol), Developer shall submit to District a draft Air Quality Assessment characterizing the air quality impacts of the Project. If no Protocol is submitted, Developer may submit to District a draft Air Quality Assessment. District shall use its best efforts to review and comment upon the draft Air Quality Assessment within sixty (60) days following District's receipt. After receiving District comments, Developer shall provide District written confirmation regarding incorporation of District comments into the Air Quality Assessment, and provide District written notification of any subsequent changes to the Air Quality Assessment before submitting the Air Quality Assessment to the Lead Agency.

9.3 Administrative Draft Environmental Impact Report

Upon request by the Lead Agency, and submission by the Lead Agency to District of any portion of an administrative Draft Environmental Impact Report or other applicable CEQA document for the Project, District shall use its best efforts to review and provide the Lead Agency with the District's comments upon said administrative draft within fifteen (15) business days following District's receipt.

9.4 Draft and Final Environmental Impact Report

District shall fully perform its duties and obligations as a responsible agency when provided opportunity to comment upon the Draft Environmental Impact Report and Final Environmental Impact Report for the Project. District shall verify in writing as to the correctness of all portions thereof which pertain to air quality impacts.

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9.5 Agreement is not a "Project" for CEQA Purposes

This Agreement does not approve or authorize any project. The analysis of Project related air emissions and the quantified emission reduction value of Project Design Features and Mitigation Measures provide information relevant to the preparation of the EIR by the Project lead agency, Kern County. For informational purposes, this section describes the process by which these quantitative analyses were prepared for purposes of this Agreement.

10. District's Obligations

10.1 Acknowledgement Regarding Full Mitigation

Regarding Full Project mitigation, upon project completion and successful demonstration that Estimated Emissions have been fully mitigated with achieved emission reductions, District shall verify in writing to Developer and to the Lead Agency that the Project Air Impacts have been fully mitigated as required under this Agreement.

Regarding Full Project Phase mitigation, upon request by Developer, District shall verify in writing to Developer and to the Lead Agency that the Project Phase Air Impacts have been fully mitigated or District shall verify the expected estimated emission reductions.

10.2 Oversight of Funding Agreements

District shall ensure that the owners/operators of equipment subject to Funding Agreements perform all obligations to be performed on the part of such parties under said Funding Agreements.

10.3 Oversight of Air Quality Mitigation Monitoring Plan

Upon request of Kern County, the CEQA Lead Agency for the Project, District shall oversee that portion of the mitigation monitoring plan adopted by the Lead Agency for the Project which corresponds to the Mitigation Measures being implemented pursuant to this Agreement. Alternatively, upon request of the Project Lead Agency, District shall cooperate with the Lead Agency in the oversight of that portion of the

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mitigation monitoring plan adopted by the Lead Agency for the Project which corresponds to the Mitigation Measures being implemented pursuant to this Agreement.

10.4 Documentation, Record Keeping and Monitoring

District shall document, keep adequate records on, and monitor the emission reductions brought about as a result of this Agreement, and shall, upon written request by Developer or by the Lead Agency for the Project, provide Developer or Lead Agency with written reports verifying achieved emission reductions and/or emission reductions being brought about to fully mitigate Project related air impacts.

10.5 Achievement of Emission Reductions

For and in exchange of Developer's payment of funds pursuant to Paragraph 3.0 above, District shall ensure, by way of entering into, funding and enforcing the Funding Agreements in accordance with the provisions of Paragraph 10.2 (Oversight of Funding Agreements), that the Project achieves the required emission reductions for Project Air Impacts to the extent specified in the environmental review document certified by the Lead Agency.

11. Subsequent Litigation, Legislation and/or Administrative Action / Credit to Developer

In the event that despite this Agreement, Developer is required as a result of a final judgment or District Approved Settlement (as defined below) in any third party litigation, to pay monies in addition to the monies to be paid by Developer pursuant to Paragraph 3.0 above, then District shall acknowledge and credit Developer with the emission reduction achieved pursuant to Paragraph 1 (Mitigation of Project Related Impacts on Air Quality) and any additional emission reductions achieved to mitigate the Project related impacts on air quality that will result from Developer's payment of such additional monies. For purposes of this Paragraph, a "District Approved Settlement" shall mean a settlement of a lawsuit filed pursuant to CEQA, the National Environmental Protection Act or other applicable environmental law which (i) provides

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for Developer's payment of monies in exchange for a dismissal of such lawsuit, (ii) provides for the use of such monies by the petitioner in such lawsuit in such a manner as to mitigate adverse air quality impacts of the Project, and (iii) is approved in writing by District. The District shall have no authority to commit the Developer's money in any settlement of a third party lawsuit without the Developer's consent.

12. Term of Agreement

This Agreement shall be effective upon the date first written above, and shall terminate upon District's meeting its obligation to implement projects that provide necessary emissions reductions to fully mitigate the Project related air impacts. Developer may, at any time by written notice to District, terminate this Agreement, whereupon, (i) District shall acknowledge in writing to the Lead Agency that Developer has mitigated air quality impacts of the Project to the extent and in the types and quantities brought about by Funding Agreements and Mitigation Measures, (ii) District shall refund to Developer any unused portion of Developer's Emission Reduction Proposal Advances or Air Quality Mitigation Funds; and (iii) neither Developer nor District shall have any further rights or obligations under this Agreement except as expressly provided. District's obligations to oversee implementation of Funding Agreements pursuant to Paragraph 10.2 (Oversight of Funding Agreements) and to ensure that required emission reductions are achieved, pursuant to Paragraph 10.5 (Achievement of Emission Reductions), shall remain effective for as long as necessary to ensure that the anticipated emission reductions continue to be achieved to the extent specified herein.

13. Representations, Covenants and Warranties

A. <u>Developer's Representations, Covenants and Warranties</u>.

Developer represents, covenants and warrants to District, as of the Effective Date of this Agreement, as follows:

i. The undersigned representatives of Developer are duly authorized to execute, deliver and perform this Agreement, and upon Developer's

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execution and delivery of this Agreement, this Agreement will have been duly authorized by Developer.

ii. Upon execution and delivery of this Agreement by Developer, Developer's obligations under this Agreement shall be legal, valid and binding obligations of Developer, duly enforceable at law and in equity in accordance with the terms and conditions of this Agreement.

iii. There is no lawsuit, legal action, arbitration, legal or administrative proceeding, legislative quasi-legislative or administrative action or claim existing, pending, threatened or anticipated which would render all or any portion of this Agreement invalid, void or unenforceable in accordance with the terms and conditions thereof.

iv. Other than the execution and delivery of this Agreement by the undersigned representatives of Developer, there are no approvals, consents, confirmations, proceedings, or other actions required by Developer or any third party, entity or agency in order to enter into and carry out the terms, conditions and intent of the parties with respect to this Agreement, except as required to enter Funding Agreements.

B. <u>District's Representations, Covenants and Warranties</u>

District represents, covenants and warrants to Developer, as of the date of this Agreement, as follows:

i. The undersigned representatives of District are duly authorized to execute, deliver and perform this Agreement, and upon District's execution and delivery of this Agreement, this Agreement will have been duly authorized by District.

ii. Upon execution and delivery of this Agreement by District, District's obligations under this Agreement shall be legal, valid and binding obligations of District, duly enforceable at law and in equity in accordance with the terms and conditions of this Agreement.

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iii. There is no lawsuit, legal action, arbitration, legal or administrative proceeding, legislative, quasi-legislative or administrative action or claim existing, pending, threatened or anticipated which would render all or any portion of this Agreement invalid, void or unenforceable in accordance with the terms and conditions thereof.

iv. Other than the execution and delivery of this Agreement by the undersigned representatives of District, there are no approvals, consents, confirmations, proceedings, or other actions required by District or any third party, entity or agency in order to enter into and carry out the terms, conditions and intent of the parties with respect to this Agreement, except as required to enter Funding Agreements.

v. The monies paid by Developer under this Agreement are sufficient to ensure that the emission reduction contemplated by this Agreement shall occur, and District shall utilize such monies in such a manner as to ensure that such emission reduction shall occur.

vi. Upon the approval of this Agreement by the governing board of District, the Air Pollution Control Officer of District, or equivalent representative, or a delegee of such officer, shall have the authority to approve, deliver, verify, enter into, acknowledge and/or accept any communication, notice, notification, verification, agreement and/or other document to be issued or entered into by District under the terms and conditions of this Agreement, without further approval of the governing board of District.

14. Indemnification

Developer agrees to indemnify, defend and hold harmless District for, from and in connection with any third party claims, losses and/or liabilities arising from or in connection with District's performance of this Agreement, excluding only such claims, losses and/or liabilities which result from or in connection with District's sole negligence, act or omission.

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15. Inurement

Developer's rights and obligations under this Agreement, or applicable portions thereof, shall run with the land encompassed by the Project, and shall inure to the benefit of and be binding upon the heirs, successors and assigns of Developer who take title to such lands or applicable portions thereof. Upon Developer's conveyance of all or any portion of the lands encompassed by the Project, the rights and obligations of Developer under this Agreement shall, to the extent applicable to the lands so conveyed, be transferred to the transferee thereof, and Developer shall thereupon be released by District from, all obligations and liabilities so assigned, except for such obligations and liabilities arising prior to such transfer as stated in Paragraph 16 (Assignment).

16. Assignment

Developer shall have the right to assign all or any part of its rights and/or obligations under this Agreement with the District's written consent, which shall not be unreasonably withheld. In the event the District does give consent to any such assignment, the District, the third party assignee and Developer shall enter into an amendment and novation of this Agreement which acknowledges the assignment and conforms the various provisions of this Agreement as may be required to be conformed in order to provide to the assignee the rights and benefits of this Agreement as if such assignee and its project were the original party and project contemplated in this Agreement.

17. Recitals Incorporated

The recitals set forth hereinabove are hereby incorporated into this Agreement and acknowledged, agreed to and adopted by the parties to this Agreement.

18. Further Assurances

Developer and District agree to execute and deliver any documents and/or perform any acts which are reasonably necessary in order to carry out the intent of the parties with respect to this Agreement.

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19. No Joint Venture or Partnership

District and Developer agree that nothing contained in this Agreement or in any document executed in connection with this Agreement shall be construed as making District and Developer joint ventures or partners.

20. Notices

Any notices or communications relating to this Agreement shall be given in writing and shall be deemed sufficiently given and served for all purposes when delivered, if (a) in person, (b) by facsimile (with the original delivered by other means set forth in this paragraph, (c) by generally recognized overnight courier or (d) by United States Mail, certified or registered mail, return receipt requested, postage prepaid, to the respective addresses set forth below, or to such other addresses as the parties may designate from time to time by providing written notice of the change to the other party.

DEVELOPER	**DISTRICT**
Derek C Abbott VP – Community Development Tejon Ranchcorp P.O. Box 1000 Lebec, CA 93243 Phone: 661.248.3000 Fax: 661.248-3100	Seyed Sadredin Executive Director/APCO 1990 E. Gettysburg Ave. Fresno, CA 93726 Phone: (559) 230-6000 Fax: (559) 230-6061

21. Entire Agreement

The terms of this Agreement, together with all attached exhibits, are intended by the parties as the complete and final expression of their agreement with respect to such terms and exhibits and may not be contradicted by evidence of any prior or contemporaneous agreement. This Agreement specifically supersedes any prior written or oral agreements between the parties with respect to the subject matter of this Agreement.

///

///

22. Amendments and Waivers

No addition to or modification of this Agreement shall be effective unless set forth in writing and signed by the party against whom the addition or modification is sought to be enforced. The party benefited by any condition or obligation may waive the same, but such waiver shall not be enforceable by another party unless made in writing and signed by the waiving party.

23. Invalidity of Provisions

If any provision of this Agreement as applied to either party or to any circumstance shall be adjudged by a court of competent jurisdiction to be void or unenforceable for any reason, the same shall in no way affect (to the maximum extent permissible by law) any other provision of this Agreement, the application of any such provision under circumstances different from those adjudicated by the court, or the validity or enforceability of this Agreement as a whole. The parties further agree to replace any such invalid, illegal or unenforceable portion with a valid and enforceable provision, which will achieve, to the maximum extent legally possible, the economic, business or other purposes of the invalid, illegal or unenforceable portion.

24. Construction

Unless otherwise indicated, all paragraph references are to the paragraph of this Agreement, and all references to days are to calendar days. Whenever, under the terms of this Agreement the time for performance of a covenant or condition falls upon a Saturday, Sunday or California state holiday, the time for performance shall be extended to the next business day. The headings used in this Agreement are provided for convenience only and this Agreement shall be interpreted without reference to any headings. Wherever required by the context, the singular shall include the plural and vice versa, and the masculine gender shall include the feminine or neuter genders, or vice versa. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. The language in all parts of this Agreement shall be construed as a

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whole in accordance with its fair meaning, and shall not be construed against any party solely by virtue of the fact that such party or its counsel was primarily responsible for its preparation.

25. Governing Law

A. The rights and obligations of the parties and the interpretation and performance of this Agreement shall be governed in all respects by the laws of the State of California.

B. Venue for any action arising out of or relating to this Agreement shall be in Fresno County, California.

26. No Third-party Beneficiaries

Nothing in this Agreement, express or implied, is intended to confer any rights or remedies under or by reason of this Agreement on any person other than the parties to it and their respective successors and assigns, nor is anything in this Agreement intended to relieve or discharge any obligation of any third person to any party hereto or give any third person any right of subrogation or action over or against any party to this Agreement.

27. Exhibits

The exhibits attached to this Agreement shall be deemed to be a part of this Agreement, and are fully incorporated herein by reference.

28. Force Majeure

The time within which any party shall be required to perform under this Agreement shall be extended on a day-per-day basis for each day during which such performance is prevented or delayed by reason of events reasonably outside of the control of the performing party, including, without limitation, acts of God, events of destruction, acts of war, civil insurrection, strikes, shortages, governmental delays, moratoria, legislation, administrative agency or any pending third party challenges or litigation (including without limitation delays during the pendency of such agency challenge or judicial litigation, final judgment, and remedial measures undertaken in

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furtherance of this or a successor emission reduction program in response to any such challenge or litigation).

IN WITNESS WHEREOF, Developer and District have executed this Agreement and agree that it shall be effective as of the date first written above.

DEVELOPER

Tejon Ranchcorp

By: Derek C Abbott

Title: Vice President

DISTRICT

San Joaquin Valley Unified Air Pollution Control District

Oliver L. Baines, III
Governing Board Chair

Recommended for approval:
San Joaquin Valley Unified Air Pollution Control District

Seyed Sadredin
Executive Director/APCO

Approved as to legal form:
San Joaquin Valley Unified Air Pollution Control District

Annette Ballatore-Williamson
District Counsel

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Approved as to accounting form:

Mehri Barati
Director of Administrative Services

For accounting use only:
San Joaquin Valley Unified Air Pollution Control District

Program: _____
Account No: _____

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EXHIBIT A

DESCRIPTION OF THE PROJECT

The 8,010-acre Grapevine project ("Project") is situated within the Grapevine Planning Area at the southern end of the San Joaquin Valley in Kern County, just south of the junction of I-5 and SR-99 at the gateway to the Central Valley.

- Approximately 3,232 acres (or about 40%) of the Project site would be designated for agriculture (with grazing and open space as the predominant land uses).
- Approximately 4,778 acres (about 60%) would be developed as a new residential community and employment center. The Project features a series of compact neighborhoods linked by bicycle and pedestrian trails that provide convenient access to grocery and drugstores, professional services, schools, and parks.
- The project site is located south and east of the extensive open space that was conserved in the Tejon Ranch Land Use and Conservation Agreement.
- The Project includes up to 12,000 residential units and 5.1 million square feet of commercial land uses, and is designed as a series of conveniently located village centers, each composed of a mix of housing, neighborhood-serving retail and office uses, schools, parks, and community services.
- Other potential public facilities, including a fire station, sheriff substation, transit facility/park-and-ride, and water and wastewater treatment facilities, are included in the Project.
- Outside the village cores, the Project includes a mix of residential uses, office, research and development, regional commercial, freeway-oriented commercial, and light industrial/warehouse uses.
- Access to the Project site will be from the existing Grapevine interchange (eventually to be relocated to the north) and Laval Road at I-5. The circulation network is composed of two- and four-lane arterials, collector streets, and local

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streets organized in a grid pattern. All roads within the Project site will be public. Multipurpose trails are proposed along Grapevine Creek, Cattle Creek, the southern foothills, and the open space adjacent to the California Aqueduct and at other locations throughout the Project site. Some of these trails would connect to on-street, Class 2 bike lanes. Water and sewer service will be provided by the Tejon–Castac Water District.

- Existing and authorized uses of the Project site would also continue, as both interim (pending Project development) or long-term uses, including primarily agricultural cultivation and grazing, and oil and gas extraction.

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EXHIBIT B

EMISSION REDUCTION DESIGN FEATURES

- Fugitive Dust. The construction contractor(s) will prepare a dust control plan to demonstrate compliance with San Joaquin Valley Air Pollution Control District Regulation VIII (Fugitive PM10 Prohibition). The dust control plan will be submitted for approval to the San Joaquin Valley Air Pollution Control District prior to the commencement of any soil-disturbing activity.
- Construction Equipment. For off road equipment with engines rated at 75 horsepower or greater, no construction equipment will be used that is less than Tier 2 at the commencement of construction (2016), less than Tier 3 starting in construction year 5 (2020), less than Tier 4 Interim starting in construction year 10 (2025), and Tier 4 Final starting in construction year 15 (2030). An exemption from these requirements may be granted by Kern County in the event that the applicant documents that (1) equipment with the required tier is not reasonably available, and (2) corresponding reductions in criteria pollutant emissions are achieved from other construction equipment.
- Develop a mixed use land use design that includes neighborhoods with residential uses located near of commercial/retail uses.
- Install bike lanes on arterial and collector streets.
- Provide bicycle storage/parking facilities in commercial and public facility locations.
- Utilize a non-vehicular circulation system that would provide pedestrian, bicycle, and multi-use trails throughout the site.
- Energy Conservation. As part of project design all development on the project site is required to exceed 2013 Title 24 energy requirements on a time-dependent valuation basis by at least 25%, as outlined in 24 CCR 6. A menu of energy efficiency design elements, along with other design considerations and options, will be made available to builders, developers, and property owners as

part of the internal design review process. Each developer, builder, or property owner must incorporate the design elements that make the most sense for their particular development project in order to meet the energy reduction requirement.

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EXHIBIT C
DISTRICT BOUNDARIES

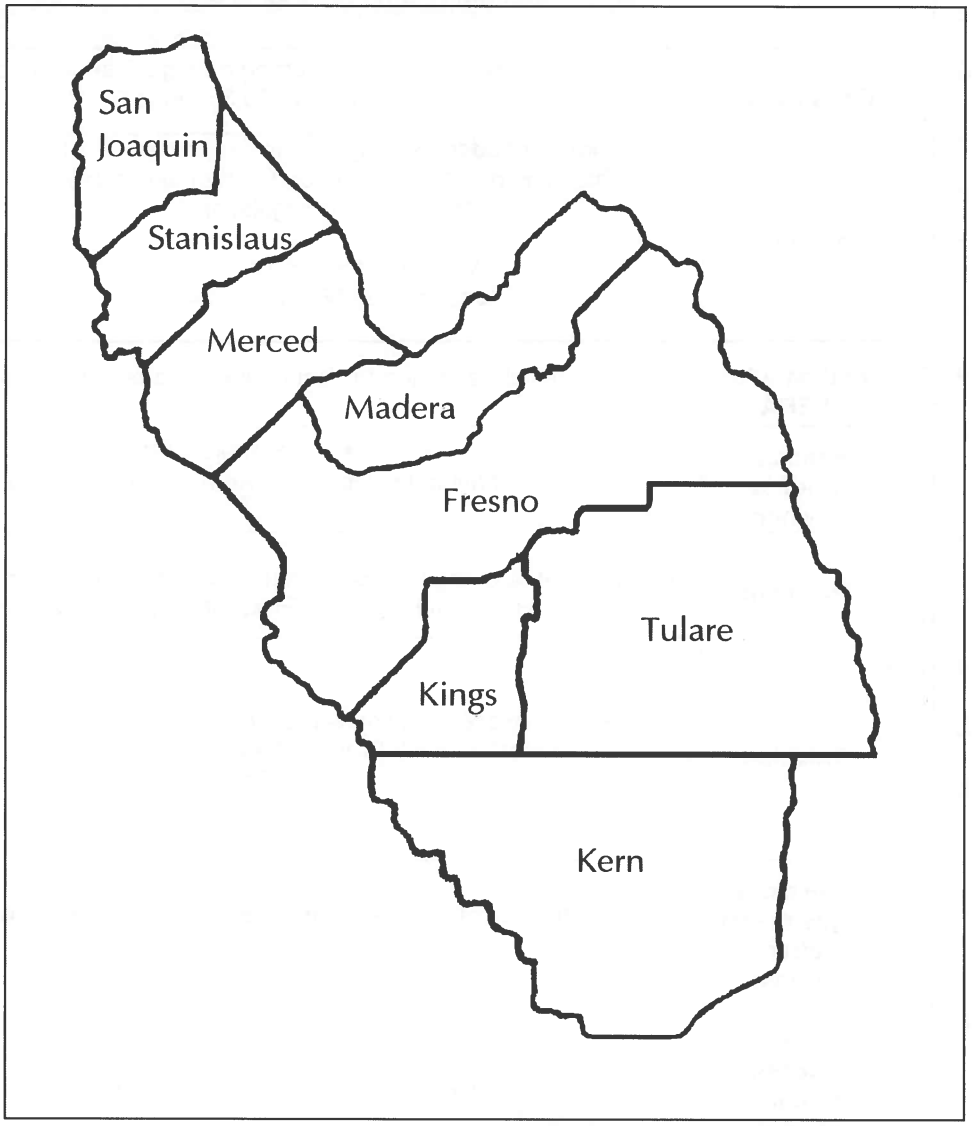

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EXHIBIT D

Overview of the VERA

	Stationary Sources Emissions	Other Sources of Emissions
Construction	Based on total emissions occurring during construction period (tons), i.e. 100 tons * $9,350/tons * 1.04	
Operation	Emissions not addressed by offsets (i.e., below offset threshold or offset exempt under then-applicable District rules and regulations) Maximum tons/yr, i.e 100 tons/yr * $93,500/ton * 1.04	Maximum tons/yr
Estimate for VERA	Initial Estimated Project related air emissions based on EIR	
Estimate Prior to Payment	• Per Project Phase • Submit to the County of Kern and reviewed by the District	
Payment	No later than applying for first construction permit for project, or first construction permit for a Project Phase if mitigating by Project Phase	
Tracking	• Developer is responsible for providing to the District: 1) the Tracking Report for each Project phase and 2) for the Total Project Emissions Tracking Report	
Emissions Adjustments after payment	Submit to the County of Kern or the District, where applicable per the VERA, and approved by the District	
Transfer of Excess Reductions within the Grapevine Project	Yes, which shall be documented in the tracking report submitted to the District	
Transfer of Excess Reductions to another VERA	Yes, can transfer to other Project Phases or projects with VERA between District and Tejon Ranch/affiliated entities. This shall be documented in the tracking report submitted to the District.	
Refund	• District verifies that the entire project air impacts have been fully mitigated • This verification is done at the end of the project development • Any unused Emission Reduction Proposal Advance or Air Quality Mitigation Funds will be refunded to Developer within 60 days	

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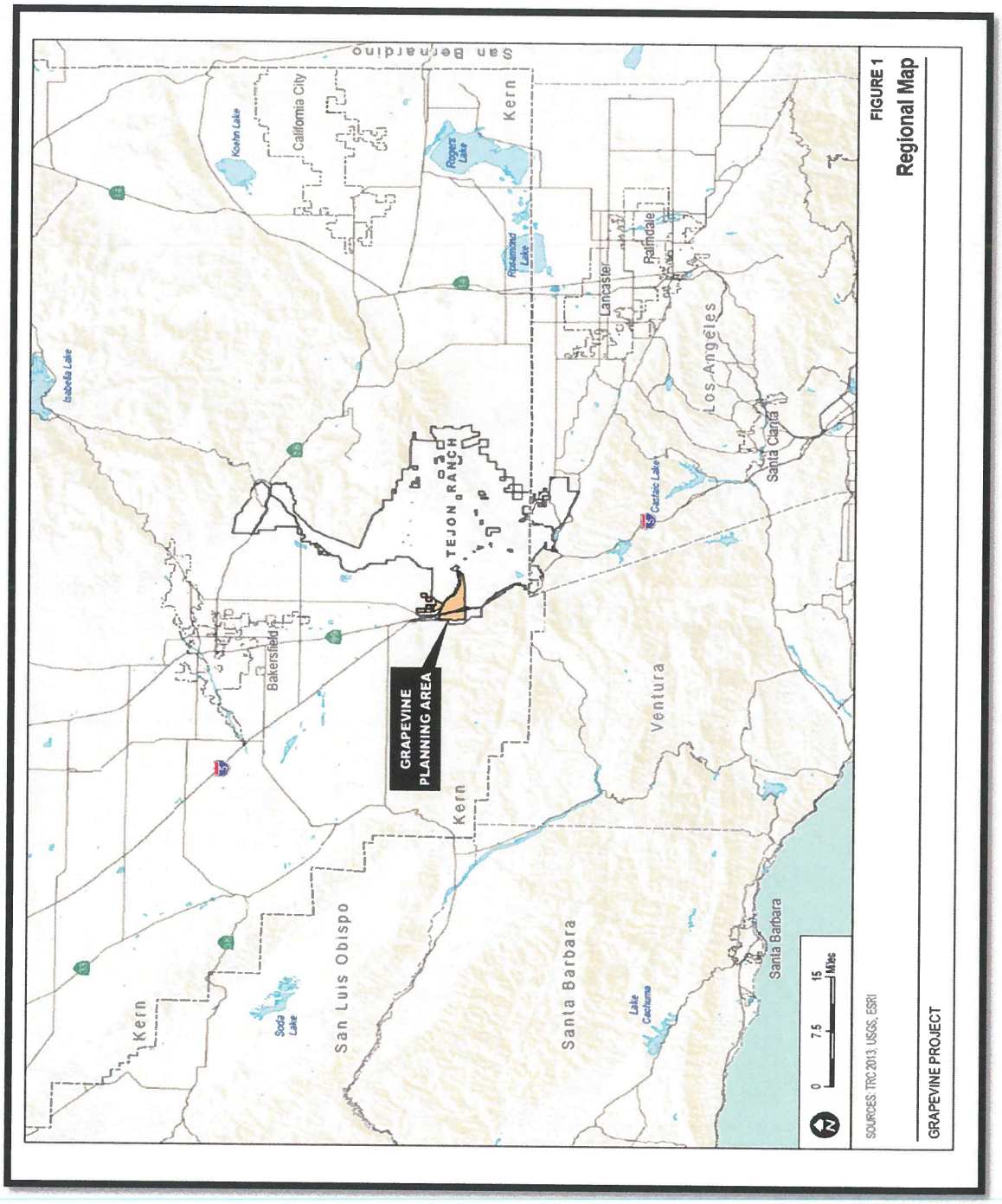
EXHIBIT E

PROJECT MAP



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Appendix E.2

Diesel Particulate Matter Health Risk Assessment

Prepared for:
Tejon Ranchcorp
Lebec, California

Prepared By:
Ramboll Environ US Corporation
Irvine, California

Date:
November 2015

Project Number
0324287K2

DIESEL PARTICULATE MATTER HEALTH RISK ASSESSMENT OF INTERSTATE-5 FREEWAY - GRAPEVINE PROJECT

TEJON RANCHCORP

LEBEC, CALIFORNIA

RAMBOLL ENVIRON

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TABLES

Table 1: Traffic Volumes on the I-5 Freeway for 2015 Existing No Project Scenario

Table 2: Traffic Volumes on the I-5 Freeway for 2040 Future No Project Scenario

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ACRONYMS AND ABBREVIATIONS

µm:	micrometer
AADT:	annual average daily traffic
AB:	assembly bill
ADMRT:	air dispersion modeling risk tool
AERMOD:	AMS/EPA Regulatory Model Improvement Committee Model
AMS:	American Meteorological Society
CA-99	California State Route 99
CalTrans:	California Department of Transportation
CARB:	California Air Resources Board
CEQA:	California Environmental Quality Act
CHP:	California Highway Patrol
CPF:	cancer potency factor
CVEF:	Commercial Vehicle Enforcement Facility
DPM:	diesel particulate matter
EIR:	Environmental Impact Report
EPA:	United States Environmental Protection Agency
FAH:	fraction of time spent at home
HARP2:	Hotspots Analysis and Reporting Program Version 2
HHDT:	heavy-heavy duty trucks (33,001-66,000 pounds)
HI:	Hazard Index
HOA:	homeowner's association
HRA:	Health Risk Assessment
HVAC:	Heating, Ventilation and Air Conditioning
I-5:	Interstate-5
LDA:	passenger cars
LDS:	loop detection station
LDT1:	light duty trucks (0-3,750 pounds)
LDT2:	light duty trucks (3,751-5,750 pounds)
LHD1	light-heavy duty trucks (8,501-10,000 pounds)
LHD2:	light-heavy duty trucks (10,001-14,000 pounds)

ACRONYMS AND ABBREVIATIONS (CONTINUED)

MATES:	Multiple Air Toxics Exposure Study
MCY:	motorcycles
MDV:	medium duty trucks (5,751-8,500 pounds)
MERV:	minimum efficiency reporting value
MHDT:	medium-heavy duty trucks (14,001-33,000 pounds)
mph:	miles per hour
OBUS:	other buses
OEHHA:	Office of Environmental Health Hazard Assessment
PeMS:	Freeway Performance Measurement System
PM_{10}:	Particulate matter emissions with a diameter less than 10 microns
REL:	Reference Exposure Levels
SBUS:	school buses
SJVAPCD:	San Joaquin Valley Air Pollution Control District
TAC:	Toxic Air Contaminant
TRCC:	Tejon Ranch Commerce Center
UTM:	Universal Transverse Mercator
UBUS:	urban buses
URF:	unit risk factor
VMT:	vehicle miles travelled
WGS:	World Geodetic System

1. INTRODUCTION

California Air Resources Board's (CARB) guidance manual on land use development[1] serves as a general reference guide for evaluating and reducing air pollution impacts associated with new projects that go through the land use decision-making process. Recommendations provided by CARB are voluntary and do not constitute a requirement or mandate for either land use agencies or local air districts. Some examples of CARB's recommendations include avoiding siting sensitive receptors within: (a) 500 feet of a freeway, urban road with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day; (b) 1,000 feet of a transport distribution center; and (c) 300 feet of any dry cleaning operation using perchloroethylene or within 500 feet of a dry cleaning operation with two or more machines. According to CARB, California freeway studies show an approximately 70 percent drop off in particulate pollution levels at 500 feet, and lifetime cancer risk from exposure to diesel particulate matter (DPM) is expected to be lowered proportionately at that distance.

The Interstate-5 (I-5) freeway runs through the proposed site for a mixed-use residential development called Grapevine Project ("Project"). Figure 1 illustrates the location of the I-5 freeway relative to the Project site. The purpose of this analysis is to evaluate the health risk impact of the I-5 freeway on the Project. This report is prepared to support the draft environmental impact report (EIR) for the Grapevine Project.

1.1 Project Description

The proposed Grapevine project is a Specific Plan and Community Plan that encompasses approximately 8,010 acres located approximately 25 miles south of Downtown Bakersfield, east and west of I-5 at the Grapevine interchange and adjacent to Laval and Edmonston Pumping Plant Roads, in southwestern Kern County, California. Approximately 4,780 acres of the Project area are proposed to be developed and approximately 3,230 acres (roughly 40% of the Specific Plan area) would be designated as exclusive agriculture, with open space, agriculture, and grazing as the predominant uses. The new Grapevine residential community and employment center is proposed to complement and build on the economic development occurring at the adjacent Tejon Ranch Commerce Center (TRCC).

The Project's 4,780 acres development area would be composed of up to 12,000 residential units and up to 5,100,000 square feet of commercial and industrial development. Residential development would include both single-family and multi-family units. Commercial and industrial development could include approximately 2,450,000 square feet of office/research and development, 1,200,000 square feet of retail and 1,450,000 square feet of industrial land uses. A total of 175 acres of the Project site has been set aside for schools, and 96 acres for parks. Other public facilities, including fire stations, a sheriff's substation, transit facilities/park-and-rides, and water and wastewater treatment facilities, are also proposed in this community.

The 3,230 acres of the Project area proposed to be designated as exclusive agriculture are located predominantly along the foothills of the Tehachapi Mountains, existing creek corridors (namely Grapevine and Cattle Creeks), the edges of the California Aqueduct and other associated areas identified as wildlife corridors.

[1] CARB. 2005. Air Quality and Land Use Handbook: A Community Health Perspective. April. Available at: www.arb.ca.gov/ch/handbook.pdf. Accessed: July 2015.

Access to the first phases of the Grapevine community is from I-5 at the existing Grapevine Road and Laval Road interchanges. The existing Grapevine Road/I-5 interchange has limited capacity and will require reconstruction. During later phases of development, the existing Grapevine Road/I-5 interchange is proposed to be expanded and relocated to the north while some functionality may be retained at the existing interchange location. To allow for the relocation and replacement of the interchange, an existing Commercial Vehicle Enforcement Facility (CVEF) operated by the California Highway Patrol (CHP) may be relocated to a parcel owned by Tejon Ranchcorp on the west side of the junction of I-5 and CA-99. Two reconstruction scenarios are proposed for the new Grapevine interchange in the event that the existing CVEF is not moved. The preferred scenario is for the interchange to be constructed immediately south of the existing CVEF location and for the CVEF to be relocated to the north at the location mentioned above. Under both scenarios, the existing interchange (including any performance improvement features) may be used until capacity is reached at the existing Grapevine Road/I-5 interchange. Additional circulation system improvements would include two off-site bridges crossing the California Aqueduct, and potential construction of an off-site alternate truck route to the east of the Project site connecting Edmonston Pumping Plant Road and Laval Road.

1.2 Regulatory Context

The San Joaquin Valley Air Pollution Control District (SJVAPCD) has recently updated the District's Risk Management Policy[2] (SJVAPCD Risk Management Policy) to address the Office of Environmental Health Hazard Assessment's (OEHHA's) Revised Risk Assessment Guidance Document.[3] Ramboll Environ has relied on the SJVAPCD Risk Management Policy in preparing this HRA. The cancer risk calculations in the revised OEHHA guidance manual include age-specific adjustments for infants and children, which are described in more detail in Section 4.

This report evaluates the results of this health risk assessment in relation to SJVAPCD's air quality California Environmental Quality Act (CEQA) significance thresholds for Toxic Air Contaminants (TACs).[4] The TAC CEQA significance thresholds are an incremental cancer risk that equals or exceeds of 20 in a million and a non-cancer hazard index (HI) (chronic and acute HI) that equals or exceeds 1 for the maximally exposed individual.

The issue of whether CEQA requires an assessment of the environment's impact on a project is currently under review by the California Supreme Court[5]. Given contradictory appellate case law on this issue, this technical report does evaluate the I-5 freeway's impact on the Project, and thus provides both information for the public and decision makers as well as the required CEQA evaluation if the Supreme Court concludes that CEQA does require an evaluation of the environment's impact on a project. This technical report evaluates the

[2] SJVAPCD. 2015. Final Staff Report – The District's Updated Risk Management Policy to Address OEHHA's Revised Risk Assessment Guidance Document. May. Available at: http://www.valleyair.org/busind/pto/toxics.htm#RiskManagement. Accessed: July 2015.

[3] OEHHA 2015. Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. February. Available at: http://oehha.ca.gov/air/hot_spots/hotspots2015.html. Accessed: July 2015.

[4] SJVAPCD. Air Quality Significance Thresholds – Toxic Air Contaminants. Available at: http://www.valleyair.org/transportation/0714-GAMAQI-TACs-Thresholds-of-Significance.pdf. Accessed: July 2015.

[5] California Building Industry Association versus Bay Area Air Quality Management District. Supreme Court Case No. S213478 (Review granted November 26, 2013).

significance of TAC emission impacts from the I-5 freeway on the Project, and recommends measures to reduce these TAC impacts to less than significant levels.

2. EMISSIONS CALCULATION METHODOLOGY

The traffic emissions were estimated based on the methodology as described in this section.

2.1 Traffic Data

The traffic data was based on the Traffic Study[6] for the Grapevine Project, which provided AM and PM peak hour traffic volumes on several segments of the I-5 freeway that pass through the proposed Project site. The following four scenarios (Tables 1 through 4) were evaluated in this HRA:

1. Existing No Project (calendar year 2015);
2. Future No Project (calendar year 2040);
3. Existing Plus Project (calendar year 2015); and
4. Future Plus Project (calendar year 2040).

Annual average emission estimates are estimated as the basis for the cancer and chronic non-cancer health risk analyses. The hourly traffic volume data provided by the Traffic Study, must be extrapolated to estimate the annual average emissions. The following steps were taken to extrapolate the peak hour traffic volumes on the I-5 freeway to average daily traffic volumes, which were used to estimate the annual average emissions.

- The existing/future peak hour traffic volumes were converted to average daily traffic volumes using historical freeway vehicle flow data on the I-5 freeway obtained from the California Department of Transportation (CalTrans) Freeway Performance Measurement System (PeMS). Fehr & Peers extracted the hourly traffic counts for all weekdays (Tuesday, Wednesday, and Thursday) between June 12, 2012 and August 16, 2012 at the loop detection station LDS #66310 from the PeMS database. These data were averaged across the entire time period to estimate a typical weekday condition. Since, LDS #66310 is located on the I-5 freeway in the vicinity of the Project site, these average hourly traffic count data were assumed to be representative of the existing traffic on the I-5 freeway. For each existing scenario (No Project and Plus Project), the percentage of the average daily existing traffic flow that occurs during the peak hours was estimated using the PeMS data. This percentage was used to convert both existing and future peak hour traffic into daily average traffic. This calculation is shown in Tables 1 through 5.
- The percentage of the daily Project traffic flow that occurs during the peak hours was estimated using AM peak hour, PM peak hour, and daily Project trip generation rates as shown in Table 6. This factor was used to convert the peak hour Project traffic volumes on the I-5 freeway to average daily traffic volumes.

CalTrans' Traffic Census Program data was used to determine the average daily percentage of trucks travelling on the I-5 freeway. This CalTrans' Traffic Census Program provides annual average daily traffic (AADT) counts for all vehicles and for trucks. 2012 traffic census data on the I-5 freeway at post mile R 15.858 was used to estimate the daily truck percentages for existing conditions in the vicinity of the Project site (Table 7). This truck percentage was used to estimate average daily existing and future truck volumes.

[6] Fehr & Peers. 2015. Transportation Impact Study – Technical Report, Grapevine Project. October.

The Traffic Study data also provides the percentage of trucks in the Project related traffic on the I-5 during the peak hours (Table 8). The maximum truck percentage across all modeled freeway segments (excluding the I-5 and SR-99 truck ramps) was conservatively used to determine the average daily Project truck volumes.

2.2 Emission Factors

The primary TAC associated with high-volume roadways such as the I-5 freeway is DPM. DPM emission factors for calendar years 2015 and 2040, consistent with the assumptions in the Traffic Study, are calculated using the latest version of CARB's mobile source emission inventory, EMFAC2014. Exhaust particulate matter emissions with a diameter less than 10 microns (PM_{10}) from diesel vehicles were used as a proxy for DPM.

As described in the Section 2.1, traffic data was provided for trucks and non-trucks. In order to estimate the emission factors consistent with the traffic data the EMFAC vehicle categories were linked to the traffic vehicle groups as follows

- Non-Trucks = Passenger Cars (identified as LDA), Motorcycles (identified as MCY), Light Duty Trucks (identified as LDT1, LDT2), Medium Duty Trucks (identified as MDV), Motor Homes (identified as MH), Buses (identifies as SBUS, UBUS, and OBUS), and Motor Coach (Identified as Motor Coach).
- Trucks = Light-Heavy Duty Trucks (identified as LHD1 and LHD2), Medium-Heavy Duty Trucks (identified as MHDT), and Heavy-Heavy Duty Trucks (identified as HHDT).

Based on the Traffic Consultant analysis, the traffic on the I-5 freeway in the proximity of the Project site is predominantly free-flowing in nature.[7] Average speeds provided in the traffic study, varied from 65 miles per hour (mph) to 70 mph in existing scenarios (i.e., 'existing no Project' and 'existing plus Project'), and 61 mph to 70 mph in the 'future plus Project' scenario. The 'future no Project' scenario was assumed to have speeds similar to the 'future plus Project' scenario[8]. Non-trucks were assumed to operate at the average speeds provided by the traffic consultant. Since the speed limit for the trucks is a lot lower than the average speed on the freeway segments, trucks were assumed to operate close to the speed limit of 35 mph on the Grapevine Grade and 55 mph elsewhere.

In order to estimate the DPM emissions from all vehicles operating on the I-5 freeway, EMFAC2014 was run at multiple speeds for each vehicle class (non-trucks 60 mph, 65 mph, and 70 mph, trucks 30 mph, 35 mph, 50 mph, and 55 mph). EMFAC2014 model outputs are available in Appendix A. A vehicle mile travelled (VMT) weighted average emission factor was estimated at each speed and the highest emission factor for each vehicle class (truck and non-trucks) was used in the analyses. Emission factors are summarized in Tables 9 (trucks) and 10 (non-trucks).

2.3 Emission Estimates

For each scenario, the average daily emissions from trucks and non-trucks were estimated as a product of the appropriate emission factors, the average daily traffic volumes, and the length of the road segment (Table 11). The 'existing no Project' scenario uses 2015 emission factors. The 'future no Project' and 'future plus Project' scenarios use the 2040 emission

[7] Phone conversation with Rob Hananouchi, Fehr & Peers on May 28, 2015.

[8] Future no project scenario has lower traffic volumes than the future plus project scenario, therefore slightly higher speeds would be expected.

factors, which is consistent with the year assumed by the traffic data. Although the traffic data for the 'existing plus Project' scenario is uses 2040 emission factors, which were chosen to be consistent with the Project traffic data assumption.

The annual average emissions used in the HRA were estimated as a product of the average daily emissions multiplied by 365 days in a year (Table 12). This is a conservative estimate based on the HRA methodology, which assumes a 70-year exposure period for residents and a 13-year exposure period for school children. Since the emissions from vehicles are expected to continually decrease into the future due to vehicle fleet turnover and regulatory measures (e.g., CARB regulation for in-use heavy-duty diesel trucks[9]), the emissions estimates assuming the 2040 emission factor conservatively represents the potential emissions for this analysis. As seen in Table 13, the 2040 diesel emission factors for trucks[10] are representative of the average diesel particulate matter emission factors over each of these exposure periods in comparison to emission factors assuming a 2036 full occupancy for the Project.

[9] CARB. 2015. Truck and Bus Regulation 2014. Available at: http://www.arb.ca.gov/regact/2014/truckbus14/truckbus14.htm. Accessed: November 2015.

[10] As seen in Table 12, trucks emit greater than 97% of the total diesel particulate matter emissions on the section of the I-5 freeway that we are modeling. As a result this comparison is performed only for truck emission factors.

3. AIR DISPERSION MODELING METHODOLOGY

3.1 Air Dispersion Model

In accordance with SVJAPCD's modeling guidance[11] Ramboll Environ used the latest version (14134) of the American Meteorological Society (AMS)/ United States Environmental Protection Agency (EPA) Regulatory Model Improvement Committee Model (AERMOD) for dispersion modeling. This model incorporates multiple variables in its algorithm including local terrain data, meteorological data representation of surface and upper air conditions, and physical specifications of emission sources and receptors. A brief description of the model input parameters is provided below.

3.2 Land Use

AERMOD can evaluate the heat island effects from urban areas to atmospheric transport and dispersion using an urban boundary layer option. Figure 2 shows the current land use in the vicinity of the proposed Project site. This area can currently be considered rural; however, with the inclusion of the proposed Project there will be urbanized land uses at the receptor locations evaluated in this report as described further below. Based on EPA's[12] guidance for determining land use types in air quality models, however, the modeling domain that includes the Project's conceptual land use plan (Figure 1) was found to be rural in nature. Therefore, the rural option was used in AERMOD.

3.3 Terrain Data

Ramboll Environ included elevation dataset from the Multi-Resolution Land Characteristics Consortium[13] to represent the modeling domain (Figure 3). Terrain elevations data for sources and receptors were imported into the model using AERMAP version 11103.

3.4 Meteorological Data

Hourly resolution meteorological surface data, such as wind speed and direction, and upper air data must be provided as inputs to AERMOD for pollutant transport calculations. SJVAPCD provides AERMOD model-ready meteorological data sets for use in air quality and risk impact analyses in the district. SJVAPCD's Bakersfield meteorological data set was chosen for this analyses based on the station's close geographic proximity to the Project site (Figure 4). Figure 5 depicts the wind rose for five year (2009 to 2013) meteorological data set from the Bakersfield station.

3.5 Coordinate System

Ramboll Environ used the Universal Transverse Mercator (UTM) system of coordinates and the World Geodetic System 1984 (WGS84) spheroid as the datum for identifying the UTM coordinates of the various modeling objects (sources and receptors).

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[11] SJVAPCD. Air Quality Modeling: Permitting & CEQA. Available at: http://www.valleyair.org/busind/pto/Tox_Resources/AirQualityMonitoring.htm#modeling_guidance. Accessed: July 2015.

[12] EPA. Guideline on Air Quality Models. Available at: http://www3.epa.gov/scram001/guidance/guide/appw_05.pdf. Accessed: August 2015.

[13] Available at: http://www.mrlc.gov/viewerjs/. Accessed: July 2015.

3.6 Source Parameters

This health risk assessment evaluated segments of I-5 freeway that run through the proposed Project site, including an additional quarter mile on either end of the Project boundary (Figure 6a and 6b). The DPM exhaust emissions generated by the freeway traffic were modeled in AERMOD as a series of adjacent volume sources, which is an accepted practice for modeling mobile sources in a dispersion model. Ramboll Environ calculated the volume source parameters for this analysis based on EPA's Conformity Guidance[14] as shown below:

- Volume source width = Road width multiplied by 2
- Initial lateral dimension = Volume source width ÷ 2.15
- Initial vertical dimension
  - Non-Truck = 1.2 meters
  - Trucks = 3.2 meters
- Release Height
  - Non-Truck = 1.3 meters
  - Truck = 3.4 meters

3.7 Receptor Locations

Ramboll Environ used a freeway following receptor grid that covers the proposed Project site for the AERMOD model run (Figure 7). Details of the grid are provided below:

- Fine Grid Receptors: The fine grid receptors were placed a distance of 25, 50, 75, 100, 150, 200, 250, 300, 350, 400, 450, and 500 meters from the edge of the I-5 freeway. Although the Project site lies along the edge of the I-5 freeway, Ramboll Environ has not placed any receptors closer than 25 meters from the center of the freeway. Receptors within the volume source exclusion zone were removed from the analysis, based on SJVAPCD Risk Management Policy[15].
- Coarse Grid Receptors: Intermediate grid receptors were placed at a distance of 600, 700, 800, 900, 1000, 1250, 1500, 1750, 2000, 2500, 3000, 3500, 4000, 4500, 5000, 5500, 6000, 6500, 7000, 7500, 8000 meters from the edge of the I-5 freeway.
- Discrete Receptors: Discrete receptors were placed in the center of land parcels classified as "School", if a receptor was not placed there during the creation of the receptor grid.
- Boundary Receptors: Boundary receptors were placed a distance of 100 m apart along the approximate Project boundary.

3.8 Emission Rate and Averaging Times

AERMOD model run was performed using a unit emission rate approach (i.e., an emission rate of 1 gram per second for each volume source) for an averaging time of period to obtain

[14] EPA. 2013. Transportation Conformity Guidance for Quantitative Hot-spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas. November. Office of Transportation and Air Quality. Available at: http://www.epa.gov/otaq/stateresources/transconf/projectlevel-hotspot.htm#pm-hotspot. Accessed: July 2015.

[15] SJVAPCD. 2015. Final Staff Report – The District's Updated Risk Management Policy to Address OEHHA's Revised Risk Assessment Guidance Document. May.

annual average dispersion factors at the modeled receptors. In order to reduce the model run time the receptors were spilt into fifteen zones; one model run was performed for each set of receptors. AERMOD input and output files are provided in Appendix B.

4. RISK CHARACTERIZATION

4.1 Chemicals of Potential Concern

The chemical of potential concern included in this HRA is diesel exhaust. Diesel exhaust is a complex mixture of hundreds of individual constituents and is identified by the State of California as a known carcinogen. Under California regulatory guidelines, DPM is used as a surrogate measure of carcinogen exposure for the mixture of chemicals that make up diesel exhaust as a whole. There is currently no acute non-cancer toxicity value available for DPM.

As stated in Section 2, DPM is typically the main driver of cancer risk from freeways[16]. As a result, DPM was the only chemical of potential concern used in this analysis. Other project vehicular emissions, such as criteria pollutants, which can cause adverse health impacts, are assessed as appropriate in the Air Quality Report (e.g., localized CO hotspots analysis, estimated operational mobile source emissions of CO, NOx, and VOC).

4.2 Exposure Assessment and Exposure Pathways

Exposure assessment is concerned with the quantity of a contaminant that people are exposed to during a specific time period, as well as the populations of interest (e.g., residential and other sensitive populations). SJVAPCD Risk Management Policy[17] requires the use of a residential exposure period of 70 years (3rd trimester to age 70). Based on discussion with the SJVAPCD modeling group[18], an exposure period of 13 years (age 5 to 18) and exposure frequency of 180 days per year was used for the schools.

Exposure pathway is the route through which a contaminant enters the body. For air emissions inhalation is usually the primary exposure pathway. However, TACs can also enter the body through primary non-inhalation pathways like dermal exposure, water ingestion, crop ingestion (direct deposition), and soil ingestion and secondary non-inhalation pathways like ingestion of mother's milk, fish, dairy products, all types of meat, and eggs, and crop ingestion (root uptake). DPM does not have multi-pathway factors, therefore only the inhalation exposure pathway was evaluated in accordance with OEHHA guidance.

4.3 Dose-Response Assessment

Dose is the amount of a chemical that enters the human body (or reaches a target organ). Response is the resulting health effect from the level of the dose. Epidemiologist, toxicologist, and other researchers conduct animal and human epidemiological studies to evaluate and establish the casual relationships between the various does and the resulting health effects (responses) for a chemical. These casual relationships are quantified as cancer potency factors (CPFs) or unit risk factors (URFs) for carcinogenic health effects and acute and chronic Reference Exposure Levels (RELs) for non-carcinogenic health effects. Ramboll Environ used the latest version of approved values of CPFs and RELs from revised OEHHA guidance

[16] The South Coast Air Quality Management District's Multiple Air Toxics Exposure Study (MATES IV) shows that DPM contributes to about 83% of the total air toxics risk from on-road vehicles in the South Coast Air Basin. The MATES IV study is available at http://www.aqmd.gov/home/library/air-quality-data-studies/health-studies/mates-iv. Accessed November, 2015.

[17] SJVAPCD. 2015. Final Staff Report – The District's Updated Risk Management Policy to Address OEHHA's Revised Risk Assessment Guidance Document. May.

[18] Email communication with Leland Villalvazo on September 24, 2015.

document[19] in this analysis. During its most recent update to the Air Toxics Hotspots Program Guidance Manual[20], OEHHA reviewed RELs and CPFs to provide consideration for infants and children and did not propose any revisions of the values for DPM.

4.4 Estimation of Cancer Risks and Non-Cancer Risks

Ramboll Environ used CARB's Hotspots Analysis and Reporting Program Version 2 (HARP2) for conducting this HRA. HARP2 is a software suite used to assist with the programmatic requirements of the Air Toxics "Hot Spots" Program (Assembly Bill [AB] 2588). This software combines the tools needed to implement the requirements of AB 2588, such as reporting emission a facilities emissions inventory, determining a facilities prioritization score, conducting air dispersion modeling, and performing a facility HRA.

HARP2 incorporates the requirements of the latest version of OEHHA Air Toxics Hot Spot Risk Assessment guidelines[21], including the age-specific factors that are applied to the cancer risk calculations to reflect the potential exposure of infants and children. This assessment includes the following elements, which have also been adopted as part of SJVAPCD Risk Management Policy[22]:

- Age Group Bins: Cancer risk is estimated separately for the following age group bins: third trimester to age zero, ages zero to less than two, ages two to less than nine, ages two to less than 16, ages 16 to less than 30, and ages 16 to 70. Total cancer risk associated with a particular population of interest and exposure period is estimated by summing up the estimated cancer risk from the appropriate age group bins.
- Age Sensitivity Factors: The following age sensitivity factors (multipliers) are applied while estimating the cancer risk: a 10-fold multiplier for infants (3rd trimester to 2 years old), a 3-fold multiplier for children (ages 2 to 16 years old), and a 1-fold multiplier for adults (ages 16 years and older).
- Breathing Rates: Breathing rates are used for cancer risk assessment. As per OEHHA's proposed methodology, HARP2 uses a different breathing rate for each of the proposed age groups (3rd trimester to age zero, ages zero to less than two, ages two to less than nine, ages two to less than 16, ages 16 to less than 30, and ages 16 to 70). The 95th percentile breathing rate is used for all age groups up to 16 years old and the 80th percentile breathing rate is used for ages 16 to 70.
- Fraction of Time Spent at Home (FAH): For residential cancer risk estimates, the HARP2 default fraction of time spent at home of 0.73 was applied to ages 16 and older. This FAH factor was not used for ages below 16 as it was assumed that children would attend the neighborhood school.

As described in Section 3, Ramboll Environ obtained dispersion factors from the AERMOD model run using the unit emission factor approach. For each analyses scenario described in Section 1, emission rates for the volume sources and the dispersion factors obtained from

[19] Available at: http://oehha.ca.gov/air/hot_spots/pdf/CPFs042909.pdf and http://oehha.ca.gov/air/allrels.html. Accessed: July 2015.

[20] OEHHA. 2015. Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. February.

[21] Ibid.

[22] SJVAPCD. 2015. Final Staff Report – The District's Updated Risk Management Policy to Address OEHHA's Revised Risk Assessment Guidance Document. May.

AERMOD were imported into the air dispersion modeling risk tool (ADMRT) in HARP2. The ADMRT was run with the appropriate DPM emission rates for each scenario to obtain an estimate of cancer risk and non-cancer hazard indices at all modeled receptors. HARP2 model files are provided in Appendix C.

5. RESULTS

5.1 Cancer and Non-Cancer Health Effects

Figure 8 presents the estimated residential cancer risk associated with DPM emissions from the I-5 freeway on the proposed Project site for the '2015 existing no Project' scenario. In this scenario, estimated residential cancer risk exceeds SJVAPCD's CEQA threshold of 20 in a million at almost all the proposed residential land use parcels.

Figure 9 presents the estimated residential cancer risk associated with DPM emissions from the I-5 freeway on the proposed Project site for the '2040 future no Project' scenario, which include future increases in traffic volumes based on projected population and economic growth. As a result of the penetration of cleaner diesel trucks into vehicle fleet in calendar year 2040 required by existing laws and regulations[23,24,25] , even with the projected substantial increase in I-5 traffic under the cumulative scenario, there is a reduction in the residential cancer risk in this scenario as compared to the '2015 existing no Project' scenario. The estimated residential cancer risk exceeds the 20 in a million threshold at locations up to 1,800 feet east of the I-5 freeway and 3,000 feet west of the I-5 freeway.

Figure 10 presents the estimated residential cancer risk associated with DPM emissions from the I-5 freeway on the proposed Project site for the 'existing plus Project' scenario. In this scenario, the residential cancer risk exceeds the 20 in a million threshold at locations within 650 feet east of the I-5 freeway and 1,300 feet west of the I-5 freeway.

Figure 11 presents the estimated residential cancer risk associated with DPM emissions from the I-5 freeway on the proposed Project site for the '2040 future plus Project scenario'. The residential cancer risk exceeds the 20 in a million threshold at locations within 2,000 feet east of the I-5 freeway and 3,600 feet west of the I-5 freeway.

Table 14 provides a summary of estimated cancer risk at the maximum impacted residential and school receptors for all Project scenarios. Please note, that the receptors are classified as residential or school based on the Project's conceptual land use plan (Figure 1), where there are no residential receptors located within 800 feet of the edge of the I-5 freeway.

For the Project scenarios (i.e., 'existing plus Project' and 'future plus Project') the maximum estimated cancer risk at a residential receptor is approximately 24 and 58 in a million for 'existing plus Project' and 'future plus Project' scenarios, respectively. These risk estimates are greater than the 20 in a million threshold. A 66% reduction in DPM emissions would bring the residential cancer risk at the maximum impacted receptor below the 20 in a million threshold for both Project scenarios.

The estimated cancer risk at the proposed locations of schools on the Project site is summarized in Table 15. These risk estimates are well below the 20 in a million threshold; they vary from 0.3 in a million to 2.5 in a million for the Project scenarios.

[23] CARB. California's Advanced Clean Cars Program. Available at: http://www.arb.ca.gov/msprog/consumer_info/advanced_clean_cars/consumer_acc.htm. Accessed: November 2015.

[24] CARB. 2014. Heavy-Duty GHG Phase 1 2013. Available at: http://www.arb.ca.gov/regact/2013/hdghg2013/hdghg2013.htm. Accessed: November 2015.

[25] CARB. 2015. Truck and Bus Regulation 2014. Available at: http://www.arb.ca.gov/regact/2014/truckbus14/truckbus14.htm. Accessed: November 2015.

This risk analysis includes the use of conservative exposure assumptions that likely overestimate actual exposure and risk. These assumptions include a 70-year residential exposure period, including the periods of a resident's life as an infant and child. The OEHHA risk assessment guidance[26] recommends the use of a lower residential exposure period of 30 years because people move periodically instead of living 70 years at the same location. As a result, reported risks are upper-bound estimates, and actual risks will likely be lower than reported.

The maximum chronic health index values at all sensitive receptors resulting from the DPM emissions on the I-5 freeway range from 0.002 to 0.054 across all four modeled scenarios. These values are below SJVAPCD's threshold of 1.0. Table 16 shows chronic non-cancer results for receptors located on school property.

5.2 Evaluation for Early Occupancy

Since the first phase of construction on the Project site is expected to be completed as early as calendar year 2018, early occupants may be present at an earlier time than the assumed date for full Project buildout (i.e., 2040). While traffic volumes may be lower at that time on the I-5 freeway, emission factors may be higher than that assumed in the 2040 analysis. Table 17 provides a comparison of the average diesel particulate matter emission factors for trucks[27] operating during various exposure periods for early occupants as compared to the 2040 emission factors that are used in this analyses. The residential and school cancer risk estimates are directly proportional to the diesel emissions; therefore, the approximate increase in the risk estimates is 34% and 189% for early occupants of residential and school locations, respectively.

Figure12 shows estimated residential cancer risk for early occupants of the Project site for the 'future plus Project' scenario assuming 2018 occupancy. The early occupant residential cancer risk estimate exceeds the 20 in a million threshold at locations within 3,000 feet east of the I-5 freeway and 4,400 feet west of the I-5 freeway. A 74% reduction in DPM emissions will bring the residential cancer risk at the maximum impacted receptor below the 20 in a million threshold. The early occupant cancer risk at proposed school locations are estimated to be below the 20 in a million threshold.

5.3 Mitigation Measures

Mitigation measures to reduce potential exposure to freeway emissions include air filtration technology in buildings, other building design features, vegetative barriers, and setbacks. These measures can also be used in combination. For example, Fisk et al., conducted a study of the performance and costs of particulate air filtration technologies. This study showed that Minimum Efficiency Reporting Value 13 (MERV 13) filters provide an 80% or greater reduction of outdoor fine particulate matter (such as DPM) if the ventilation systems are operated with one air exchange per hour of outside air and four air exchanges of recirculated air[28]. Vegetative barriers also provide some mitigation from freeway emissions.

[26] OEHHA. 2015. Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. February.

[27] As seen in Table 12, trucks emit greater than 97% of the total diesel particulate matter emissions on the section of the I-5 freeway that we are modeling. Therefore, it is reasonable to assume that the total emissions will change in the same manner as the truck emission factors.

[28] Fisk, W.J., D. Faulkner, J. Palonen, and O. Seppanen. 2002. Performance and costs of particle air filtration technologies. *Indoor Air*. 12: 223-234.

Studies have shown that vegetative landscaping can reduce particulate matter emissions by up to 55 to 80 percent at low wind speeds, with greater removal rates for smaller particles <0.1 micrometer (µm) in diameter.[29]

Mitigation Measure: To reduce the health effects from toxic air contaminant emissions from Interstate 5 on residential and other sensitive land uses on the project site to below the San Joaquin Valley Air Pollution Control District's significance threshold of 20 in 1 (or one) million, as part of the tentative tract map application for development of sensitive uses within 3,000 feet east of Interstate 5, or within 4,400 feet west of Interstate 5, the applicant shall describe the toxic air contaminant exposure measures to be implemented to assure that sensitive receptors are not exposed to toxic air contaminant emissions above the District's threshold by implementing one or more of the following measures: setbacks; vegetative barriers; HVAC system filtration technology; or other structural, technology, or design elements. The applicant may also update the health risk assessment (e.g., to take into account improvements in vehicular emissions and technology, and to take into account updated toxicological assessment methodology recommended by the San Joaquin Valley Air Pollution Control District) as part of this tentative tract map submittal.

5.4 Conclusion

In summary, this HRA demonstrates that implementation of feasible mitigation measures will reduce the health risks on the Project site from TAC emissions from the I-5 freeway to below SJVAPCD's CEQA threshold of 20 in a million. Future developments in technology to reduce freeway emissions, air filtration, or alternative approaches to mitigate freeway emissions may eliminate the need to implement any mitigation measures discussed above to address potential health risk impacts from freeway TAC emissions.

[29] Fujii, Erin et al., Removal Rates of Particulate Matter onto Vegetation as a Function of Particle Size, Final Report to Breathe California of Sacramento-Emigrant Trails Health Effects Task Force (HETF) and Sacramento Metropolitan AQMD, *April 30, 2008.* Available at: http://www.sacbreathe.org/Local%20Studies/Vegetation%20Study.pdf. Accessed: August 1, 2014.

TABLES

Table 1. Traffic Volumes on the I-5 Freeway for 2015 Existing No Project Scenario
Tejon Ranch
Lebec, California

Segment ID[1]	Segment Description[1]	AM Peak Hour Traffic Volumes[2]	PM Peak Hour Traffic Volumes[2]	Average Daily Traffic Volumes[3]	Average Daily Truck Volumes[4]	Average Daily Non-Truck Volumes[5]
Northbound						
NB1	Fort Tejon to Grapevine Off-Ramp	1,541	2,035	34,599	8,729	25,869
NB2	Grapevine Off to On-Ramp	1,491	1,994	33,718	8,507	25,211
NB3	Grapevine On-Ramp to Laval Road East Off-Ramp	1,571	2,051	35,044	8,842	26,202
NB4	Laval Road East Off-Ramp to Laval Road West Off-Ramp	1,404	1,793	30,932	7,804	23,128
NB5	Laval Road West Off-Ramp to On-Ramp	1,356	1,718	29,742	7,504	22,238
NB6	Laval Road On-Ramp to I-5 Northbound Off-Ramp	1,561	2,158	35,982	9,078	26,904
NB7	SR 99 Northbound North of I-5	976	1,283	21,856	5,514	16,342
Southbound						
SB1	SR 99 Southbound North of I-5	796	808	15,950	0	15,950
SB2	I-5 Southbound On-Ramp	1,107	1,443	25,357	0	25,357
SB3	I-5 and SR 99 Truck On-Ramp	354	441	7,905	7,905	0
SB4	SR 99 Truck On-Ramp to Laval Road West Off-Ramp	1,461	1,884	33,263	8,392	24,871
SB5	Laval Road East Off-Ramp to Laval Road East Off-Ramp	1,245	1,556	27,853	7,027	20,826
SB6	Laval Road East Off-Ramp to On-Ramp	1,154	1,454	25,934	6,543	19,391
SB7	Laval Road On-Ramp to Grapevine Off-Ramp	1,422	1,780	31,841	8,033	23,807
SB8	Grapevine Off to On-Ramp	1,360	1,730	30,727	7,752	22,975
SB9	Grapevine On-Ramp to Fort Tejon	1,398	1,782	31,622	7,978	23,644

Notes:
1. Refer to Figures 6a and 6b for an illustration of the road segments.
2. Data obtained from Fehr & Peers. 2015. Transportation Impact Study – Technical Report, Grapevine Project. October.
3. Average daily traffic volumes are estimated using the percent of existing traffic in AM and PM Peak hours for the existing no project scenario seen in Table 5.
4. Average daily truck volumes for all traffic segments (except SB1, SB2, and SB3) are calculated using the percentage of trucks seen in Table 7. Segments SB1 and SB2 have no truck traffic while Segment SB3 is a truck only segment.
5. Average daily non-truck volumes are estimated as the difference between average daily volumes and average daily truck volumes.

Abbreviations:
AM - ante meridiem or before midday
I-5 - Interstate-5
PM - post meridiem or after midday
SR 99 - State Route 99

Source:
Q:\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]T1_ExistingNoProjVol

Table 2. Traffic Volumes on the I-5 Freeway for 2040 Future No Project Scenario
Tejon Ranch
Lebec, California

Segment ID[1]	Segment Description[1]	AM Peak Hour Traffic Volumes[2]	PM Peak Hour Traffic Volumes[2]	Average Daily Traffic Volumes[3]	Average Daily Truck Volumes[4]	Average Daily Non-Truck Volumes[5]
Northbound						
NB1	Fort Tejon to Grapevine Off-Ramp	3,870	5,570	91,334	23,044	68,291
NB2	Grapevine Off to On-Ramp	3,840	5,470	90,076	22,726	67,350
NB3	Grapevine On-Ramp to Laval Road East Off-Ramp	3,850	5,480	90,270	22,775	67,495
NB4	Laval Road East Off-Ramp to Laval Road West Off-Ramp	3,570	5,160	84,465	21,310	63,154
NB5	Laval Road West Off-Ramp to On-Ramp	3,490	5,060	82,723	20,871	61,852
NB6	Laval Road On-Ramp to I-5 Northbound Off-Ramp	3,820	5,510	90,270	22,775	67,495
NB7	SR 99 Northbound North of I-5	2,010	2,760	46,151	11,644	34,507
Southbound						
SB1	SR 99 Southbound North of I-5	1,630	1,800	34,108	0	34,108
SB2	I-5 Southbound On-Ramp	3,250	3,490	67,023	0	67,023
SB3	I-5 and SR 99 Truck On-Ramp	870	1,370	22,275	22,275	0
SB4	SR 99 Truck On-Ramp to Laval Road West Off-Ramp	4,120	4,860	89,297	22,530	66,768
SB5	Laval Road East Off-Ramp to Laval Road East Off-Ramp	3,780	4,490	82,237	20,748	61,489
SB6	Laval Road East Off-Ramp to On-Ramp	3,640	4,320	79,154	19,971	59,184
SB7	Laval Road On-Ramp to Grapevine Off-Ramp	4,110	4,770	88,303	22,279	66,024
SB8	Grapevine Off to On-Ramp	4,100	4,770	88,203	22,254	65,950
SB9	Grapevine On-Ramp to Fort Tejon	4,120	4,890	89,596	22,605	66,991

Notes:
1. Refer to Figures 6a and 6b for an illustration of the road segments.
2. Data obtained from Fehr & Peers. 2015. Transportation Impact Study – Technical Report, Grapevine Project. October.
3. Average daily traffic volumes are estimated using the percent of existing traffic in AM and PM Peak hours for the existing plus project scenario seen in Table 5.
4. Average daily truck volumes for all traffic segments (except SB1, SB2, and SB3) are calculated using the percentage of trucks seen in Table 7. Segments SB1 and SB2 have no truck traffic while Segment SB3 is a truck only segment.
5. Average daily non-truck volumes are estimated as the difference between average daily volumes and average daily truck volumes.

Abbreviations:
AM - ante meridiem or before midday
I-5 - Interstate-5
PM - post meridiem or after midday
SR 99 - State Route 99

Source:
Q:\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]T2_FutureNoProjVol

Table 3. Traffic Volumes on the I-5 Freeway for 2015 Existing Plus Project Scenario
Tejon Ranch
Lebec, California

Segment ID[1]	Segment Description[1]	AM Peak Hour Traffic Volumes[2]		PM Peak Hour Traffic Volumes[2]		Average Daily Traffic Volumes		Average Daily Truck Volumes			Average Daily Non-Truck Volumes[8]		
		Existing	Project[3]	Existing	Project[3]	Existing[4]	Project[5]	Existing[6]	Project[7]	Total	Existing	Project	Total
Northbound													
NB1	Fort Tejon to Grapevine Off-Ramp	1,541	720	2,035	990	37,302	9,047	9,411	1,740	11,151	27,891	7,307	35,197
NB2	Grapevine Off to On-Ramp	1,491	-40	1,994	-140	36,353	-952	9,172	-183	8,989	27,181	-769	26,412
NB3	Grapevine On-Ramp to Laval Road East Off-Ramp	1,571	1,600	2,051	1,180	37,782	14,707	9,532	2,828	12,361	28,249	11,879	40,128
NB4	Laval Road East Off-Ramp to Laval Road West Off-Ramp	1,404	1,390	1,793	1,100	33,349	13,173	8,414	2,533	10,947	24,935	10,640	35,574
NB5	Laval Road West Off-Ramp to On-Ramp	1,356	1,370	1,718	1,100	32,065	13,067	8,090	2,513	10,603	23,975	10,554	34,530
NB6	Laval Road On-Ramp to I-5 Northbound Off-Ramp	1,561	1,800	2,158	1,570	38,794	17,829	9,788	3,429	13,216	29,006	14,400	43,406
NB7	SR 99 Northbound North of I-5	976	1,250	1,283	1,200	23,564	12,961	5,945	2,493	8,438	17,619	10,469	28,088
Southbound													
SB1	SR 99 Southbound North of I-5	796	520	808	1,420	17,379	10,263	0	0	0	17,379	10,263	27,643
SB2	I-5 Southbound On-Ramp	1,107	650	1,443	1,810	27,629	13,014	0	0	0	27,629	13,014	40,644
SB3	I-5 and SR 99 Truck On-Ramp	354	150	441	170	8,614	1,693	8,614	1,693	10,307	0	0	0
SB4	SR 99 Truck On-Ramp to Laval Road West Off-Ramp	1,461	800	1,884	1,980	36,243	14,707	9,144	2,828	11,973	27,099	11,879	38,978
SB5	Laval Road East Off-Ramp to Laval Road East Off-Ramp	1,245	780	1,556	1,650	30,349	12,856	7,657	2,472	10,129	22,692	10,383	33,075
SB6	Laval Road East Off-Ramp to On-Ramp	1,154	580	1,454	1,260	28,258	9,734	7,129	1,872	9,001	21,128	7,862	28,991
SB7	Laval Road On-Ramp to Grapevine Off-Ramp	1,422	790	1,780	1,450	34,694	11,850	8,753	2,279	11,032	25,941	9,572	35,512
SB8	Grapevine Off to On-Ramp	1,360	-50	1,730	-220	33,480	-1,428	8,447	-275	8,172	25,033	-1,154	23,880
SB9	Grapevine On-Ramp to Fort Tejon	1,398	530	1,782	930	34,456	7,724	8,693	1,485	10,179	25,762	6,239	32,001

Notes:
1. Refer to Figures 6a and 6b for an illustration of the road segments.
2. Data obtained from Fehr & Peers. 2015. Transportation Impact Study – Technical Report, Grapevine Project. October.
3. Project traffic volumes on some segments are negative. These represent existing traffic that would get off the freeway to use services on the Project site.
4. Average daily existing traffic volumes are estimated using the percent of existing traffic in AM and PM Peak hours for the existing no project scenario seen in Table 5.
5. Average daily project traffic volumes are estimated using the percent of project traffic in AM and PM Peak hours seen in Table 6.
6. Average daily truck volumes for all traffic segments (except SB1, SB2, and SB3) are calculated using the percentage of trucks seen in Table 7. Segments SB1 and SB2 have no truck traffic while Segment SB3 is a truck only segment.
7. Average daily truck volumes for all traffic segments (except SB1, SB2, and SB3) are calculated using maximum percentage of trucks in the northbound and southbound directions seen in Table 8. Segments SB1 and SB2 have no truck traffic while Segment SB3 is a truck only segment.
8. Average daily non-truck volumes are estimated as the difference between average daily volumes and average daily truck volumes.

Abbreviations:
AM - ante meridiem or before midday
I-5 - Interstate-5
PM - post meridiem or after midday
SR 99 - State Route 99

Source:
Q:\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]T3_ExistingPlusProjVol

Table 4. Traffic Volumes on the I-5 Freeway for 2040 Future Plus Project Scenario
Tejon Ranch
Lebec, California

Segment ID[1]	Segment Description[1]	AM Peak Hour Traffic Volumes[2]		PM Peak Hour Traffic Volumes[2]		Average Daily Traffic Volumes		Average Daily Truck Volumes			Average Daily Non-Truck Volumes[8]		
		Future	Project[3]	Future	Project[3]	Future[4]	Project[5]	Future[6]	Project[7]	Total	Future	Project	Total
Northbound													
NB1	Fort Tejon to Grapevine Off-Ramp	3,870	650	5,570	980	98,470	8,623	24,844	1,544	26,389	73,626	7,079	80,705
NB2	Grapevine Off to On-Ramp	3,840	0	5,470	10	97,114	53	24,502	9	24,511	72,612	43	72,656
NB3	Grapevine On-Ramp to Laval Road East Off-Ramp	3,850	1,570	5,480	970	97,323	13,438	24,555	2,407	26,961	72,768	11,031	83,799
NB4	Laval Road East Off-Ramp to Laval Road West Off-Ramp	3,570	1,270	5,160	820	91,064	11,057	22,976	1,980	24,956	68,089	9,077	77,165
NB5	Laval Road West Off-Ramp to On-Ramp	3,490	1,210	5,060	810	89,187	10,687	22,502	1,914	24,416	66,685	8,773	75,457
NB6	Laval Road On-Ramp to I-5 Northbound Off-Ramp	3,820	1,600	5,510	1,220	97,323	14,919	24,555	2,672	27,227	72,768	12,247	85,015
NB7	SR 99 Northbound North of I-5	2,010	1,110	2,760	930	49,757	10,792	12,554	1,933	14,487	37,203	8,859	46,063
Southbound													
SB1	SR 99 Southbound North of I-5	1,630	460	1,800	1,330	37,164	9,470	0	0	0	37,164	9,470	46,634
SB2	I-5 Southbound On-Ramp	3,250	570	3,490	1,690	73,028	11,956	0	0	0	73,028	11,956	84,985
SB3	I-5 and SR 99 Truck On-Ramp	870	120	1,370	140	24,271	1,375	24,271	1,375	25,646	0	0	0
SB4	SR 99 Truck On-Ramp to Laval Road West Off-Ramp	4,120	690	4,860	1,830	97,299	13,332	24,549	2,388	26,936	72,750	10,944	83,694
SB5	Laval Road East Off-Ramp to Laval Road East Off-Ramp	3,780	670	4,490	1,490	89,606	11,427	22,608	2,047	24,654	66,998	9,381	76,379
SB6	Laval Road East Off-Ramp to On-Ramp	3,640	530	4,320	1,170	86,247	8,994	21,760	1,611	23,371	64,487	7,383	71,870
SB7	Laval Road On-Ramp to Grapevine Off-Ramp	4,110	770	4,770	1,370	96,216	11,321	24,275	2,028	26,303	71,940	9,294	81,234
SB8	Grapevine Off to On-Ramp	4,100	0	4,770	0	96,107	0	24,248	0	24,248	71,859	0	71,859
SB9	Grapevine On-Ramp to Fort Tejon	4,120	460	4,890	920	97,624	7,301	24,631	1,308	25,938	72,994	5,993	78,987

Notes:
1. Refer to Figures 6a and 6b for an illustration of the road segments.
2. Data obtained from Fehr & Peers. 2015. Transportation Impact Study – Technical Report, Grapevine Project. October.
3. Project traffic volumes on some segments are negative. These represent future traffic that would get off the freeway to use services on the Project site.
4. Average daily existing traffic volumes are estimated using the percent of existing traffic in AM and PM Peak hours for the existing plus project scenario seen in Table 5.
5. Average daily project traffic volumes are estimated using the percent of project traffic in AM and PM Peak hours seen in Table 6.
6. Average daily truck volumes for all traffic segments (except SB1, SB2, and SB3) are calculated using the percentage of trucks seen in Table 7. Segments SB1 and SB2 have no truck traffic while Segment SB3 is a truck only segment.
7. Average daily truck volumes for all traffic segments (except SB1, SB2, and SB3) are calculated using maximum percentage of trucks in the northbound and southbound directions seen in Table 8. Segments SB1 and SB2 have no truck traffic while Segment SB3 is a truck only segment.
8. Average daily non-truck volumes are estimated as the difference between average daily volumes and average daily truck volumes.

Abbreviations:
AM - ante meridiem or before midday
I-5 - Interstate-5
PM - post meridiem or after midday
SR 99 - State Route 99

Source:
Q:\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]T4_FuturePlusProjVol

Table 5. Percentage of Average Daily Existing Traffic Volumes During Peak Hours
Tejon Ranch
Lebec, California

Direction	Average Daily Traffic Volumes[1]	Traffic Volumes in AM Peak Period[1]		Traffic Volumes in AM Peak Period[1]		Percentage of Average Daily Traffic in AM and PM Peak Hours	
		7:00 AM to 8:00 AM	8:00 AM to 9:00 AM	4:00 PM to 5:00 PM	5:00 PM to 6:00 PM	Existing Traffic in Existing Plus Project Scenario[2]	Existing Traffic in Existing No Project Scenario3
Northbound	35,779	1,581	1,503	2,195	1,927	9.6%	10.3%
Southbound	34,098	1,204	1,486	1,964	1,943	9.2%	10.1%

Notes:
1. Data extracted from CalTrans Freeway Performance Measurement System (PeMS). Represents typical weekday condition at loop detection station LDS #66310 between June 12, 2012 and August 16, 2012.
2. The AM and PM peak periods are defined as 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM respectively. For the existing plus project and future plus project scenarios, the AM and PM peak hours would occur in the AM and PM peak periods, however the exact hour is not known. As a conservative measure, the minimum percent traffic in these time periods is used; this results in a higher estimates of average daily traffic volumes.
3. For the existing no project and future no project scenarios the AM and PM peak hours in the southbound direction occur at 8:00 AM to 9:00 AM and 5:00 PM to 6:00 PM respectively; the AM and PM peak hours in the northbound direction occur at 8:00 AM to 9:00 AM and 4:00 PM to 5:00 PM respectively.

Abbreviations:
AM - ante meridiem or before midday
CalTrans - California Department of Transportation
LDS - loop detection station
PeMS - CalTrans Freeway Performance Measurement System
PM - post meridiem or after midday

Source:
Q:\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]T5_Background_ADT_Ratio

Table 6. Percentage of Average Daily Project Traffic Volumes During Peak Hours
Tejon Ranch
Lebec, California

Project Trip Generation during AM Peak Hour[1,2]	Project Trip Generation during PM Peak Hour[1,3]	Average Daily Project Trip Generation[1]	Percentage of Average Daily Project Traffic in AM and PM Peak Hours
17,286	20,651	200,701	18.9%

Notes:
1. Data obtained from Fehr & Peers. 2015. Transportation Impact Study – Technical Report, Grapevine Project. October.
2. The AM Peak hour occurs between 7:00 am and 9:00 am.
3. The PM Peak hour occurs between 4:00 pm and 6:00 pm.

Abbreviations:
AM - ante meridiem or before midday
PM - post meridiem or after midday

Source:

Q:\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]T6_Project_ADT_Ratio

Table 7. Average Daily Truck Percentage in Existing Traffic
Tejon Ranch
Lebec, California

Calendar Year	Annual Average Daily Trips[1]	Annual Average Daily Truck Trips[2]	Average Daily Truck Percentage
2012	140,000	35,322	25.2%

Notes:
1. Traffic census data for Leg B (behind) at post mile R 15.858. This location represents the section of the I-5 freeway being modeled. Available at: http://traffic-counts.dot.ca.gov/. Accessed: September 2015.

Abbreviations:
I-5 - Interstate-5

Source:

\\wcirvfps1\projects\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]T7_Background_Truck%

Table 8. Percent Truck Volumes in Project Traffic
Tejon Ranch
Lebec, California

Segment ID[1]	Segment Description[1]	2015 Existing Plus Project[2]		2040 Future Plus Project[2]	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Northbound					
NB1	Fort Tejon to Grapevine Off-Ramp	10.8%	8.2%	10.8%	8.2%
NB2	Grapevine Off to On-Ramp	0.0%	0.0%	0.0%	0.0%
NB3	Grapevine On-Ramp to Laval Road East Off-Ramp	5.6%	10.2%	5.7%	8.2%
NB4	Laval Road East Off-Ramp to Laval Road West Off-Ramp	5.8%	10.9%	5.5%	9.8%
NB5	Laval Road West Off-Ramp to On-Ramp	5.8%	10.9%	5.8%	9.9%
NB6	Laval Road On-Ramp to I-5 Northbound Off-Ramp	7.8%	12.1%	7.5%	11.5%
NB7	SR 99 Northbound North of I-5	8.8%	12.5%	8.1%	11.8%
Southbound					
SB1	SR 99 Southbound North of I-5	0.0%	0.0%	0.0%	0.0%
SB2	I-5 Southbound On-Ramp	0.0%	0.0%	0.0%	0.0%
SB3	I-5 and SR 99 Truck On-Ramp	100.0%	100.0%	100.0%	100.0%
SB4	SR 99 Truck On-Ramp to Laval Road West Off-Ramp	18.8%	8.6%	17.4%	7.7%
SB5	Laval Road East Off-Ramp to Laval Road East Off-Ramp	19.2%	7.3%	17.9%	6.0%
SB6	Laval Road East Off-Ramp to On-Ramp	19.0%	5.6%	17.0%	4.3%
SB7	Laval Road On-Ramp to Grapevine Off-Ramp	16.5%	4.8%	14.3%	3.6%
SB8	Grapevine Off to On-Ramp	0.0%	4.5%	0.0%	0.0%
SB9	Grapevine On-Ramp to Fort Tejon	15.1%	9.7%	15.2%	8.7%
Maximum Truck Percentage in Project Traffic[3]		**19.2%**		**17.9%**	

Notes:
1. Refer to Figures 6a and 6b for an illustration of the road segments.
2. Data obtained from Fehr & Peers. 2015. Transportation Impact Study – Technical Report, Grapevine Project. October.
3. The maximum truck percentage excludes Segments SB1, SB2, and SB3; Segments SB1 and SB2 have no truck traffic while Segment SB3 is a truck only segment.

Abbreviations:
AM - ante meridiem or before midday
I-5 - Interstate-5
PM - post meridiem or after midday
SR 99 - State Route 99

Source:
Q:\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]T8_Project_Truck%

Table 9. Diesel Particulate Matter Emission Factors for Trucks
Tejon Ranch
Lebec, California

EMFAC Vehicle Class	Fuel	Vehicle Miles Travelled in 2015[1]	Vehicle Miles Travelled in 2040[2]	Diesel Particulate Matter Emission Factors in Calendar Year 2015[2,3]				Diesel Particulate Matter Emission Factors in Calendar Year 2040[2,3]			
				55 mph	50 mph	35 mph	30 mph	55 mph	50 mph	35 mph	30 mph
LHDT1	GAS	340,324	120,340	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LHDT1	DSL	378,435	201,905	2.65E-02	2.56E-02	2.95E-02	3.37E-02	6.86E-03	7.05E-03	8.62E-03	9.63E-03
LHDT2	GAS	80,833	39,886	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LHDT2	DSL	147,191	98,000	2.24E-02	2.18E-02	2.53E-02	2.88E-02	5.75E-03	6.08E-03	7.62E-03	8.43E-03
MHDT	GAS	52,476	62,254	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MHDT	DSL	509,656	564,062	1.82E-01	1.62E-01	1.48E-01	1.59E-01	2.50E-03	2.64E-03	3.20E-03	3.44E-03
HHDT	GAS	11,135	8,358	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
HHDT	DSL	3,139,094	5,220,817	7.61E-02	7.00E-02	7.18E-02	7.93E-02	4.47E-03	4.74E-03	5.75E-03	6.19E-03
Truck Emission Factors[4]				**7.40E-02**	6.76E-02	6.78E-02	**7.45E-02**	4.23E-03	**4.47E-03**	5.43E-03	**5.86E-03**

Notes:
1. Vehicle miles travelled for each combination of vehicle class, fuel, and calendar year are obtained from EMFAC2014 Model Output Table A.2 in Appendix A.
2. For purposes of this analysis, diesel particulate matter emissions are assumed to be equal to PM_{10} running exhaust emissions from diesel vehicles. Therefore, emission factors for the gasoline vehicles are set to zero. For diesel vehicles, emission factors for each combination of vehicle class, speed, and calendar year are obtained from EMFAC2014 Model Output Table A.1 in Appendix A.
3. Emission factors are calculated as a VMT weighted average.

Abbreviations:
CARB - California Air Resources Board
DSL - diesel
EMFAC - CARB's mobile source emission inventory model
GAS - gasoline
HHDT - heavy-heavy duty truck
LHDT1 - light-heavy duty trucks (8501-10000 pounds)
LHDT2 - light-heavy duty trucks (10001-14000 pounds)
MHDT - medium-heavy duty truck
mph - miles per hour
PM_{10} - particulate matter less than 10 microns in diameter
VMT - vehicle miles travelled

Source:
Q:\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]T9_Truck_EF

Table 10. Diesel Particulate Matter Emission Factors for Non-Trucks
Tejon Ranch
Lebec, California

EMFAC Vehicle Class	Fuel	Vehicle Miles Travelled in Calendar Year 2015[1]	Vehicle Miles Travelled in Calendar Year 2040[1]	Diesel Particulate Matter Emission Factors in Calendar Year 2015[2,3]		Diesel Particulate Matter Emission Factors in Calendar Year 2040[2,3]		
				70 mph	65 mph	70 mph	65 mph	60 mph
LDA	GAS	9,579,675	16,530,264	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LDA	DSL	74,935	229,478	1.94E-02	1.80E-02	5.96E-04	5.95E-04	5.94E-04
LDA	ELEC	59,733	2,994,970	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LDT1	GAS	814,944	1,124,920	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LDT1	DSL	1,423	632	1.98E-01	1.82E-01	3.96E-03	3.90E-03	3.81E-03
LDT1	ELEC	382	507	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LDT2	GAS	3,482,563	6,944,932	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LDT2	DSL	4,846	15,266	6.89E-03	6.53E-03	3.23E-03	3.23E-03	3.23E-03
MCY	GAS	128,234	198,323	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MDV	GAS	3,715,876	3,473,185	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MDV	DSL	31,321	97,281	1.09E-02	1.02E-02	7.89E-04	7.89E-04	7.87E-04
MH	GAS	20,354	13,313	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MH	DSL	6,835	3,842	2.82E-01	2.42E-01	3.98E-02	3.33E-02	3.00E-02
OBUS	GAS	24,244	33,512	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
OBUS	DSL	12,108	20,127	6.77E-02	7.42E-02	3.04E-03	2.97E-03	3.11E-03
SBUS	GAS	6,764	9,275	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SBUS	DSL	16,595	17,566	7.01E-02	7.01E-02	2.30E-03	2.30E-03	2.30E-03
UBUS	GAS	15,977	23,469	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
UBUS	DSL	39,434	24,821	1.45E-01	1.45E-01	6.18E-03	1.19E-02	9.73E-03
Non Truck Emission Factors[4]				**6.51E-04**	6.31E-04	2.12E-05	**2.48E-05**	2.28E-05

Notes:

1. Vehicle miles travelled for each combination of vehicle class, fuel, and calendar year are obtained from EMFAC2014 Model Output Table A.2 in Appendix A.
2. For purposes of this analysis, diesel particulate matter emissions are assumed to be equal to PM_{10} running exhaust emissions from diesel vehicles. Therefore, emission factors for the gasoline vehicles are set to zero. For diesel vehicles, emission factors for each combination of vehicle class, speed, and calendar year are obtained from EMFAC2014 Model Output Table A.1 in Appendix A. Based on CARB's direction, whenever the emission factor at a particular speed was not available in Table A.1, statewide emission factors from EMFAC2014 Model Output Table A.3 in Appendix A were used.
3. Emission factors are calculated as a VMT weighted average.

Abbreviations:

CARB - California Air Resources Board
DSL - diesel
ELEC - electric
EMFAC - CARB's mobile source emission inventory model
GAS - gasoline
LDA - passenger car
LDT1 - light duty trucks (0-3750 pounds)
LDT2- light duty trucks (3751-5750 pounds)
MCY - motorcycle
MDV - medium duty trucks (5751-8500 pounds)
MH - motor homes
mph - miles per hour
OBUS - other buses
PM_{10} - particulate matter less than 10 microns in diameter
SBUS - school bus
UBUS - urban bus
VMT - vehicle miles travelled

Source:

Q:\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]T10_NonTruck_EF

Table 11. Average Daily Diesel Particulate Matter Emissions Estimates
Tejon Ranch
Lebec, California

Segment ID[1]	Segment Description[1]	Length[2] (miles)	Average Daily Diesel Particulate Matter Emission Estimates[3] (lb/day)							
			Existing No Project 2015		Future No Project 2040		Existing Plus Project 2040[4]		Future Plus Project 2040	
			Trucks	Non-Trucks	Trucks	Non-Trucks	Trucks	Non-Trucks	Trucks	Non-Trucks
Northbound										
NB1	Fort Tejon to Grapevine Off-Ramp	1.61	2.303	0.060	0.478	0.006	0.231	0.003	0.548	0.007
NB2	Grapevine Off to On-Ramp	0.35	0.485	0.013	0.078	0.001	0.031	0.001	0.084	0.001
NB3	Grapevine On-Ramp to Laval Road East Off-Ramp	2.77	3.994	0.104	0.622	0.010	0.338	0.006	0.736	0.013
NB4	Laval Road East Off-Ramp to Laval Road West Off-Ramp	0.23	0.298	0.008	0.049	0.001	0.025	0.000	0.058	0.001
NB5	Laval Road West Off-Ramp to On-Ramp	0.28	0.343	0.009	0.058	0.001	0.029	0.001	0.068	0.001
NB6	Laval Road On-Ramp to I-5 Northbound Off-Ramp	1.16	1.723	0.045	0.261	0.004	0.152	0.003	0.312	0.005
NB7	SR 99 Northbound North of I-5	0.39	0.351	0.009	0.045	0.001	0.032	0.001	0.056	0.001
Southbound										
SB1	SR 99 Southbound North of I-5	0.24	0	0.006	0	0.000	0	0.0004	0	0.001
SB2	I-5 Southbound On-Ramp	0.26	0	0.009	0	0.001	0	0.001	0	0.001
SB3	I-5 and SR 99 Truck On-Ramp	0.52	0.667	0	0.114	0	0.053	0	0.131	0
SB4	SR 99 Truck On-Ramp to Laval Road West Off-Ramp	1.21	1.660	0.043	0.269	0.004	0.143	0.003	0.322	0.006
SB5	Laval Road East Off-Ramp to Laval Road East Off-Ramp	0.23	0.267	0.007	0.048	0.001	0.023	0.0004	0.057	0.001
SB6	Laval Road East Off-Ramp to On-Ramp	0.33	0.357	0.009	0.066	0.001	0.030	0.001	0.077	0.001
SB7	Laval Road On-Ramp to Grapevine Off-Ramp	2.57	3.368	0.088	0.565	0.009	0.280	0.005	0.667	0.011
SB8	Grapevine Off to On-Ramp	0.18	0.229	0.006	0.040	0.001	0.015	0.000	0.043	0.001
SB9	Grapevine On-Ramp to Fort Tejon	1.72	2.257	0.058	0.503	0.006	0.227	0.003	0.577	0.007

Notes:
1. Refer to Figures 6a and 6b for an illustration of the road segments.
2. Segment length was determined using aerial imagery.
3. Average daily emissions are estimate using emission factors in Tables 9 and 10, traffic volumes in Tables 1 through 4, and the traffic link lengths shown in this table. For non-trucks, the maximum emission factor in speed ranging from 60-70 mph is used. For trucks, the maximum emission factor in speed range 50-55 mph is used, with the exception of segments NB1 and SB9. Segments NB1 and SB9 are on the Grapevine Grade which has a speed limit is 35 mph; therefore, the maximum emission factor in speed range 30-35 mph is used on these segments.
4. Although the traffic data for the existing no Project scenario is for calendar year 2015, the Project will not exist in 2015. Therefore, the 2040 emission factors are used for this scenario. Refer to Section 2.3 of the main report for further details.

Abbreviations:
g - grams
I-5 - Interstate-5
lb - pounds
mph - miles per hour
SR 99 - State Route 99

Conversion Factor:
453.59 g/lb

Source:
\\wcirvfps1\projects\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]T11_Emissions_Daily

Table 12. Annual Average Diesel Particulate Matter Emissions Estimates
Tejon Ranch
Lebec, California

Segment ID[1]	Segment Description[1]	AERMOD Source Group	Source Group Type	AERMOD Volume Source IDs	Number of Volume Sources	Annual Average Diesel Particulate Matter Emission Estimates[2] (lb/year)			
						Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[3]	Future Plus Project 2040
Trucks									
NB1	Fort Tejon to Grapevine Off-Ramp	NB1T	Truck	T133-T220	88	840.49	174.59	84.488	199.94
NB2	Grapevine Off to On-Ramp	NB2T	Truck	T221-T239	19	176.86	28.56	11.297	30.81
NB3	Grapevine On-Ramp to Laval Road East Off-Ramp	NB3T	Truck	T240-T391	152	1,457.95	227.03	123.218	268.77
NB4	Laval Road East Off-Ramp to Laval Road West Off-Ramp	NB4T	Truck	T392-T404	13	108.63	17.93	9.212	21.00
NB5	Laval Road West Off-Ramp to On-Ramp	NB5T	Truck	T405-T419	15	125.31	21.07	10.704	24.65
NB6	Laval Road On-Ramp to I-5 Northbound Off-Ramp	NB6T	Truck	T420-T483	64	628.99	95.39	55.355	114.04
NB7	SR 99 Northbound North of I-5	NB7T	Truck	T85-T113	29	128.13	16.36	11.852	20.35
SB1	SR 99 Southbound North of I-5	SB1T	Truck	T58-T84	27	0	0	0	0
SB2	I-5 Southbound On-Ramp	SB2T	Truck	T114-T132	19	0	0	0	0
SB3	I-5 and SR 99 Truck On-Ramp	SB3T	Truck	T1-T57	57	243.46	41.47	19.188	47.75
SB4	SR 99 Truck On-Ramp to Laval Road West Off-Ramp	SB4T	Truck	T484-T550	67	605.87	98.33	52.253	117.56
SB5	Laval Road East Off-Ramp to Laval Road East Off-Ramp	SB5T	Truck	T551-T563	13	97.51	17.40	8.497	20.68
SB6	Laval Road East Off-Ramp to On-Ramp	SB6T	Truck	T564-T581	18	130.14	24.01	10.823	28.10
SB7	Laval Road On-Ramp to Grapevine Off-Ramp	SB7T	Truck	T687-T827	141	1,229.32	206.10	102.057	243.32
SB8	Grapevine Off to On-Ramp	SB8T	Truck	T582-T591	10	83.64	14.51	5.330	15.81
SB9	Grapevine On-Ramp to Fort Tejon	SB9T	Truck	T592-T686	95	823.87	183.69	82.711	210.77
Non-Trucks									
NB1	Fort Tejon to Grapevine Off-Ramp	NB1N	Non Truck	N133-N220	88	21.76	2.19	1.130	2.59
NB2	Grapevine Off to On-Ramp	NB2N	Non Truck	N221-N239	19	4.61	0.47	0.184	0.51
NB3	Grapevine On-Ramp to Laval Road East Off-Ramp	NB3N	Non Truck	N240-N391	152	38.01	3.74	2.221	4.64
NB4	Laval Road East Off-Ramp to Laval Road West Off-Ramp	NB4N	Non Truck	N392-N404	13	2.83	0.30	0.166	0.36
NB5	Laval Road West Off-Ramp to On-Ramp	NB5N	Non Truck	N405-N419	15	3.27	0.35	0.194	0.42
NB6	Laval Road On-Ramp to I-5 Northbound Off-Ramp	NB6N	Non Truck	N420-N483	64	16.40	1.57	1.010	1.98
NB7	SR 99 Northbound North of I-5	NB7N	Non Truck	N85-N113	29	3.34	0.27	0.219	0.36
SB1	SR 99 Southbound North of I-5	SB1N	Non Truck	N58-N84	27	2.02	0.16	0.134	0.23
SB2	I-5 Southbound On-Ramp	SB2N	Non Truck	N114-N132	19	3.39	0.34	0.207	0.43
SB3	I-5 and SR 99 Truck On-Ramp	SB3N	Non Truck	N1-N57	57	0	0	0.000	0

Table 12. Annual Average Diesel Particulate Matter Emissions Estimates
Tejon Ranch
Lebec, California

Segment ID[1]	Segment Description[1]	AERMOD Source Group	Source Group Type	AERMOD Volume Source IDs	Number of Volume Sources	Annual Average Diesel Particulate Matter Emission Estimates[2] (lb/year)			
						Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[3]	Future Plus Project 2040
Non-Trucks									
SB4	SR 99 Truck On-Ramp to Laval Road West Off-Ramp	SB4N	Non Truck	N484-N550	67	15.79	1.62	0.945	2.03
SB5	Laval Road East Off-Ramp to Laval Road East Off-Ramp	SB5N	Non Truck	N551-N563	13	2.54	0.29	0.154	0.36
SB6	Laval Road East Off-Ramp to On-Ramp	SB6N	Non Truck	N564-N581	18	3.39	0.40	0.194	0.48
SB7	Laval Road On-Ramp to Grapevine Off-Ramp	SB7N	Non Truck	N687-N827	141	32.05	3.39	1.824	4.17
SB8	Grapevine Off to On-Ramp	SB8N	Non Truck	N582-N591	10	2.18	0.24	0.086	0.26
SB9	Grapevine On-Ramp to Fort Tejon	SB9N	Non Truck	N592-N686	95	21.33	2.31	1.102	2.72

Notes:
1. Refer to Figures 6a and 6b for an illustration of the road segments.
2. Annual average emissions are estimated using the average daily emissions and the number of days in a year.
3. Although the traffic data for the existing no Project scenario is for calendar year 2015, the Project will not exist in 2015. Therefore, the 2040 emission factors are used for this scenario. Refer to Section 2.3 of the main report for further details.

Abbreviation:
AERMOD - American Meteorological Society/Environmental Protection Agency Regulatory Model
I-5 - Interstate-5
lb - pounds
SR 99 - State Route 99

Conversion Factor:
365 days/year

Source:
\\wcirvfps1\projects\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]T12_Emissions_Annual

Table 13. Average Diesel Particulate Matter Emission Factors for Trucks Operating During Various Exposure Periods Analyzed in this Health Risk Assessment
Tejon Ranch
Lebec, California

Speed (mph)	Diesel Particulate Matter Emission Factors for Trucks (g/mi)			% Change from 2040 Emission Factor	
	Calendar Year 2040	School Age	Residential	School Age	Residential
		13-year Average (2036-2048)	70-year Average (2036-2105)	13-year Average (2036-2048)	70-year Average (2036-2105)
55	4.23E-03	4.22E-03	4.16E-03	-0.14%	-1.7%
50	4.47E-03	4.47E-03	4.40E-03	-0.12%	-1.6%
35	5.43E-03	5.42E-03	5.35E-03	-0.11%	-1.5%
30	5.86E-03	5.85E-03	5.77E-03	-0.12%	-1.6%

Notes:
1. Average emission factors are calculated using the diesel particulate matter emission factors shown in Table A.7 in Appendix A of this report.

Abbreviations:
g - grams
mi - miles
mph - miles per hour

Source:
P:\T\Tejon Ranch\Technical_Work\Emissions\[EmissionFactorComparison.xlsx]T13_AverageEF_2036

Table 14. Summary of Health Risk Estimates at Maximum Impacted Receptors
Tejon Ranch
Lebec, California

Health Endpoint	Receptor Type[1,2]	Maximum Estimated Cancer Risk (in a million)				
		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[3]	Future Plus Project 2040	SJVAPCD CEQA Threshold[4]
Cancer Risk	Resident	268	51	24	58	20
	School	13	2	1	3	20
Health Endpoint	**Receptor[1]**	**Maximum Estimated Chronic Noncancer Hazard Index**				
		Existing No Project 2015	**Future No Project 2040**	**Existing Plus Project 2040[3]**	**Future Plus Project 2040**	**SJVAPCD CEQA Threshold[4]**
Chronic Noncancer Hazard Index	Resident	0.054	0.010	0.005	0.012	1.0
	School	0.019	0.003	0.002	0.004	1.0

Notes:
1. Receptor types are designated based on the Project's conceptual land use map seen in Figure 1.
2. Exposure period varies based on receptor type. Refer to Section 4.2 to further details.
3. Traffic data were provided for calendar year 2015. Since the project will not be built out untill calendar year 2040, emission factors from for calendar year 2040 were used for these health risk estimates.
4. SJVAPCD. 2015. Final Staff Report – The District's Updated Risk Management Policy to Address OEHHA's Revised Risk Assessment Guidance Document. May. Available at: http://www.valleyair.org/busind/pto/toxics.htm#RiskManagement. Accessed: July 2015.

Abbreviations:
CEQA - California Environmental Quality Act
OEHHA - Office of Environmental Health Hazard Assessment
SJVAPCD - San Joaquin Valley Unified Air Pollution Control District

Source:
P:\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]T14_HRA Results

Table 15. Chronic Non-Cancer Hazard Index Estimates at Schools
Tejon Ranch
Lebec, California

UTM Coordinates[1] (meters)		Cancer Risk Estimates (in a million)			
X Coordinate	Y Coordinate	Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[2]	Future Plus Project 2040
326,335	3,868,717	3.5	0.6	0.3	0.7
324,762	3,871,621	4.9	0.8	0.4	1.0
324,029	3,870,137	10.8	1.8	0.9	2.1
322,532	3,869,409	12.2	2.1	1.0	2.4
322,508	3,869,506	12.7	2.2	1.1	2.5
322,485	3,869,603	12.6	2.1	1.1	2.5
324,118	3,870,192	9.7	1.6	0.8	1.9
324,142	3,870,095	9.8	1.6	0.8	1.9
322,421	3,869,442	10.8	1.9	0.9	2.2
322,397	3,869,539	11.0	1.9	0.9	2.2
322,334	3,869,378	9.5	1.7	0.8	1.9
322,310	3,869,475	9.9	1.7	0.8	2.0
322,287	3,869,572	10.0	1.7	0.8	2.0
322,147	3,870,156	11.6	1.9	1.0	2.3
322,124	3,870,253	12.0	2.0	1.0	2.3
324,792	3,868,877	7.0	1.2	0.6	1.4
325,857	3,869,807	3.8	0.6	0.3	0.8

Notes:
1. The projection datum is WGS-84.
2. Traffic data were provided for calendar year 2015. Since the project will not be built out untill calendar year 2040, emission factors from for calendar year 2040 were used for these health risk estimates.

Abbreviations:
UTM - Universal Transverse Mercator
WGS - World Geodetic System

Source:
\\wcirvfps1\projects\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]T15_Cancer Risk School

Table 16. Chronic Non-Cancer Hazard Index Estimates at Schools
Tejon Ranch
Lebec, California

UTM Coordinates[1] (meters)		Chronic Noncancer Hazard Index Estimates			
X Coordinate	Y Coordinate	Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[2]	Future Plus Project 2040
326,335	3,868,717	5.2E-03	9.2E-04	4.5E-04	1.1E-03
324,762	3,871,621	7.2E-03	1.2E-03	6.1E-04	1.4E-03
324,029	3,870,137	1.6E-02	2.6E-03	1.3E-03	3.1E-03
322,532	3,869,409	1.8E-02	3.1E-03	1.5E-03	3.6E-03
322,508	3,869,506	1.9E-02	3.2E-03	1.6E-03	3.7E-03
322,485	3,869,603	1.8E-02	3.1E-03	1.5E-03	3.7E-03
324,118	3,870,192	1.4E-02	2.4E-03	1.2E-03	2.8E-03
324,142	3,870,095	1.4E-02	2.4E-03	1.2E-03	2.8E-03
322,421	3,869,442	1.6E-02	2.7E-03	1.3E-03	3.2E-03
322,397	3,869,539	1.6E-02	2.8E-03	1.3E-03	3.2E-03
322,334	3,869,378	1.4E-02	2.5E-03	1.2E-03	2.8E-03
322,310	3,869,475	1.5E-02	2.5E-03	1.2E-03	2.9E-03
322,287	3,869,572	1.5E-02	2.6E-03	1.2E-03	3.0E-03
322,147	3,870,156	1.7E-02	2.8E-03	1.4E-03	3.3E-03
322,124	3,870,253	1.8E-02	2.9E-03	1.5E-03	3.4E-03
324,792	3,868,877	1.0E-02	1.8E-03	8.9E-04	2.1E-03
325,857	3,869,807	5.5E-03	9.5E-04	4.7E-04	1.1E-03

Notes:
1. The projection datum is WGS-84.
2. Traffic data were provided for calendar year 2015. Since the project will not be built out untill calendar year 2040, emission factors from for calendar year 2040 were used for these health risk estimates.

Abbreviations:
UTM - Universal Transverse Mercator
WGS - World Geodetic System

Source:
\\wcirvfps1\projects\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]T16_Chronic Risk School

Table 17. Average Diesel Particulate Matter Emission Factors for Trucks Operating During Various Exposure Periods for Early Occupants of Project Site
Tejon Ranch
Lebec, California

Speed[1] (mph)	Diesel Particulate Matter Emission Factors for Trucks[2] (g/mi)			% Change from 2040 Emission Factor	
	Calendar Year 2040	School Age	Residential	School Age	Residential
		13-year Average (2018-2030)	70-year Average (2018-2087)	13-year Average (2018-2030)	70-year Average (2018-2087)
55	4.23E-03	1.31E-02	5.85E-03	211%	38%
50	**4.47E-03**	**1.29E-02**	**6.01E-03**	**189%**	**34%**
35	5.43E-03	1.40E-02	6.99E-03	158%	29%
30	**5.86E-03**	**1.51E-02**	**7.54E-03**	**158%**	**29%**

Notes:

1. Average emission factors are calculated using the emission factors shown in Table A.7 in Appendix A of this report.
2. Trucks are assumed to operate close to the speed limit of 35 mph on the Grapevine Grade and 55 mph elsewhere (Refer to Section 2.2 of the main report for further details). The higher of the two emission factors at 30 mph and 35 mph was used to estimate emissions from trucks on the Grapevine Grade. For all other road segments the higher of the two emission factors at 50 mph and 55 mph were used. These are highlighted in **bold**.

Abbreviations:

g - grams

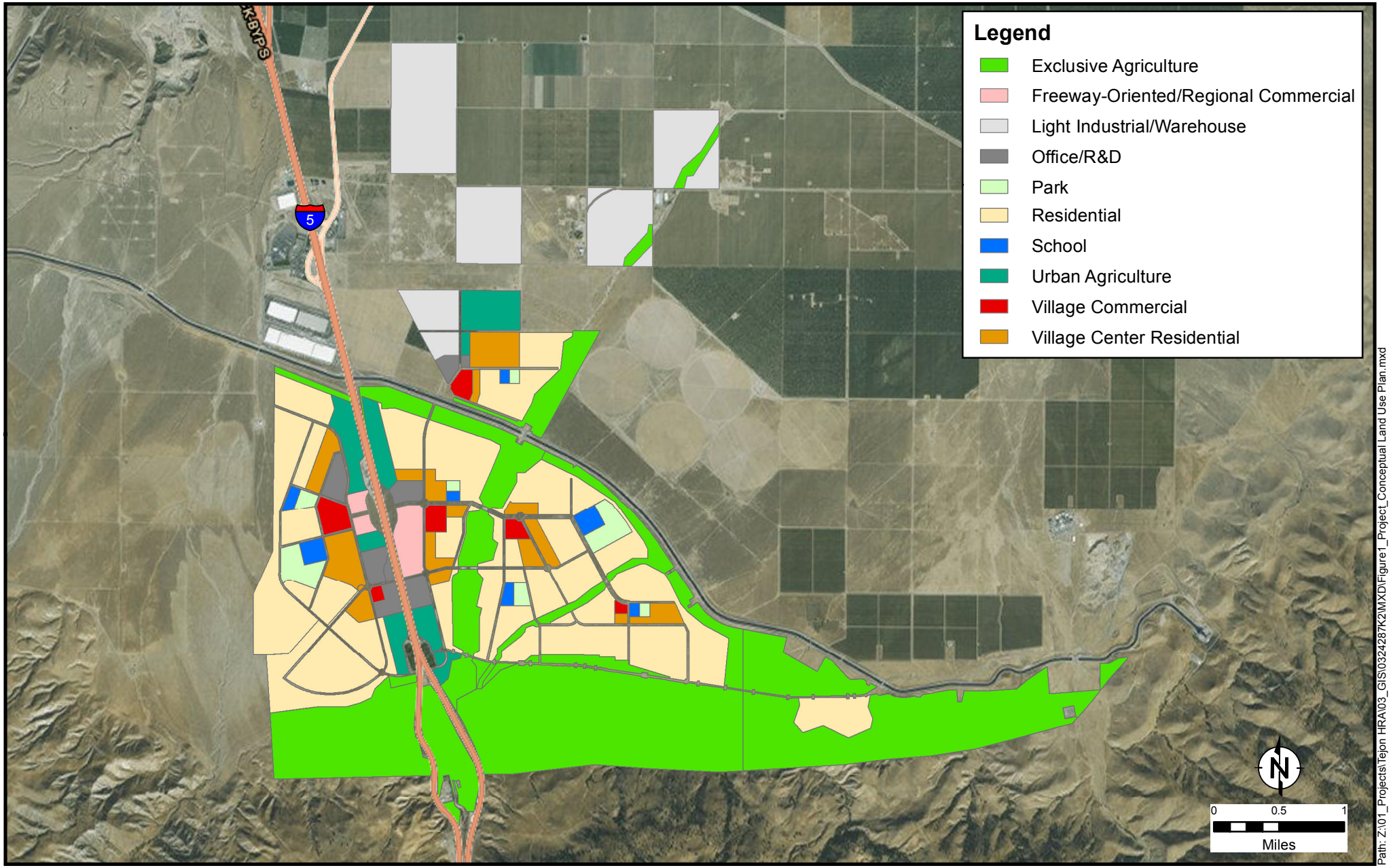
mi - miles

mph - miles per hour

Source:

P:\T\Tejon Ranch\Technical_Work\Emissions\[EmissionFactorComparison.xlsx]T17_AverageEF_2018

FIGURES



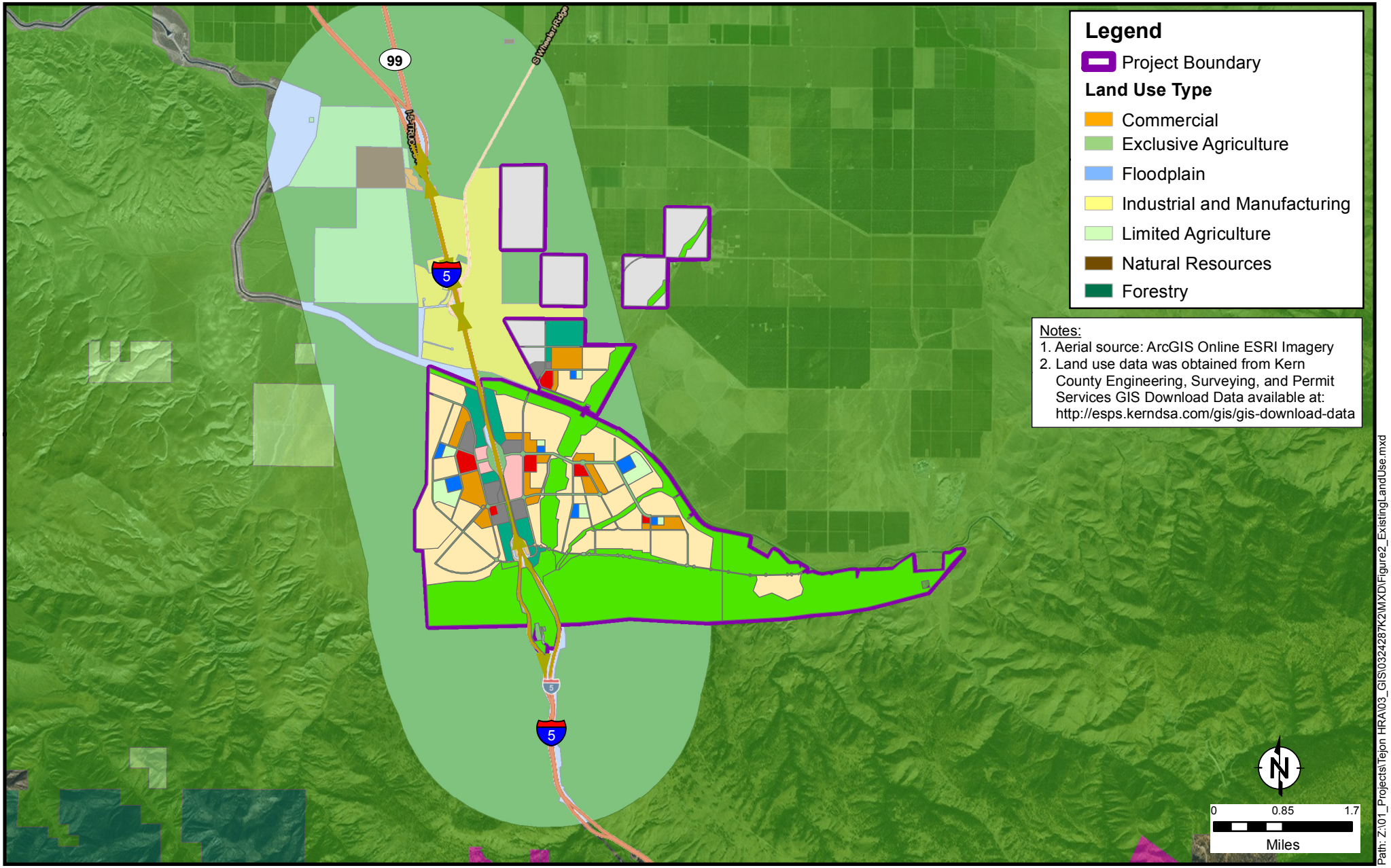
Path: Z:\01_Projects\Tejon HRA\03_GIS\0324287K2\MXD\Figure1_Project_Conceptual Land Use Plan.mxd

RAMBOLL ENVIRON

Grapevine Project – Conceptual Land Use Plan

Figure 1

DRAFTED BY: RRH | Date: 10/28/2015 | PROJECT: 0324287K2

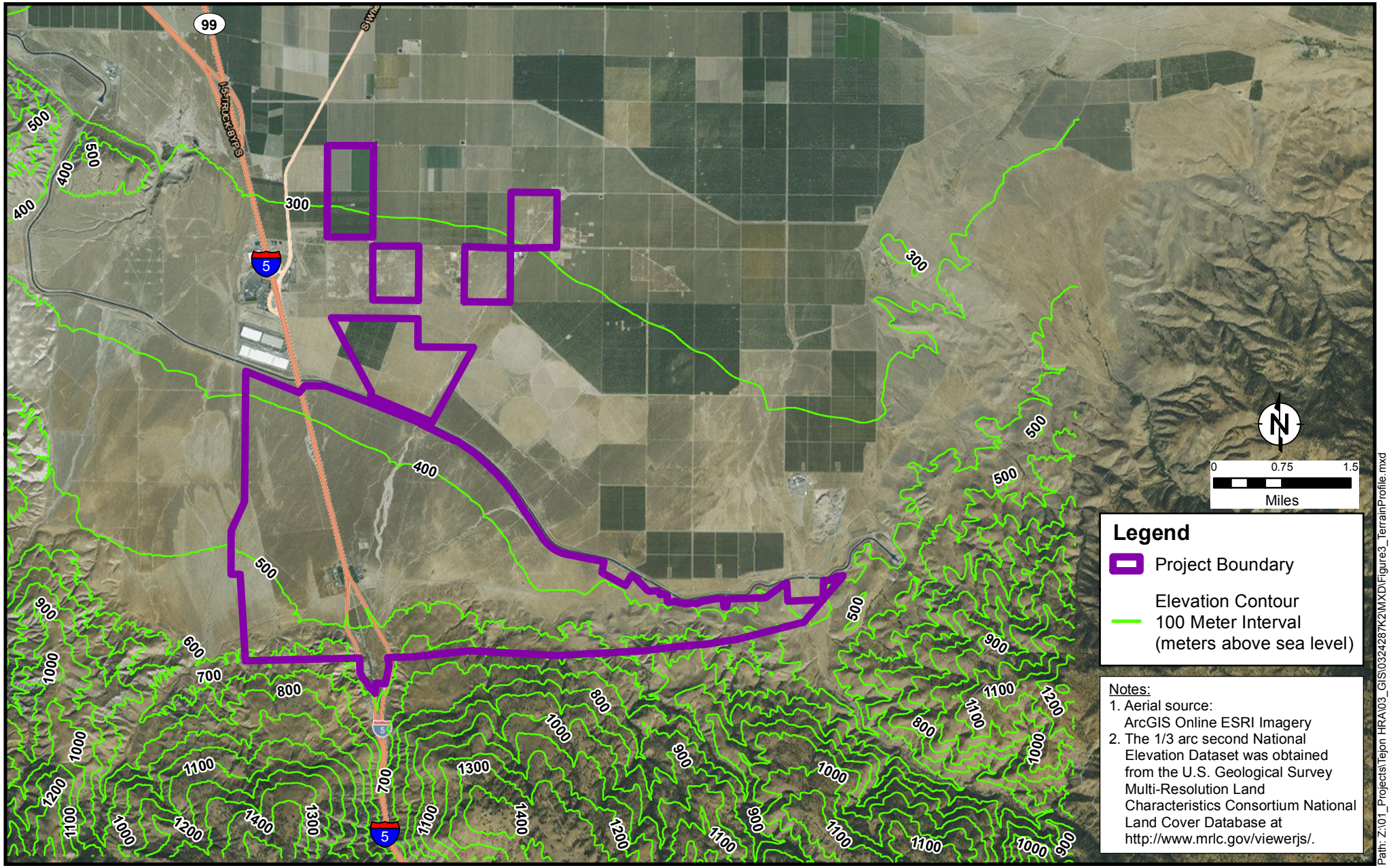


RAMBOLL ENVIRON

Existing Land Use in the Modeling Domain

Figure 2

DRAFTED BY: RRH | Date: 5/12/2016 | PROJECT: 0324287K2



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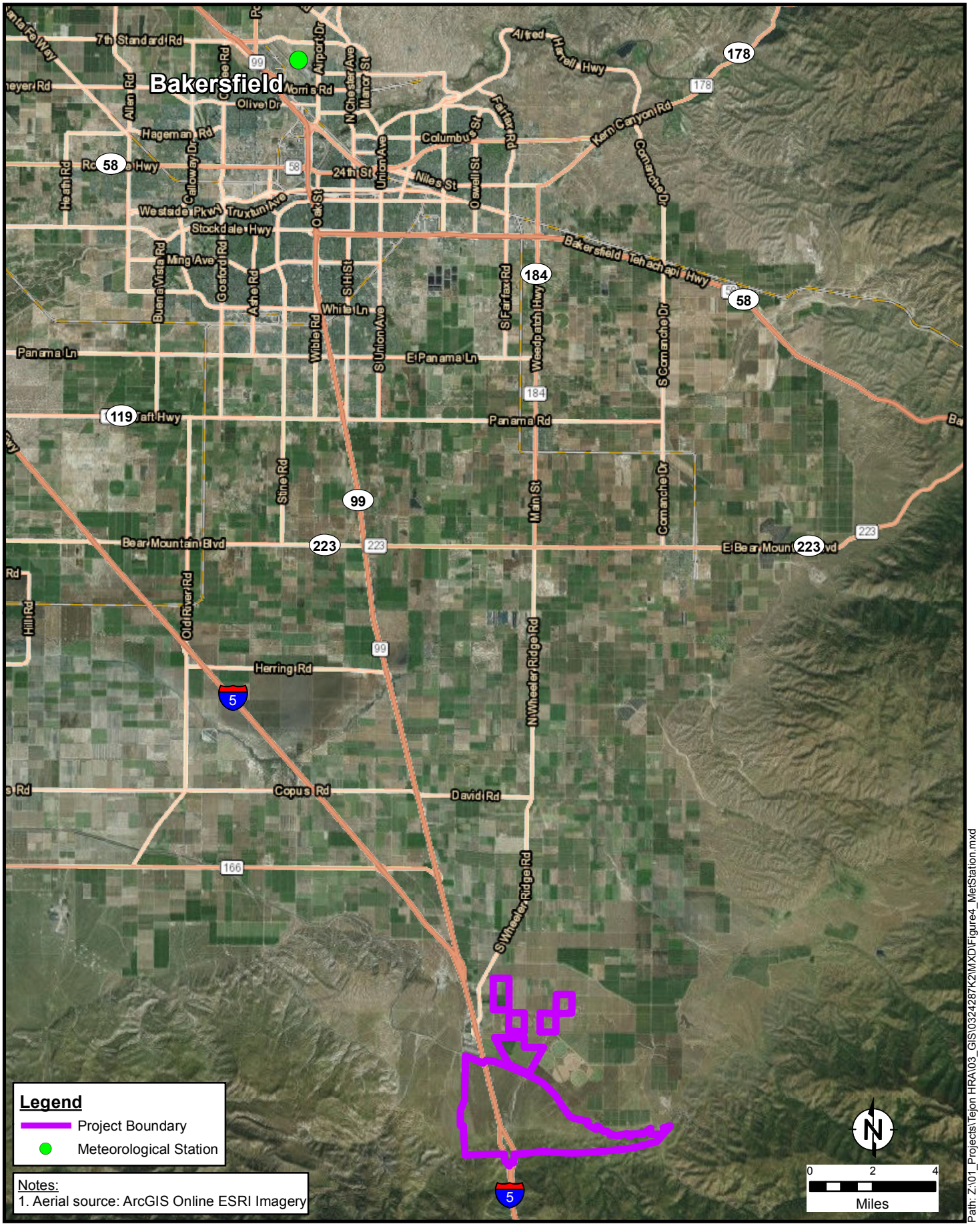
RAMBOLL ENVIRON

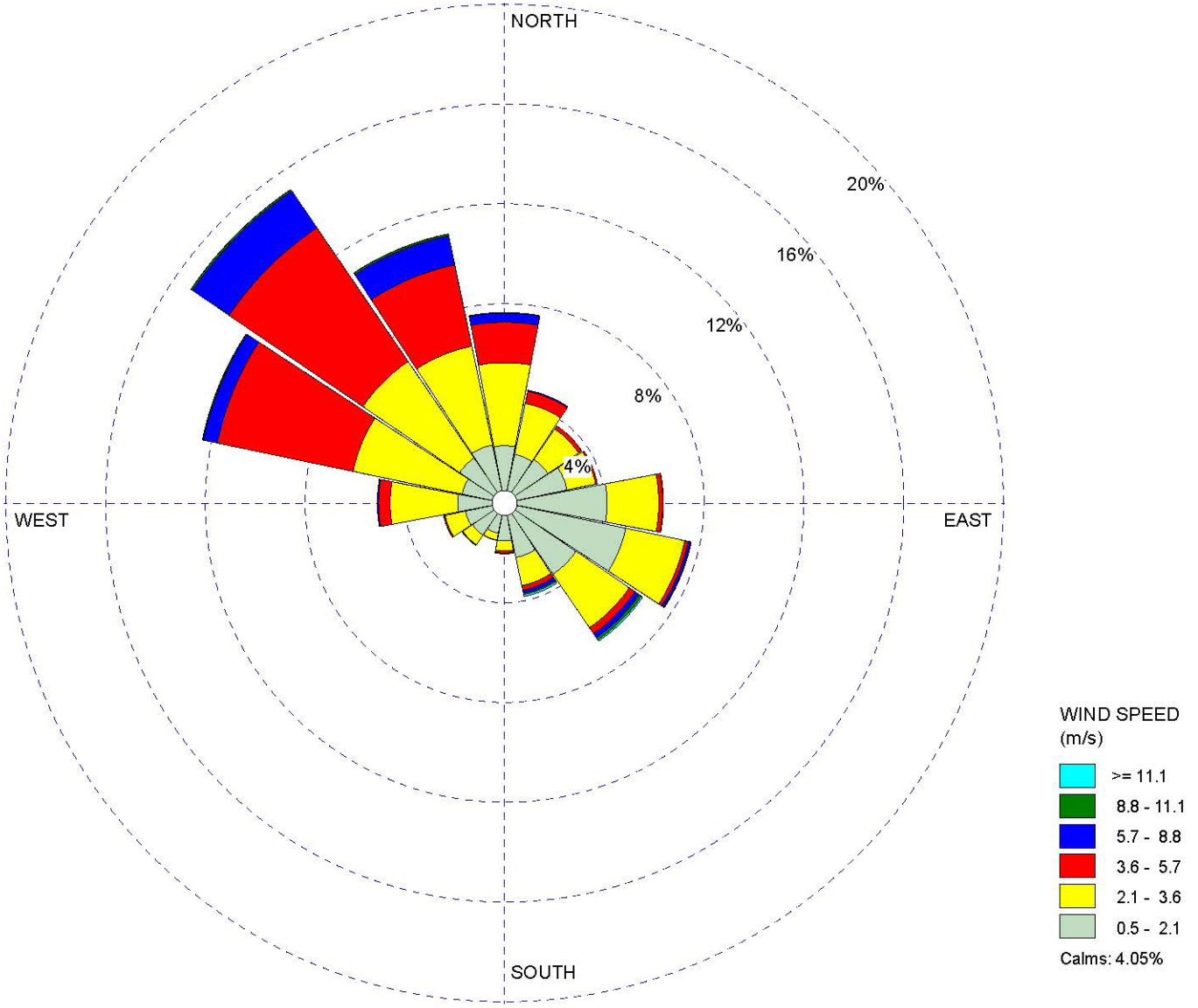
Terrain Profile in the Modeling Domain

Figure 3

DRAFTED BY: RRH | Date: 5/12/2016 | PROJECT: 0324287K2



RAMBOLL ENVIRON	Location of Meteorological Station		Figure 4
DRAFTED BY: RRH	Date: 5/12/2016		PROJECT: 0324287K2



FILE: \\wcirvfps1\projects\TTejon Ranch\Report\Figures\Figure5_BakersfieldWindRose

RAMBOLL ENVIRON

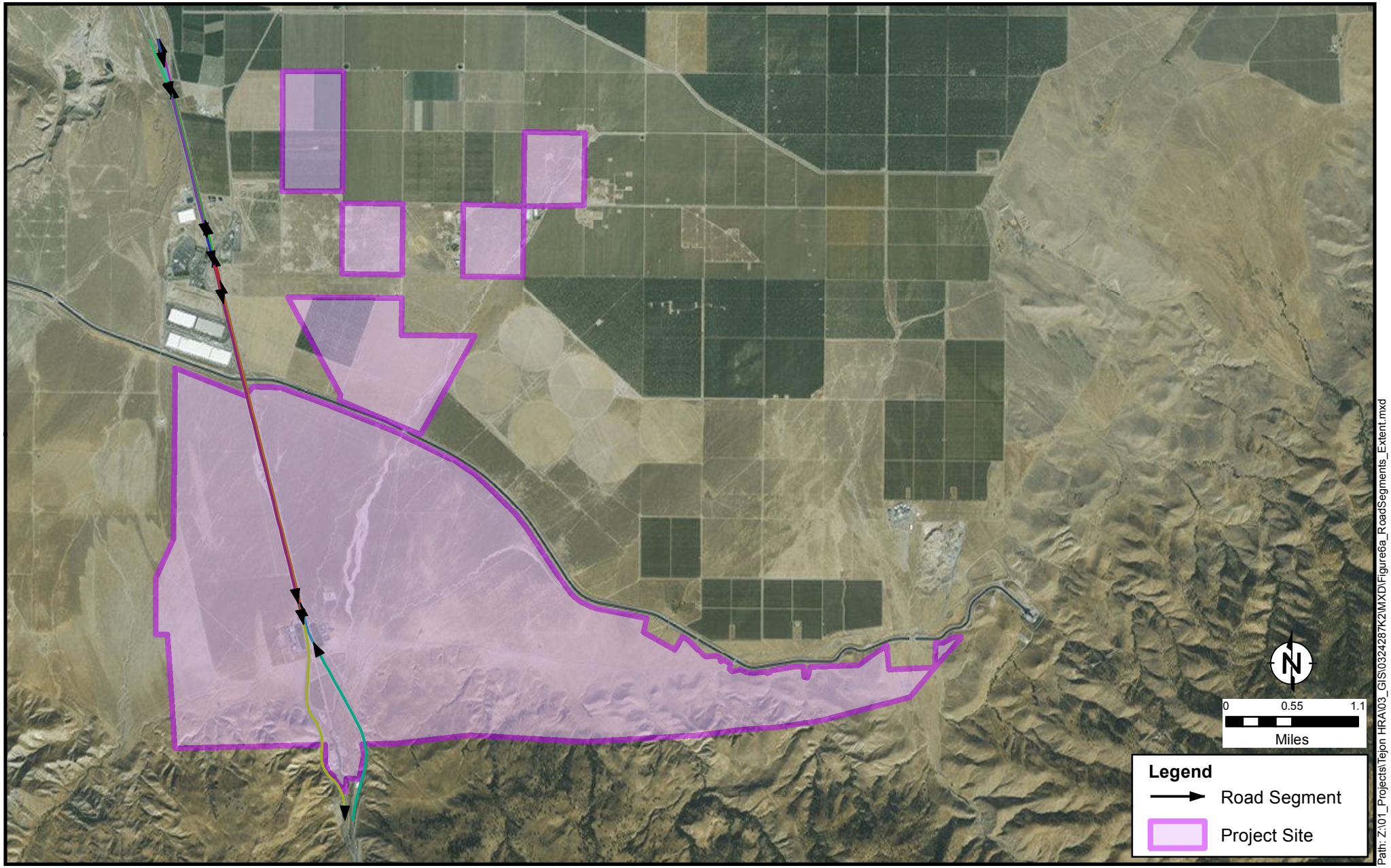
DRAFTED BY: RRH | DATE: 7/30/15

Bakersfield Meteorological Station

5 Year Wind Rose (2009 to 2013)

Figure 5

PROJECT: 0324287K2



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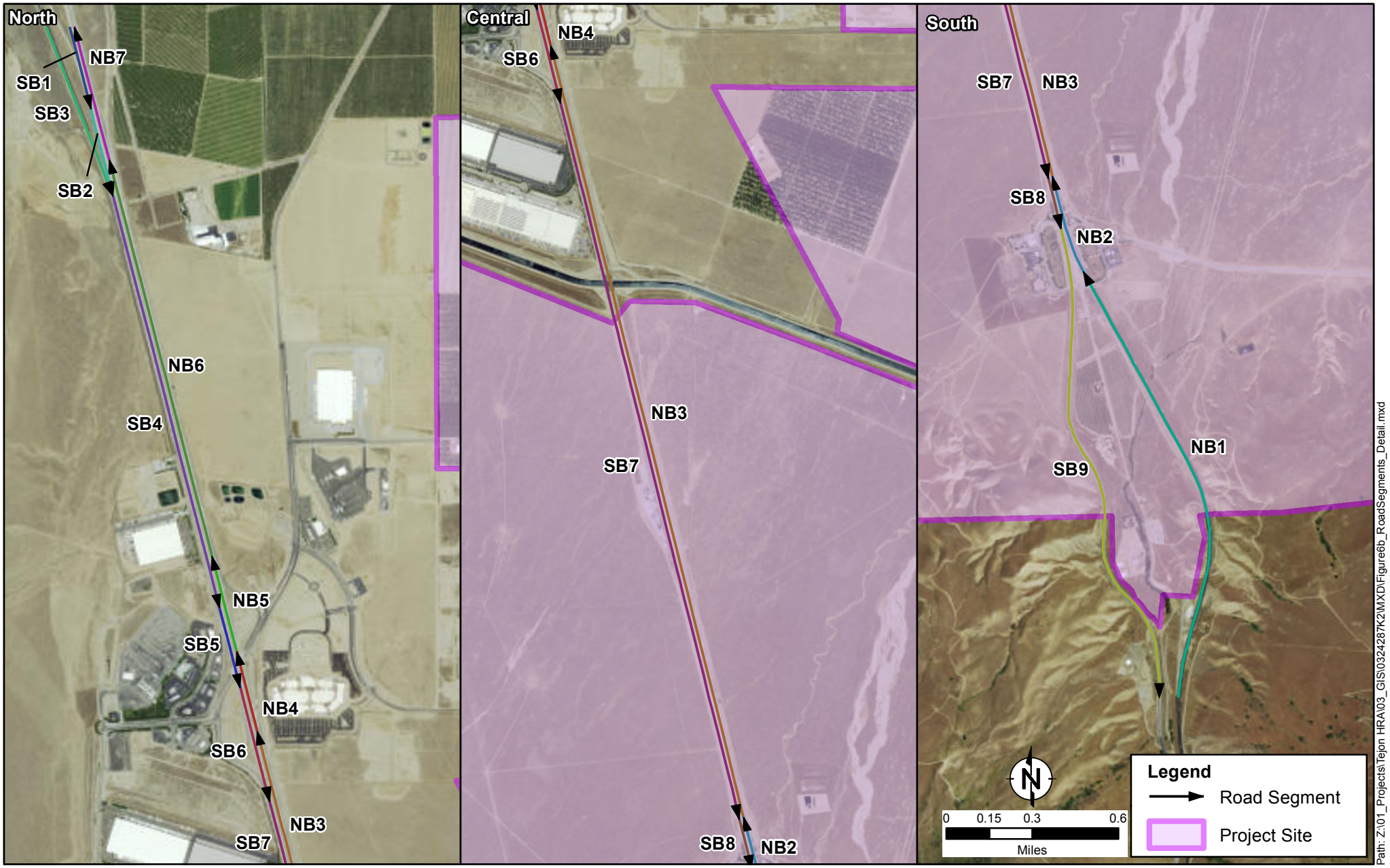
RAMBOLL ENVIRON

Extent of Modeled Road Segments

Figure 6a

DRAFTED BY: RRH | Date: 5/12/2016 | PROJECT: 0324287K2

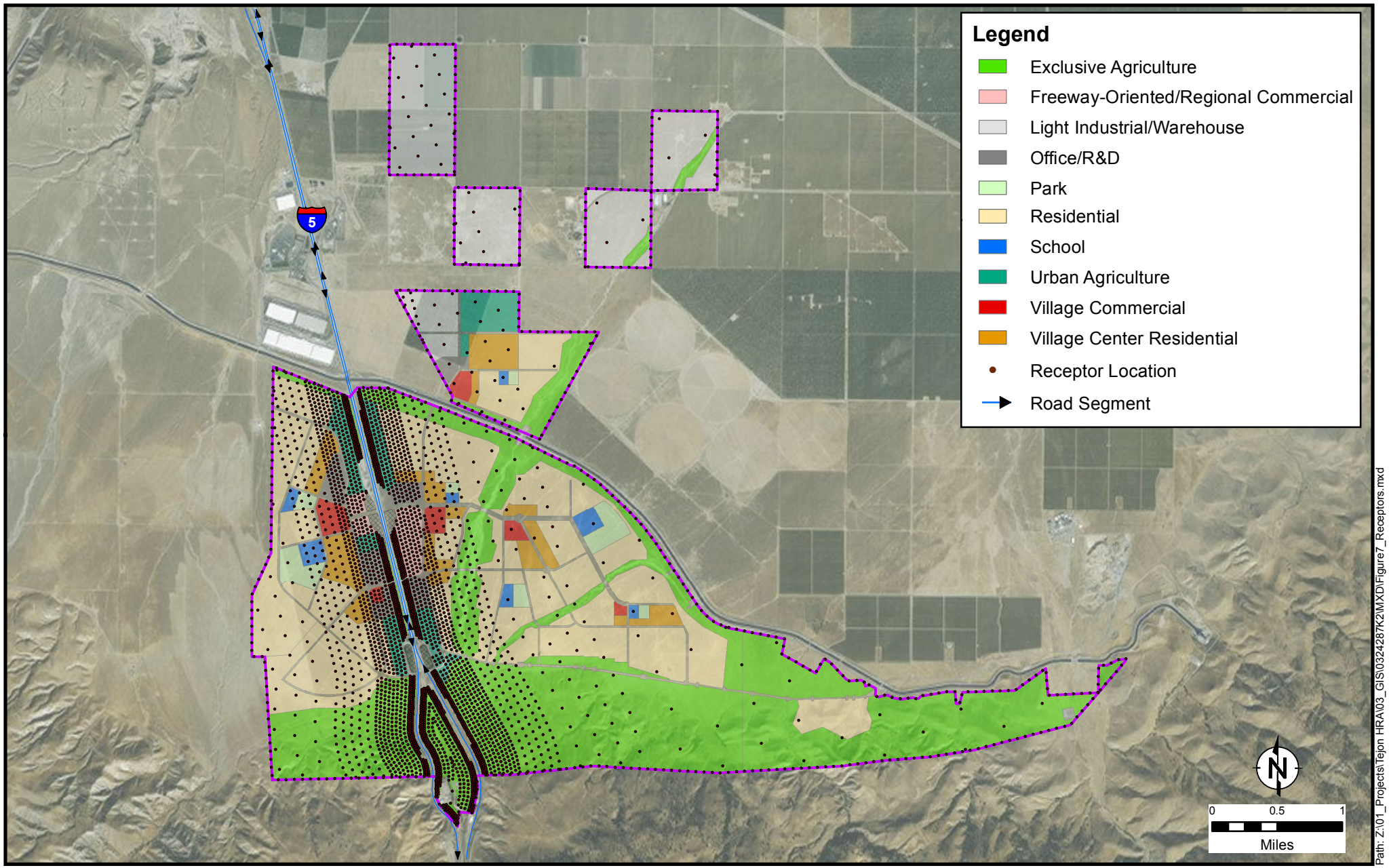


RAMBOLL ENVIRON

Modeled Road Segments - Detailed View

Figure 6b

DRAFTED BY: RRH | Date: 5/12/2016 | PROJECT: 0324287K2



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RAMBOLL ENVIRON

Receptor Locations

Figure 7

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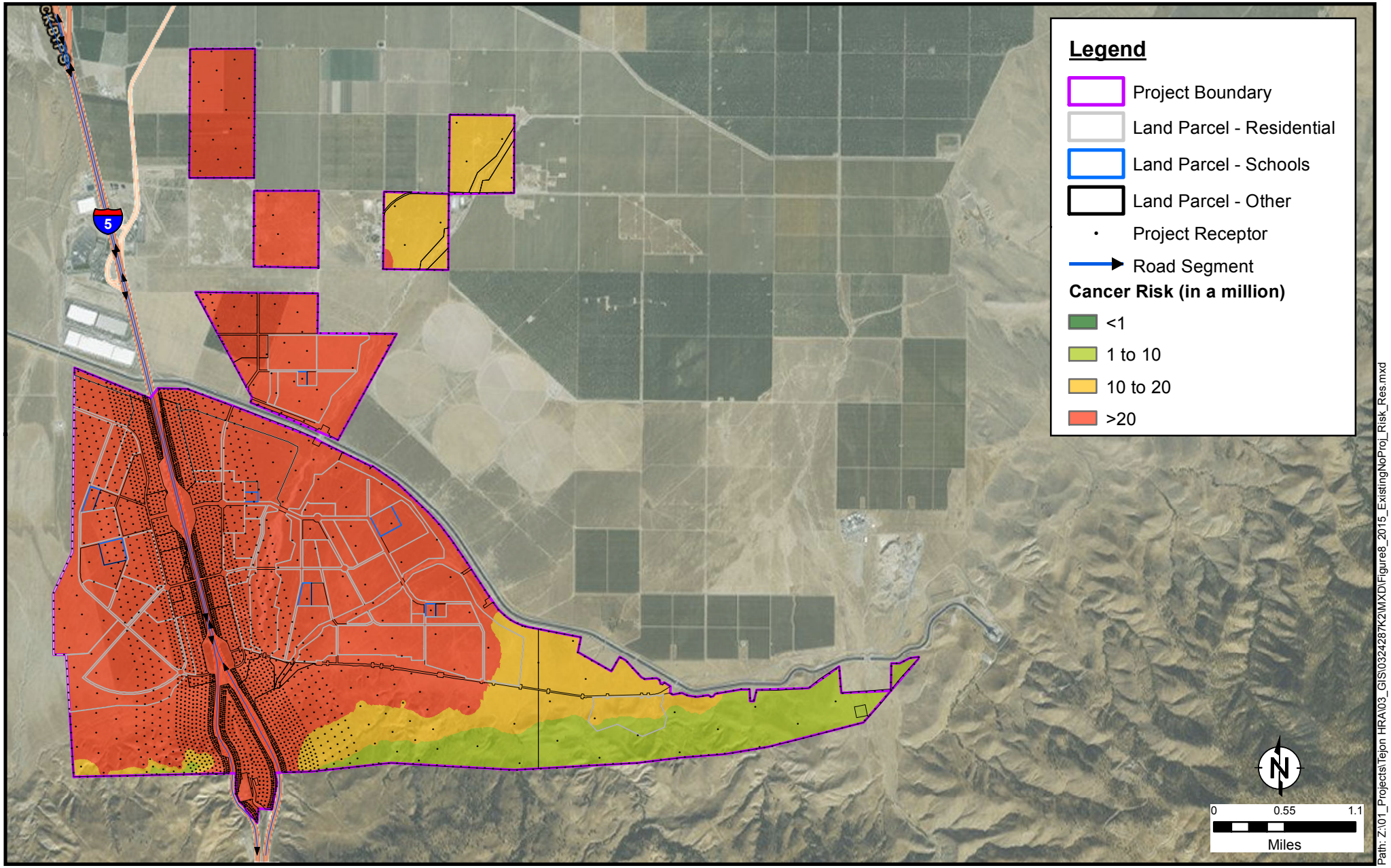

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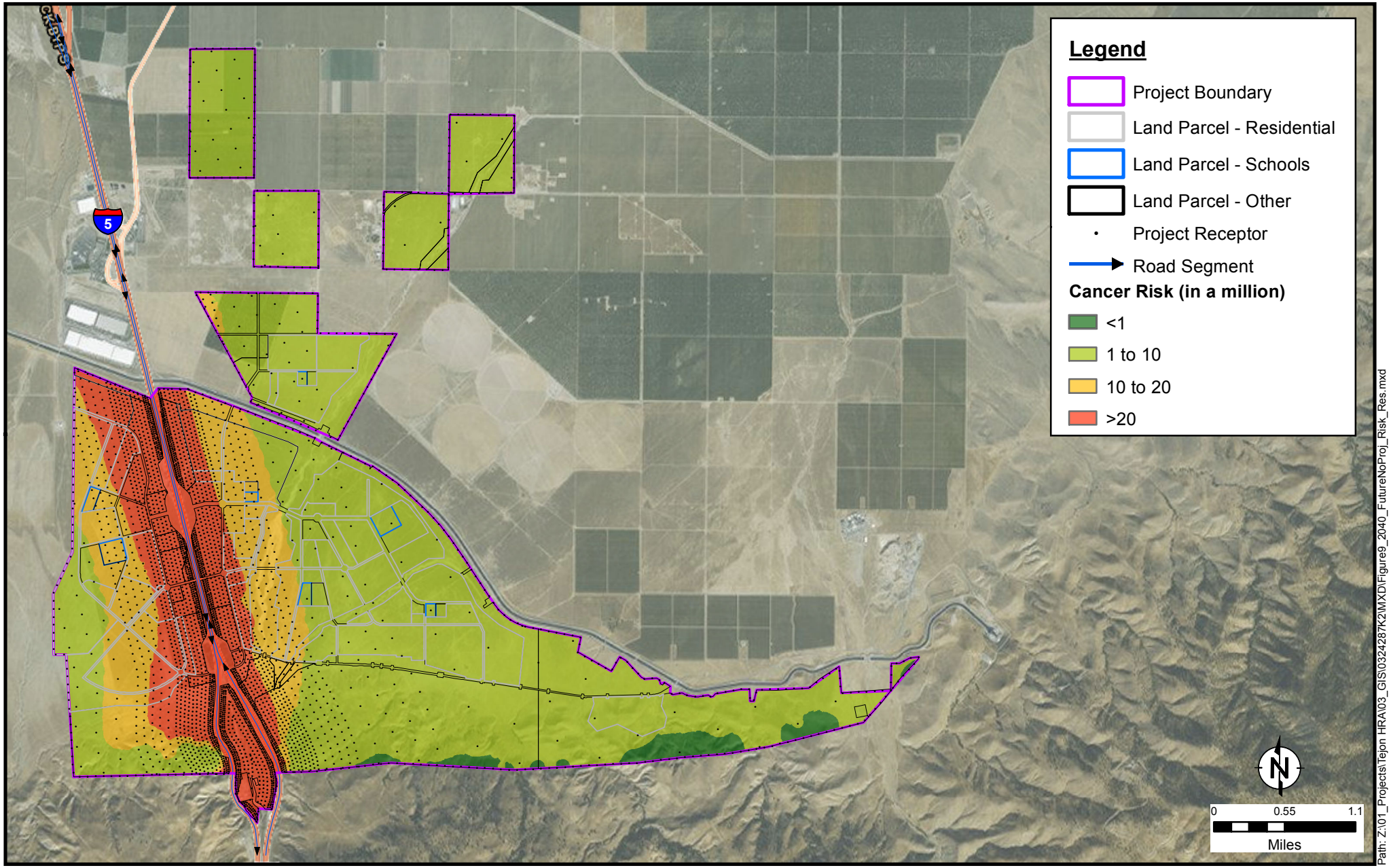
RAMBOLL ENVIRON

Existing No Project 2015 - Residential Cancer Risk

Figure 8

DRAFTED BY: RRH | Date: 5/12/2016 | PROJECT: 0324287K2



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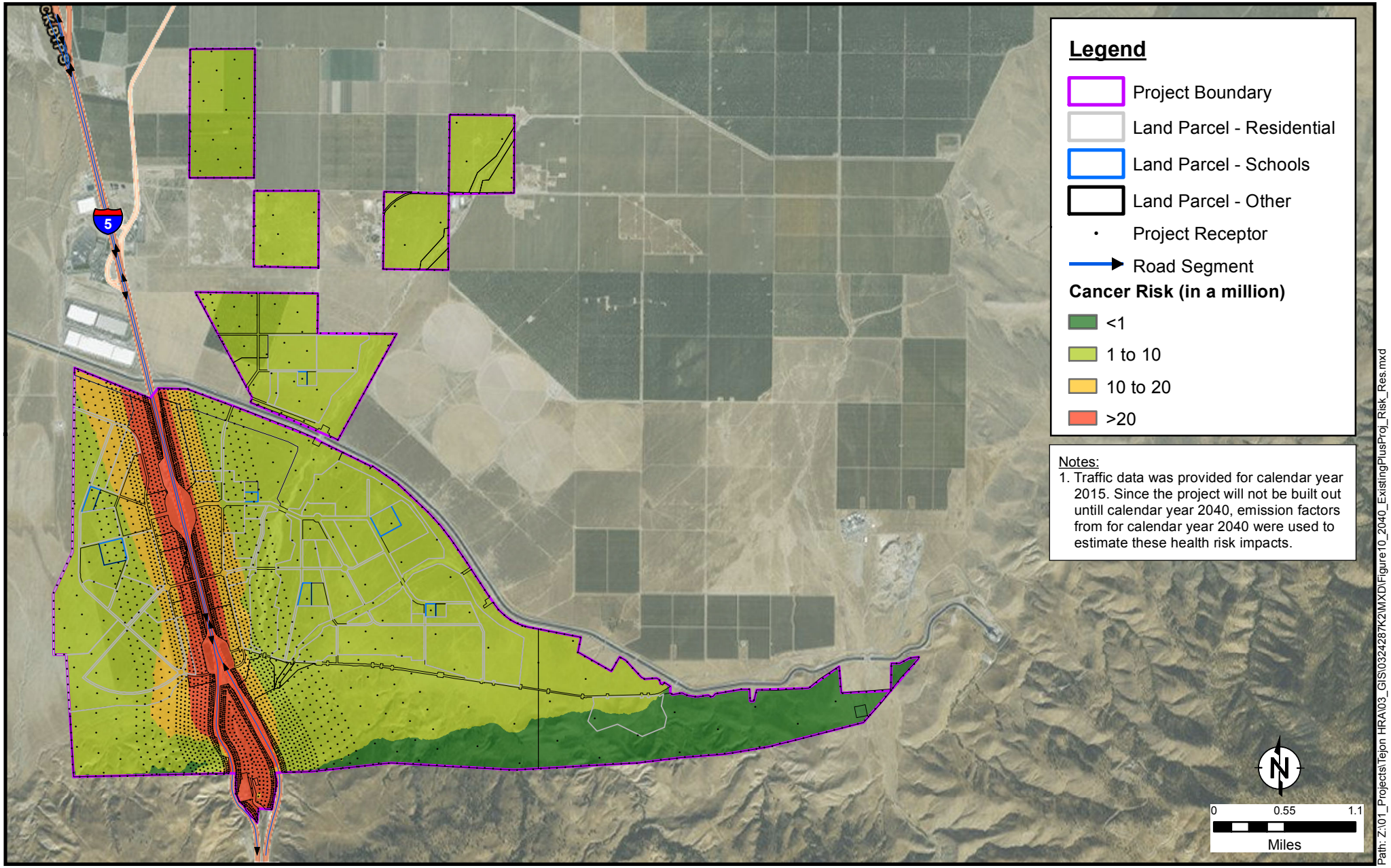
RAMBOLL ENVIRON

Future No Project 2040 - Residential Cancer Risk

Figure 9

DRAFTED BY: RRH | Date: 5/12/2016 | PROJECT: 0324287K2

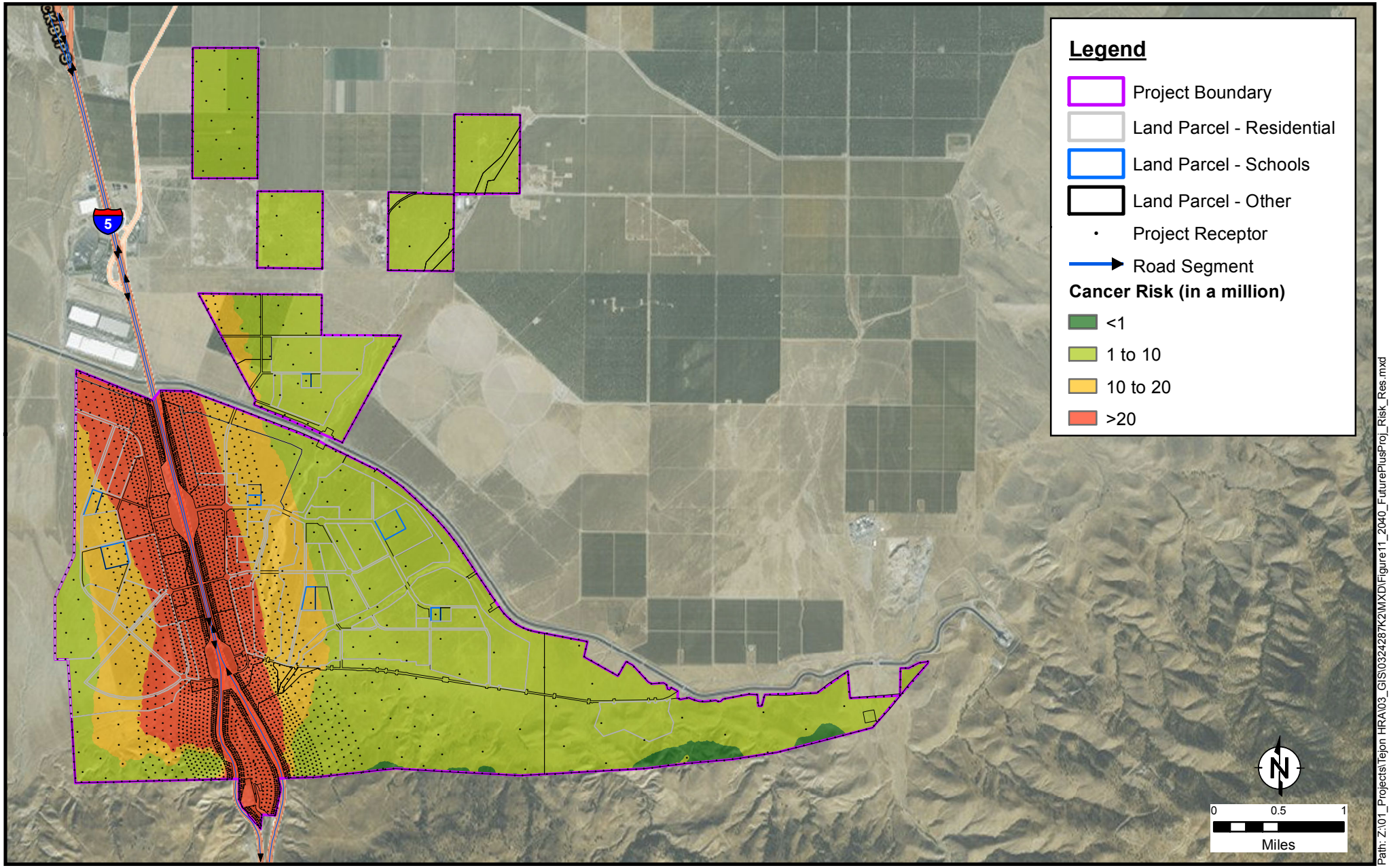


RAMBOLL ENVIRON

Existing Plus Project 2040 - Residential Cancer Risk

Figure 10

DRAFTED BY: RRH | Date: 5/12/2016 | PROJECT: 0324287K2



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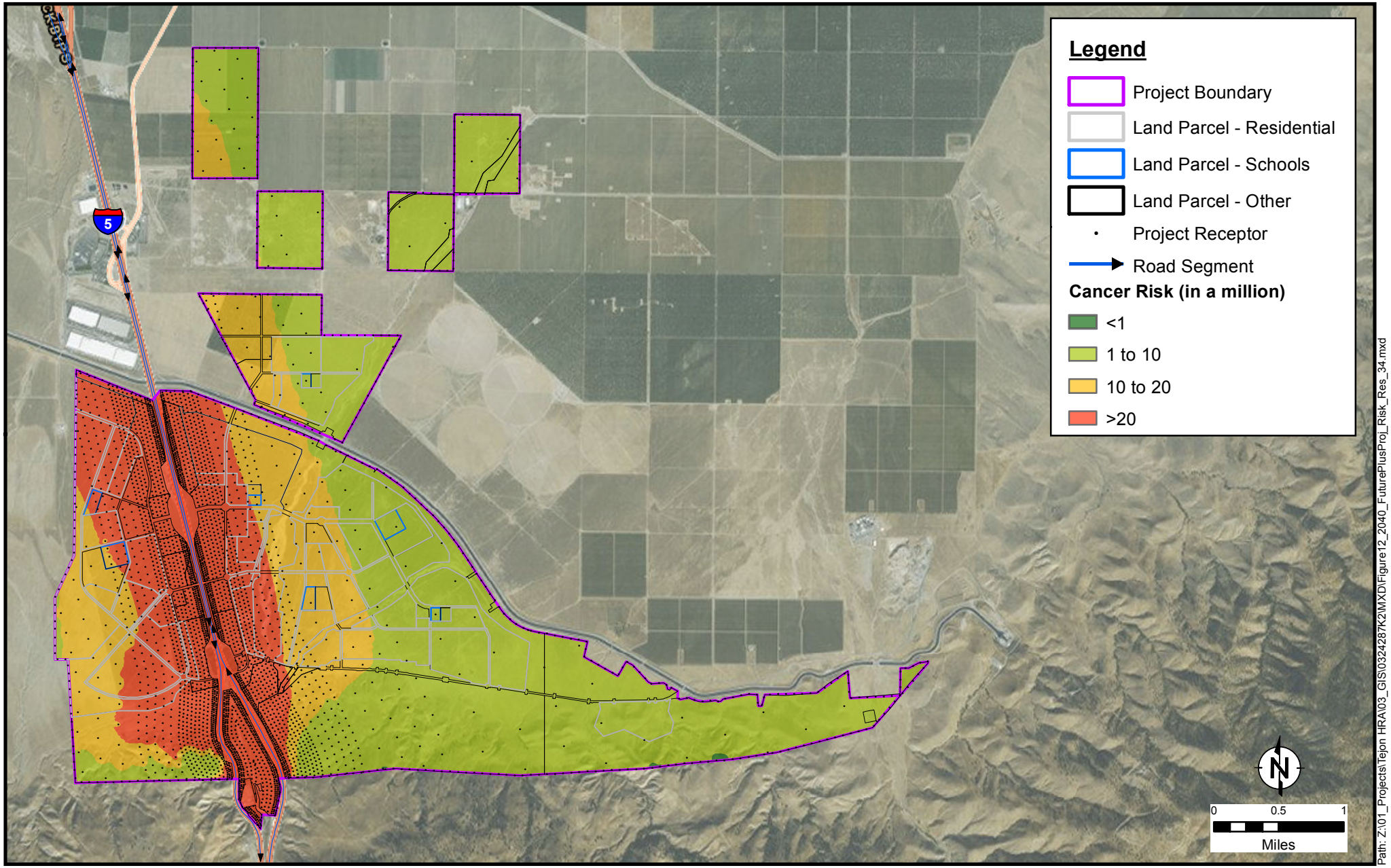
RAMBOLL ENVIRON

Future Plus Project 2040 - Residential Cancer Risk

Figure 11

DRAFTED BY: RRH | Date: 5/12/2016 | PROJECT: 0324287K2



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RAMBOLL ENVIRON

Future Plus Project - Residential Cancer Risk Estimates for Early Occupants

Figure 12

DRAFTED BY: RRH | Date: 5/12/2016 | PROJECT: 0324287K2

APPENDIX A
EMFAC2014 MODEL OUTPUT TABLES

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Table A.4: EMFAC2014 Model Output for Trucks in Kern County at Specific Speeds in Calendar Years 2018, 2019, 2020, 2025, 2030, 2035, 2045, and 2050
Table A.5: EMFAC2014 Model Output for Trucks Operating in Kern County at Aggregated Speeds in Calendar Years 2018, 2019, 2020, 2025, 2030, 2035, 2045, and 2050
Table A.6: Vehicle Miles Travelled by Trucks in Kern County
Table A.7: Diesel Particulate Matter Emission Factors for Trucks from Calendar Year 2018 to 2050

Table A.1. EMFAC2014 Model Output for Kern County at Specific Speeds in Calendar Years 2015 and 2040
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Sub-Area
Region: Kern (SJV)
Calendar Year: 2015, 2040
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Kern (SJV)	2015	HHDT	Aggregated	30	DSL	184424.356	0.347994372	0.400952761	1.329778233	7.196287705	1862.519349	0.079293918	0.075863698
Kern (SJV)	2015	HHDT	Aggregated	35	DSL	337345.018	0.267894955	0.310246545	1.053293258	6.605733915	1764.652144	0.071819955	0.068713055
Kern (SJV)	2015	HHDT	Aggregated	40	DSL	337195.307	0.210081485	0.242282593	0.849003584	6.162227844	1674.258342	0.067918856	0.064980716
Kern (SJV)	2015	HHDT	Aggregated	45	DSL	494846.765	0.169665558	0.194598278	0.699654092	5.843031059	1597.838682	0.067292627	0.064381578
Kern (SJV)	2015	HHDT	Aggregated	50	DSL	526255.16	0.143649819	0.163937513	0.595130442	5.600362796	1534.195663	0.069982312	0.066954908
Kern (SJV)	2015	HHDT	Aggregated	55	DSL	619483.607	0.129638385	0.147583433	0.528356099	5.431527559	1490.654577	0.076070589	0.072779809
Kern (SJV)	2015	HHDT	Aggregated	60	DSL	196344.629	0.127368833	0.144999721	0.505629745	5.382139594	1472.871983	0.080133601	0.076667057
Kern (SJV)	2015	HHDT	Aggregated	65	DSL	105475.321	0.127368833	0.144999721	0.505629745	5.382958006	1472.871983	0.080133601	0.076667057
Kern (SJV)	2015	HHDT	Aggregated	70	DSL	0	0	0	0	0	0	0	0
Kern (SJV)	2015	LDA	Aggregated	30	DSL	10407.2987	0.031568809	0.03593899	0.296592715	0.185147848	312.4132599	0.018996477	0.018174698
Kern (SJV)	2015	LDA	Aggregated	35	DSL	6832.60432	0.026769148	0.030474896	0.251071098	0.188301635	282.4152939	0.016697676	0.015975342
Kern (SJV)	2015	LDA	Aggregated	40	DSL	2447.07522	0.023734728	0.027020409	0.22319316	0.192647066	264.2775196	0.015273479	0.014612755
Kern (SJV)	2015	LDA	Aggregated	45	DSL	5188.58967	0.021961471	0.025001675	0.207852053	0.197768596	255.2717818	0.014528334	0.013899844
Kern (SJV)	2015	LDA	Aggregated	50	DSL	3267.8175	0.02120094	0.02413586	0.202958589	0.203394719	255.9215967	0.014371959	0.013750235
Kern (SJV)	2015	LDA	Aggregated	55	DSL	903.589851	0.021371696	0.024330255	0.208456044	0.209398068	267.8017985	0.014797158	0.014157039
Kern (SJV)	2015	LDA	Aggregated	60	DSL	933.019072	0.022757479	0.025907876	0.230055324	0.216207119	290.3293084	0.015936928	0.015247504
Kern (SJV)	2015	LDA	Aggregated	65	DSL	21963.9111	0.025503665	0.029034227	0.271065969	0.223495752	326.3889014	0.017953864	0.017177188
Kern (SJV)	2015	LDA	Aggregated	70	DSL	14859.3166	0.027418359	0.031213978	0.299771219	0.227136452	352.4484015	0.01936011	0.0185226
Kern (SJV)	2015	LDT1	Aggregated	30	DSL	197.650507	0.234674708	0.267161553	1.039308477	1.161271243	415.3021799	0.181001991	0.173171925
Kern (SJV)	2015	LDT1	Aggregated	35	DSL	129.761598	0.204688876	0.233024677	0.951563038	1.212193668	374.8261786	0.158145207	0.151303915
Kern (SJV)	2015	LDT1	Aggregated	40	DSL	46.4736982	0.186827548	0.212690742	0.917699317	1.264047741	349.8329669	0.144565639	0.138311793
Kern (SJV)	2015	LDT1	Aggregated	45	DSL	98.5392474	0.178429751	0.203130409	0.932151529	1.316691714	337.2983291	0.138261117	0.132280002
Kern (SJV)	2015	LDT1	Aggregated	50	DSL	62.0608485	0.178308737	0.202992642	0.997306532	1.369780079	337.8586577	0.138344833	0.132360097
Kern (SJV)	2015	LDT1	Aggregated	55	DSL	17.1605522	0.186457269	0.212269204	1.124052908	1.423341563	353.2587502	0.14483328	0.138567857
Kern (SJV)	2015	LDT1	Aggregated	60	DSL	17.7194581	0.204128067	0.232386233	1.335642091	1.477510067	382.6515414	0.158668087	0.151804176
Kern (SJV)	2015	LDT1	Aggregated	65	DSL	417.128239	0.233917561	0.266299591	1.672466805	1.531258324	429.8037945	0.181897996	0.17402917
Kern (SJV)	2015	LDT1	Aggregated	70	DSL	282.201132	0.254687363	0.28994463	1.908226019	1.558103117	463.717204	0.198094332	0.189524859
Kern (SJV)	2015	LDT2	Aggregated	30	DSL	672.969825	0.020233111	0.023034052	0.147303085	0.06418376	395.4685353	0.00779902	0.007461638
Kern (SJV)	2015	LDT2	Aggregated	35	DSL	441.818447	0.016468474	0.018748263	0.120131681	0.061176151	356.9255521	0.00692939	0.006629628
Kern (SJV)	2015	LDT2	Aggregated	40	DSL	158.235853	0.013955869	0.015887829	0.102228137	0.059443199	333.1259447	0.006345428	0.006070927
Kern (SJV)	2015	LDT2	Aggregated	45	DSL	335.511106	0.012240888	0.013935438	0.090272237	0.058516293	321.1899253	0.005977652	0.005719061
Kern (SJV)	2015	LDT2	Aggregated	50	DSL	211.307722	0.011084489	0.012618954	0.082609178	0.058122562	321.7234943	0.005791066	0.005540547
Kern (SJV)	2015	LDT2	Aggregated	55	DSL	58.4290625	0.010362153	0.011796622	0.078505863	0.058108868	336.3881224	0.005776099	0.005526228
Kern (SJV)	2015	LDT2	Aggregated	60	DSL	60.3320518	0.010359298	0.011793372	0.080592657	0.058960018	364.3771979	0.006012677	0.005752571
Kern (SJV)	2015	LDT2	Aggregated	65	DSL	1420.25802	0.010985829	0.012506636	0.088682449	0.060428873	409.2775942	0.006528703	0.006246274
Kern (SJV)	2015	LDT2	Aggregated	70	DSL	960.851806	0.011422659	0.013003938	0.09434487	0.061162924	441.5713963	0.006888486	0.006590493
Kern (SJV)	2015	LHDT1	Aggregated	30	DSL	47449.1776	0.147012132	0.167363538	0.732096611	4.29256637	491.1204991	0.033680788	0.032223772
Kern (SJV)	2015	LHDT1	Aggregated	35	DSL	25051.3742	0.127252665	0.144868699	0.666412467	4.491263084	491.1204991	0.029534914	0.028257247
Kern (SJV)	2015	LHDT1	Aggregated	40	DSL	13763.0574	0.115259446	0.131215216	0.639112017	4.69104486	477.6754676	0.027009107	0.025840705
Kern (SJV)	2015	LHDT1	Aggregated	45	DSL	14850.6288	0.109179537	0.124293644	0.645608882	4.875651509	465.9348325	0.025746442	0.024632662
Kern (SJV)	2015	LHDT1	Aggregated	50	DSL	57336.1997	0.108156482	0.123128964	0.687060163	5.062208909	488.4703935	0.025584894	0.024478102
Kern (SJV)	2015	LHDT1	Aggregated	55	DSL	34542.5834	0.11208334	0.12759943	0.770537132	5.276538108	510.4342266	0.026517956	0.025370801
Kern (SJV)	2015	LHDT2	Aggregated	30	DSL	18455.2027	0.124551576	0.141793688	0.61007198	3.419115378	557.153421	0.028766936	0.027522491
Kern (SJV)	2015	LHDT2	Aggregated	35	DSL	9743.65023	0.107158856	0.121993233	0.551624886	3.571845021	557.153421	0.025282184	0.024188488
Kern (SJV)	2015	LHDT2	Aggregated	40	DSL	5353.09623	0.096460141	0.109813457	0.525574554	3.726579783	536.8035302	0.023125444	0.022125047
Kern (SJV)	2015	LHDT2	Aggregated	45	DSL	5776.10361	0.090761179	0.103325569	0.527461526	3.869989984	516.0000433	0.022000058	0.021048345
Kern (SJV)	2015	LHDT2	Aggregated	50	DSL	22300.7277	0.089260765	0.101617446	0.557748069	4.015447666	535.0051935	0.021769211	0.020827485
Kern (SJV)	2015	LHDT2	Aggregated	55	DSL	13435.2251	0.091799785	0.104507952	0.621753522	4.183273878	553.7561441	0.022422325	0.021452345

Table A.1. EMFAC2014 Model Output for Kern County at Specific Speeds in Calendar Years 2015 and 2040
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Sub-Area
Region: Kern (SJV)
Calendar Year: 2015, 2040
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Kern (SJV)	2015	MDV	Aggregated	30	DSL	4349.94064	0.021247437	0.024188794	0.245091407	0.084263222	519.4858623	0.0114239	0.010929707
Kern (SJV)	2015	MDV	Aggregated	35	DSL	2855.82495	0.017662129	0.020107159	0.200687596	0.082382087	471.3615827	0.010095877	0.009659134
Kern (SJV)	2015	MDV	Aggregated	40	DSL	1022.8045	0.015327115	0.017448901	0.171615017	0.081740041	440.8939245	0.009239954	0.008840237
Kern (SJV)	2015	MDV	Aggregated	45	DSL	2168.67583	0.013835423	0.01575071	0.152487691	0.08188549	424.2967353	0.008746458	0.00836809
Kern (SJV)	2015	MDV	Aggregated	50	DSL	1365.85031	0.012978697	0.014775384	0.140661216	0.082550308	426.4228747	0.008562615	0.0081922
Kern (SJV)	2015	MDV	Aggregated	55	DSL	377.673625	0.012664843	0.014418081	0.135040271	0.083588393	450.0250988	0.008679242	0.008303782
Kern (SJV)	2015	MDV	Aggregated	60	DSL	389.974162	0.013138217	0.014956987	0.140037768	0.085466696	487.2866251	0.009194901	0.008797134
Kern (SJV)	2015	MDV	Aggregated	65	DSL	9180.26018	0.014402192	0.016395939	0.155665587	0.087928359	547.1545804	0.010178865	0.009738532
Kern (SJV)	2015	MDV	Aggregated	70	DSL	6210.75145	0.01528346	0.017399203	0.166604221	0.089158254	589.0210288	0.010864904	0.010394893
Kern (SJV)	2015	MH	Aggregated	30	DSL	471.696667	0.120100853	0.136726836	0.588901899	6.454829354	1089.788839	0.151271486	0.144727548
Kern (SJV)	2015	MH	Aggregated	35	DSL	536.744349	0.099867397	0.113692392	0.512408661	6.116080492	1030.679336	0.14224173	0.136088416
Kern (SJV)	2015	MH	Aggregated	40	DSL	716.142437	0.085074198	0.096851318	0.45371512	5.87357824	983.6872385	0.140553884	0.134473585
Kern (SJV)	2015	MH	Aggregated	45	DSL	547.282163	0.075467328	0.085914535	0.412104386	5.698300653	948.8125458	0.1461846	0.139860719
Kern (SJV)	2015	MH	Aggregated	50	DSL	645.609385	0.070910351	0.08072672	0.387191272	5.620129749	926.0552581	0.159119592	0.152236149
Kern (SJV)	2015	MH	Aggregated	55	DSL	1084.35525	0.071324009	0.081197642	0.378752014	5.618709254	915.4153753	0.179349581	0.171590997
Kern (SJV)	2015	MH	Aggregated	60	DSL	1211.96497	0.076873408	0.087515264	0.387252741	5.68858252	916.8928975	0.206929668	0.197977982
Kern (SJV)	2015	MH	Aggregated	65	DSL	179.802715	0.087466329	0.0995746	0.4124331	5.82436836	930.4878247	0.241843414	0.231381375
Kern (SJV)	2015	MHDT	Aggregated	30	DSL	35171.1701	0.34453917	0.392231618	1.062887236	5.661001678	1271.539757	0.159278982	0.152388644
Kern (SJV)	2015	MHDT	Aggregated	35	DSL	40021.3276	0.281496811	0.320462691	0.911810965	5.305158143	1204.453641	0.148290717	0.141875726
Kern (SJV)	2015	MHDT	Aggregated	40	DSL	53397.8068	0.234913411	0.267431036	0.798222489	5.048745374	1150.17286	0.145013582	0.138740358
Kern (SJV)	2015	MHDT	Aggregated	45	DSL	40807.0598	0.203670872	0.231863784	0.718629451	4.857120794	1106.635872	0.149442575	0.142977756
Kern (SJV)	2015	MHDT	Aggregated	50	DSL	48138.6431	0.186898186	0.212769357	0.670515869	4.750530869	1072.5283	0.161594566	0.154604057
Kern (SJV)	2015	MHDT	Aggregated	55	DSL	80852.8994	0.183896832	0.209352545	0.652096724	4.708358068	1048.253871	0.181504729	0.173652915
Kern (SJV)	2015	MHDT	Aggregated	60	DSL	90367.8766	0.187604036	0.213572914	0.653164011	4.703330288	1039.011737	0.194284968	0.185880286
Kern (SJV)	2015	MHDT	Aggregated	65	DSL	13406.6495	0.187604036	0.213572914	0.653164011	4.691489849	1039.011737	0.194284968	0.185880286
Kern (SJV)	2015	MHDT	Aggregated	70	DSL	0	0	0	0	0	0	0	0
Kern (SJV)	2015	OBUS	Aggregated	30	DSL	758.144099	0.266291755	0.303152892	0.865827163	6.719679745	1489.831187	0.074874757	0.071635709
Kern (SJV)	2015	OBUS	Aggregated	35	DSL	870.852116	0.206902058	0.235542244	0.696427516	6.388018411	1413.988228	0.06654819	0.063669345
Kern (SJV)	2015	OBUS	Aggregated	40	DSL	1266.44529	0.168826148	0.192195718	0.588246788	6.307666608	1382.281938	0.062686712	0.059974913
Kern (SJV)	2015	OBUS	Aggregated	45	DSL	872.155827	0.132831847	0.151218946	0.466046042	5.902969143	1289.841076	0.060480916	0.057864539
Kern (SJV)	2015	OBUS	Aggregated	50	DSL	1190.54784	0.121740816	0.138592651	0.4282749	6.049055241	1298.770673	0.064778995	0.061976684
Kern (SJV)	2015	OBUS	Aggregated	55	DSL	2216.20325	0.117494616	0.133758677	0.401717934	6.135005843	1294.626614	0.072361209	0.069230895
Kern (SJV)	2015	OBUS	Aggregated	60	DSL	2341.35565	0.116500461	0.132626907	0.380872356	6.0225919	1263.244187	0.076197153	0.072900898
Kern (SJV)	2015	OBUS	Aggregated	65	DSL	299.207825	0.112460858	0.128028127	0.357625249	5.763555702	1215.266053	0.074195092	0.070985445
Kern (SJV)	2015	OBUS	Aggregated	70	DSL	0	0	0	0	0	0	0	0
Kern (SJV)	2015	SBUS	Aggregated	30	DSL	2961.13749	0.160584053	0.182812721	0.527346375	9.023676193	1262.49028	0.083252414	0.079650951
Kern (SJV)	2015	SBUS	Aggregated	35	DSL	3039.23511	0.131004606	0.149138771	0.43664756	8.745915576	1194.857773	0.072803709	0.069654252
Kern (SJV)	2015	SBUS	Aggregated	40	DSL	2051.64437	0.109702998	0.124888513	0.364666438	8.559893083	1140.860457	0.065954635	0.063101467
Kern (SJV)	2015	SBUS	Aggregated	45	DSL	984.329585	0.096146294	0.109455237	0.309859246	8.458914171	1099.414325	0.062706886	0.059994214
Kern (SJV)	2015	SBUS	Aggregated	50	DSL	492.982156	0.089918258	0.102365092	0.271117132	8.434762194	1069.836101	0.06307245	0.060343964
Kern (SJV)	2015	SBUS	Aggregated	55	DSL	733.772435	0.090683859	0.103236671	0.24765745	8.5186472	1051.676773	0.067072285	0.064170768
Kern (SJV)	2015	SBUS	Aggregated	60	DSL	408.37882	0.093714369	0.106686675	0.241255688	8.569432018	1046.43866	0.070390263	0.067345211
Kern (SJV)	2015	SBUS	Aggregated	65	DSL	0	0	0	0	0	0	0	0
Kern (SJV)	2015	SBUS	Aggregated	70	DSL	0	0	0	0	0	0	0	0
Kern (SJV)	2015	UBUS	Aggregated	30	DSL	350.919538	0.482260462	1.96703788	7.020208418	12.7361812	1826.474573	0.143962974	0.137735199
Kern (SJV)	2015	UBUS	Aggregated	35	DSL	444.118009	0.398391121	1.631264862	6.149418411	12.35714095	1727.407671	0.122951783	0.117632943
Kern (SJV)	2015	UBUS	Aggregated	40	DSL	620.752164	0.33822557	1.38542765	5.495245666	12.10966241	1648.649412	0.109000603	0.104285285
Kern (SJV)	2015	UBUS	Aggregated	45	DSL	498.638496	0.301682193	1.2260037	5.038875266	11.96365867	1590.199796	0.102100155	0.097683347

Table A.1. EMFAC2014 Model Output for Kern County at Specific Speeds in Calendar Years 2015 and 2040
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Sub-Area
Region: Kern (SJV)
Calendar Year: 2015, 2040
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Kern (SJV)	2015	UBUS	Aggregated	50	DSL	483.297411	0.288717018	1.151099594	4.770196211	11.97429361	1552.058823	0.102244764	0.0978217
Kern (SJV)	2015	UBUS	Aggregated	55	DSL	892.292735	0.299304436	1.159615003	4.683333884	12.10105008	1534.226491	0.109430742	0.104696816
Kern (SJV)	2015	UBUS	Aggregated	60	DSL	1280.9633	0.333499429	1.253852233	4.790549096	12.32828384	1536.702803	0.123679984	0.118329642
Kern (SJV)	2015	UBUS	Aggregated	65	DSL	187.062199	0.391271892	1.432529102	5.085002222	12.66131412	1559.487757	0.144985957	0.138713929
Kern (SJV)	2040	HHDT	Aggregated	30	DSL	307748.737	0.122946775	0.142106221	0.732091199	1.65943521	1577.737505	0.006188638	0.00592092
Kern (SJV)	2040	HHDT	Aggregated	35	DSL	562441.876	0.090494203	0.105189262	0.540443746	1.10899788	1508.129332	0.00574617	0.005497594
Kern (SJV)	2040	HHDT	Aggregated	40	DSL	562714.893	0.066784454	0.07720164	0.397544913	0.787053353	1440.321197	0.005365477	0.005133368
Kern (SJV)	2040	HHDT	Aggregated	45	DSL	826681.896	0.049294715	0.056609926	0.292352327	0.584182015	1387.560237	0.005032637	0.004814927
Kern (SJV)	2040	HHDT	Aggregated	50	DSL	879936.939	0.036375618	0.041533147	0.215067033	0.447213611	1338.075936	0.004737324	0.00453239
Kern (SJV)	2040	HHDT	Aggregated	55	DSL	1036271.14	0.026825742	0.030539066	0.158361274	0.351551263	1294.621089	0.004472655	0.00427917
Kern (SJV)	2040	HHDT	Aggregated	60	DSL	328444.966	0.023030979	0.026219017	0.135951489	0.315299046	1271.089362	0.004350223	0.004162034
Kern (SJV)	2040	HHDT	Aggregated	65	DSL	176438.94	0.023030979	0.026219017	0.135951489	0.315346991	1271.089362	0.004350223	0.004162034
Kern (SJV)	2040	HHDT	Aggregated	70	DSL	0	0	0	0	0	0	0	0
Kern (SJV)	2040	LDA	Aggregated	30	DSL	31884.0816	0.005046372	0.005744959	0.163659227	0.01008039	193.543821	0.00089734	0.000858522
Kern (SJV)	2040	LDA	Aggregated	35	DSL	22107.2325	0.004014133	0.004569823	0.130155759	0.008771897	174.9597156	0.000811006	0.000775922
Kern (SJV)	2040	LDA	Aggregated	40	DSL	9864.0833	0.003310515	0.003768801	0.107316187	0.007839686	163.7231434	0.000743953	0.00071177
Kern (SJV)	2040	LDA	Aggregated	45	DSL	16390.8535	0.002804386	0.003192607	0.090882135	0.007142873	158.1439791	0.000690189	0.000660332
Kern (SJV)	2040	LDA	Aggregated	50	DSL	9632.23893	0.00242531	0.002761055	0.078566655	0.006603201	158.5465473	0.000646069	0.00061812
Kern (SJV)	2040	LDA	Aggregated	55	DSL	5513.60996	0.00213243	0.00242763	0.069043129	0.006173782	165.9064771	0.000609266	0.00058291
Kern (SJV)	2040	LDA	Aggregated	60	DSL	4480.51139	0.002010966	0.002289351	0.065084356	0.005999573	179.862544	0.000593665	0.000567983
Kern (SJV)	2040	LDA	Aggregated	65	DSL	60245.2016	0.002013612	0.002292364	0.065152391	0.006014771	202.2019012	0.000595285	0.000569533
Kern (SJV)	2040	LDA	Aggregated	70	DSL	44911.0176	0.002015457	0.002294464	0.065200012	0.006022553	218.346079	0.000596414	0.000570614
Kern (SJV)	2040	LDT1	Aggregated	30	DSL	87.8551879	0.017946998	0.020431464	0.183355698	0.053749941	212.7889963	0.005552178	0.005311993
Kern (SJV)	2040	LDT1	Aggregated	35	DSL	60.9155092	0.014358234	0.016345895	0.147176717	0.049865632	192.0502472	0.004999289	0.004783022
Kern (SJV)	2040	LDT1	Aggregated	40	DSL	27.1800487	0.011923762	0.01357441	0.122794863	0.047338186	179.2444381	0.004584225	0.004385914
Kern (SJV)	2040	LDT1	Aggregated	45	DSL	45.1642775	0.010192921	0.011603962	0.105672322	0.045660463	172.8220471	0.004267169	0.004082573
Kern (SJV)	2040	LDT1	Aggregated	50	DSL	26.5412117	0.008924751	0.010160236	0.093430416	0.044550742	173.1091435	0.004025053	0.003850931
Kern (SJV)	2040	LDT1	Aggregated	55	DSL	15.1925103	0.007982596	0.009087655	0.084792446	0.043840504	180.9997118	0.003845155	0.003678815
Kern (SJV)	2040	LDT1	Aggregated	60	DSL	12.3458525	0.007657154	0.008717161	0.082926158	0.044049411	196.05974	0.003806986	0.003642298
Kern (SJV)	2040	LDT1	Aggregated	65	DSL	166.00301	0.007802095	0.008882167	0.08665283	0.044928537	220.2192101	0.003895723	0.003727196
Kern (SJV)	2040	LDT1	Aggregated	70	DSL	123.750338	0.007903151	0.008997212	0.0892613	0.045368563	237.5954743	0.003957592	0.003786389
Kern (SJV)	2040	LDT2	Aggregated	30	DSL	2121.11135	0.017010034	0.019364793	0.173412962	0.035304224	241.8699125	0.004905925	0.004693697
Kern (SJV)	2040	LDT2	Aggregated	35	DSL	1470.69947	0.013525567	0.015397959	0.137891734	0.030516727	218.2968918	0.004435935	0.004244039
Kern (SJV)	2040	LDT2	Aggregated	40	DSL	656.215202	0.011149685	0.012693176	0.113672276	0.027090078	203.7409703	0.004069369	0.00389333
Kern (SJV)	2040	LDT2	Aggregated	45	DSL	1090.41326	0.009439411	0.010746142	0.096238807	0.024514709	196.4408599	0.003773746	0.003610496
Kern (SJV)	2040	LDT2	Aggregated	50	DSL	640.791589	0.008156736	0.009285901	0.08316524	0.02250756	196.7671925	0.003529203	0.003376531
Kern (SJV)	2040	LDT2	Aggregated	55	DSL	366.796849	0.007163409	0.008155065	0.073042645	0.020899023	205.7361294	0.003322842	0.003179097
Kern (SJV)	2040	LDT2	Aggregated	60	DSL	298.069227	0.006747449	0.007681522	0.068808125	0.020213549	222.8543439	0.003231253	0.00309147
Kern (SJV)	2040	LDT2	Aggregated	65	DSL	4007.85516	0.006748052	0.007682209	0.06882364	0.020213928	250.3155803	0.003231622	0.003091824
Kern (SJV)	2040	LDT2	Aggregated	70	DSL	2987.73759	0.006748473	0.007682688	0.0688345	0.020214789	270.0665804	0.00323188	0.00309207
Kern (SJV)	2040	LHDT1	Aggregated	30	DSL	25315.3674	0.058907137	0.067061859	0.281638439	0.431292104	430.5733382	0.009625594	0.009209195
Kern (SJV)	2040	LHDT1	Aggregated	35	DSL	13365.5582	0.047872106	0.054499209	0.232730466	0.440829757	430.5733382	0.00861913	0.00824627
Kern (SJV)	2040	LHDT1	Aggregated	40	DSL	7342.94821	0.040495339	0.046101252	0.201205498	0.452624932	418.7858602	0.007899069	0.007557359
Kern (SJV)	2040	LHDT1	Aggregated	45	DSL	7923.19582	0.035439638	0.040345672	0.181238127	0.464331821	408.4926542	0.007389398	0.007069736
Kern (SJV)	2040	LHDT1	Aggregated	50	DSL	30590.3503	0.032000399	0.036430326	0.170076002	0.477164415	428.2499474	0.007048787	0.00674386
Kern (SJV)	2040	LHDT1	Aggregated	55	DSL	18429.3645	0.029807262	0.033933586	0.166787541	0.493253903	447.5059975	0.006859459	0.006562722
Kern (SJV)	2040	LHDT2	Aggregated	30	DSL	12287.4809	0.048976359	0.055756329	0.218330361	0.098406337	482.0283941	0.008432808	0.008068008
Kern (SJV)	2040	LHDT2	Aggregated	35	DSL	6487.32598	0.039057889	0.04446481	0.174611921	0.092771475	482.0283941	0.007615376	0.007285938

Table A.1. EMFAC2014 Model Output for Kern County at Specific Speeds in Calendar Years 2015 and 2040
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Sub-Area
Region: Kern (SJV)
Calendar Year: 2015, 2040
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Kern (SJV)	2040	LHDT2	Aggregated	40	DSL	3564.09348	0.03231131	0.036784278	0.145011551	0.089261298	464.4224263	0.006985188	0.006683012
Kern (SJV)	2040	LHDT2	Aggregated	45	DSL	3845.73195	0.027482962	0.031287525	0.124016187	0.086807103	446.4240241	0.006485021	0.006204482
Kern (SJV)	2040	LHDT2	Aggregated	50	DSL	14847.8329	0.023900798	0.027209469	0.10870707	0.085306263	462.8665723	0.006080462	0.005817424
Kern (SJV)	2040	LHDT2	Aggregated	55	DSL	8945.17789	0.021178759	0.024110609	0.097465352	0.08489806	479.0891966	0.005750197	0.005501446
Kern (SJV)	2040	MDV	Aggregated	30	DSL	13516.4182	0.006060903	0.006899935	0.190949806	0.011850022	314.222193	0.00119284	0.001141238
Kern (SJV)	2040	MDV	Aggregated	35	DSL	9371.78004	0.004820349	0.005487647	0.151847972	0.010282625	285.1131879	0.001078314	0.001031666
Kern (SJV)	2040	MDV	Aggregated	40	DSL	4181.61879	0.003974622	0.004524843	0.125189548	0.009163697	266.6841697	0.000989183	0.000946392
Kern (SJV)	2040	MDV	Aggregated	45	DSL	6948.47142	0.003366076	0.003832054	0.106004073	0.00832532	256.6450029	0.000917515	0.000877823
Kern (SJV)	2040	MDV	Aggregated	50	DSL	4083.33447	0.002910022	0.003312866	0.091621677	0.007674218	257.9310441	0.000858471	0.000821334
Kern (SJV)	2040	MDV	Aggregated	55	DSL	2337.34999	0.002557304	0.002911321	0.080492738	0.007154503	272.2073568	0.000808938	0.000773944
Kern (SJV)	2040	MDV	Aggregated	60	DSL	1899.39502	0.002410397	0.002744077	0.075851904	0.006938969	294.7457921	0.000787454	0.000753389
Kern (SJV)	2040	MDV	Aggregated	65	DSL	25539.3694	0.002412273	0.002746212	0.075900127	0.006949302	330.9582121	0.000788602	0.000754488
Kern (SJV)	2040	MDV	Aggregated	70	DSL	19038.8452	0.002413581	0.002747701	0.07593388	0.006954687	356.2820336	0.000789403	0.000755254
Kern (SJV)	2040	MH	Aggregated	30	DSL	265.158452	0.054342381	0.061865188	0.172978543	2.701844365	1030.466216	0.02807309	0.026858661
Kern (SJV)	2040	MH	Aggregated	35	DSL	301.724203	0.043657857	0.049701568	0.142522119	2.3692173	974.5743378	0.026239778	0.025104656
Kern (SJV)	2040	MH	Aggregated	40	DSL	402.570622	0.036250741	0.041269059	0.121495465	2.132224219	930.1402535	0.025352277	0.024255548
Kern (SJV)	2040	MH	Aggregated	45	DSL	307.647905	0.03097525	0.035263263	0.106664379	1.950446367	897.1639637	0.025306126	0.024211394
Kern (SJV)	2040	MH	Aggregated	50	DSL	362.921338	0.027215752	0.030983325	0.096291118	1.817505	875.6454683	0.026037415	0.024911048
Kern (SJV)	2040	MH	Aggregated	55	DSL	609.556907	0.024614614	0.028022101	0.089366189	1.7158821	865.5847672	0.027504626	0.026314788
Kern (SJV)	2040	MH	Aggregated	60	DSL	681.291132	0.023916832	0.027227724	0.087992499	1.675564226	866.9818605	0.029954283	0.028658474
Kern (SJV)	2040	MH	Aggregated	65	DSL	101.073875	0.024706296	0.028126475	0.090995484	1.681698824	879.8367482	0.033312833	0.031871735
Kern (SJV)	2040	MHDT	Aggregated	30	DSL	38925.6757	0.053929752	0.061394917	0.283693632	0.882725019	1200.262182	0.003442277	0.003293366
Kern (SJV)	2040	MHDT	Aggregated	35	DSL	44293.5851	0.039744921	0.045246568	0.209074095	0.594850506	1146.539502	0.003196063	0.003057803
Kern (SJV)	2040	MHDT	Aggregated	40	DSL	59097.9971	0.029291623	0.033346283	0.154085017	0.42575541	1101.785633	0.002985772	0.002856609
Kern (SJV)	2040	MHDT	Aggregated	45	DSL	45163.1938	0.021588439	0.024576794	0.113562663	0.317747033	1064.760698	0.002802558	0.00268132
Kern (SJV)	2040	MHDT	Aggregated	50	DSL	53277.4202	0.015912131	0.01811475	0.083701737	0.246314308	1032.303298	0.00264054	0.002526311
Kern (SJV)	2040	MHDT	Aggregated	55	DSL	89483.9076	0.011729722	0.013353395	0.061698013	0.196375169	1003.728767	0.002495611	0.002387652
Kern (SJV)	2040	MHDT	Aggregated	60	DSL	100014.604	0.010071609	0.011465761	0.052973662	0.176697722	990.1073478	0.002428583	0.002323524
Kern (SJV)	2040	MHDT	Aggregated	65	DSL	14837.8029	0.010071609	0.011465761	0.052973662	0.176252892	990.1073478	0.002428583	0.002323524
Kern (SJV)	2040	MHDT	Aggregated	70	DSL	0	0	0	0	0	0	0	0
Kern (SJV)	2040	OBUS	Aggregated	30	DSL	1262.63301	0.073402192	0.083562808	0.408627264	1.082096116	1356.070998	0.004183491	0.004002515
Kern (SJV)	2040	OBUS	Aggregated	35	DSL	1450.06629	0.054378015	0.061905231	0.30298473	0.724999632	1298.916159	0.00389644	0.003727882
Kern (SJV)	2040	OBUS	Aggregated	40	DSL	2105.3008	0.041914604	0.047716586	0.235235028	0.529425305	1275.536247	0.003742588	0.003580685
Kern (SJV)	2040	OBUS	Aggregated	45	DSL	1452.76179	0.029233468	0.033280078	0.16261035	0.37737411	1201.906413	0.003392181	0.003245436
Kern (SJV)	2040	OBUS	Aggregated	50	DSL	1977.64271	0.023219467	0.026433596	0.130715399	0.303549874	1207.301274	0.003346773	0.003201993
Kern (SJV)	2040	OBUS	Aggregated	55	DSL	3675.04901	0.01788275	0.02035815	0.101337272	0.24581908	1199.921637	0.003249657	0.003109078
Kern (SJV)	2040	OBUS	Aggregated	60	DSL	3886.16225	0.01499671	0.017072613	0.08469023	0.216571728	1171.5762	0.003112792	0.002978134
Kern (SJV)	2040	OBUS	Aggregated	65	DSL	497.965935	0.013958434	0.015890614	0.077950109	0.206789052	1132.788684	0.002974793	0.002846104
Kern (SJV)	2040	OBUS	Aggregated	70	DSL	0	0	0	0	0	0	0	0
Kern (SJV)	2040	SBUS	Aggregated	30	DSL	3134.3734	0.051048421	0.058114742	0.265493343	0.810440478	1203.376244	0.003272173	0.00313062
Kern (SJV)	2040	SBUS	Aggregated	35	DSL	3217.03998	0.037621951	0.042829727	0.195663886	0.550730776	1149.80338	0.003038048	0.002906624
Kern (SJV)	2040	SBUS	Aggregated	40	DSL	2171.67206	0.027727291	0.03156541	0.144205328	0.397883183	1105.813909	0.00283764	0.002714885
Kern (SJV)	2040	SBUS	Aggregated	45	DSL	1041.91598	0.020435429	0.023264181	0.106285098	0.301074216	1068.721578	0.002662513	0.002547334
Kern (SJV)	2040	SBUS	Aggregated	50	DSL	521.823171	0.015061751	0.017146657	0.078341935	0.236105277	1036.806133	0.002507059	0.002398605
Kern (SJV)	2040	SBUS	Aggregated	55	DSL	776.700444	0.011101744	0.012638491	0.057751449	0.191289894	1008.90445	0.002367359	0.002264948
Kern (SJV)	2040	SBUS	Aggregated	60	DSL	432.270273	0.009531524	0.010850914	0.049587447	0.173466881	996.1927025	0.002302495	0.00220289
Kern (SJV)	2040	SBUS	Aggregated	65	DSL	0	0	0	0	0	0	0	0
Kern (SJV)	2040	SBUS	Aggregated	70	DSL	0	0	0	0	0	0	0	0

Table A.1. EMFAC2014 Model Output for Kern County at Specific Speeds in Calendar Years 2015 and 2040
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Sub-Area
Region: Kern (SJV)
Calendar Year: 2015, 2040
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Kern (SJV)	2040	UBUS	Aggregated	30	DSL	220.879178	0.051890498	0.621026586	2.662564065	1.474661725	1562.332839	0.010682582	0.010220458
Kern (SJV)	2040	UBUS	Aggregated	35	DSL	279.541063	0.042123844	0.50038427	2.173606836	1.397604375	1477.592829	0.008868165	0.008484532
Kern (SJV)	2040	UBUS	Aggregated	40	DSL	390.719845	0.035253045	0.416382368	1.836333355	1.345502441	1410.22446	0.00772809	0.007393776
Kern (SJV)	2040	UBUS	Aggregated	45	DSL	313.857876	0.031085228	0.35808235	1.596733304	1.309028306	1360.22773	0.007247773	0.006934238
Kern (SJV)	2040	UBUS	Aggregated	50	DSL	304.201742	0.029516745	0.31960684	1.425786655	1.290866342	1327.602641	0.007418292	0.00709738
Kern (SJV)	2040	UBUS	Aggregated	55	DSL	561.635543	0.030487381	0.297541494	1.306634923	1.284510546	1312.349192	0.008233851	0.007877658
Kern (SJV)	2040	UBUS	Aggregated	60	DSL	806.276342	0.034122759	0.298999991	1.274399172	1.294571223	1314.467384	0.009728866	0.009307999
Kern (SJV)	2040	UBUS	Aggregated	65	DSL	117.742503	0.040352782	0.320009461	1.309463751	1.318974063	1333.957216	0.011893069	0.01137858

Abbreviations:
CARB - California Air Resources Board
CalYr - calendar year
CO - carbon monoxide
CO2 - carbon dioxide
DSL - diesel
EMFAC - CARB's mobile source emission inventory model
g - grams
GAS - gasoline
HHDT - heavy-heavy duty truck
LDA - passenger car
LDT1 - light duty trucks (0-3750 pounds)
LDT2- light duty trucks (3751-5750 pounds)
LHDT1 - light-heavy duty trucks (8501-10000 pounds)
LHDT2 - light-heavy duty trucks (10001-14000 pounds)
MCY - motorcycle
MdlYr - model year
MDV - medium duty trucks (5751-8500 pounds)
MH - motor homes
MHDT - medium-heavy duty truck
NOX - oxides of nitrogen
OBUS - other buses
PM10 - particulate matter less than 10 microns in diameter
PM2_5 - particulate matter less than 2.5 microns in diameter
PMBW - particulate matter brake wear
PMTW - particulate matter tire wear
ROG - reactive organic gases
RUNEX - running exhaust
SBUS - school bus
SJV - San Joaquin Valley
TOG - total organic gases
UBUS - urban bus
VehClass - vehicle class
VMT - vehicle miles travelled

Source:
\\wcirvfps1\projects\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]TA.1_EMFAC_Kern_AllSpeeds

Table A.2. EMFAC2014 Model Output for Kern County at Aggregated Speeds in Calendar Years 2015 and 2040
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Sub-Area
Region: Kern (SJV)
Calendar Year: 2015, 2040
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HTSK and RUNLS, g/vehicle/day for IDLEX, RESTL and DIURN

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT
Kern (SJV)	2015	HHDT	Aggregated	Aggregated	GAS	11134.54864
Kern (SJV)	2015	HHDT	Aggregated	Aggregated	DSL	3139093.945
Kern (SJV)	2015	LDA	Aggregated	Aggregated	GAS	9579675.424
Kern (SJV)	2015	LDA	Aggregated	Aggregated	DSL	74935.25997
Kern (SJV)	2015	LDA	Aggregated	Aggregated	ELEC	59733.05453
Kern (SJV)	2015	LDT1	Aggregated	Aggregated	GAS	814944.2014
Kern (SJV)	2015	LDT1	Aggregated	Aggregated	DSL	1423.135109
Kern (SJV)	2015	LDT1	Aggregated	Aggregated	ELEC	381.5720038
Kern (SJV)	2015	LDT2	Aggregated	Aggregated	GAS	3482562.959
Kern (SJV)	2015	LDT2	Aggregated	Aggregated	DSL	4845.557953
Kern (SJV)	2015	LHDT1	Aggregated	Aggregated	GAS	340324.1282
Kern (SJV)	2015	LHDT1	Aggregated	Aggregated	DSL	378434.8468
Kern (SJV)	2015	LHDT2	Aggregated	Aggregated	GAS	80833.03456
Kern (SJV)	2015	LHDT2	Aggregated	Aggregated	DSL	147190.9983
Kern (SJV)	2015	MCY	Aggregated	Aggregated	GAS	128233.6628
Kern (SJV)	2015	MDV	Aggregated	Aggregated	GAS	3715875.791
Kern (SJV)	2015	MDV	Aggregated	Aggregated	DSL	31320.70511
Kern (SJV)	2015	MH	Aggregated	Aggregated	GAS	20354.46137
Kern (SJV)	2015	MH	Aggregated	Aggregated	DSL	6835.234314
Kern (SJV)	2015	MHDT	Aggregated	Aggregated	GAS	52475.61057
Kern (SJV)	2015	MHDT	Aggregated	Aggregated	DSL	509656.3234
Kern (SJV)	2015	OBUS	Aggregated	Aggregated	GAS	24244.14878
Kern (SJV)	2015	OBUS	Aggregated	Aggregated	DSL	12108.03227
Kern (SJV)	2015	SBUS	Aggregated	Aggregated	GAS	6764.469215
Kern (SJV)	2015	SBUS	Aggregated	Aggregated	DSL	16595.3814
Kern (SJV)	2015	UBUS	Aggregated	Aggregated	GAS	15976.67629
Kern (SJV)	2015	UBUS	Aggregated	Aggregated	DSL	39434.14319
Kern (SJV)	2040	HHDT	Aggregated	Aggregated	GAS	8358.071018
Kern (SJV)	2040	HHDT	Aggregated	Aggregated	DSL	5220817.486
Kern (SJV)	2040	LDA	Aggregated	Aggregated	GAS	16530264.26
Kern (SJV)	2040	LDA	Aggregated	Aggregated	DSL	229477.99
Kern (SJV)	2040	LDA	Aggregated	Aggregated	ELEC	2994970.112
Kern (SJV)	2040	LDT1	Aggregated	Aggregated	GAS	1124920.096
Kern (SJV)	2040	LDT1	Aggregated	Aggregated	DSL	632.3165325
Kern (SJV)	2040	LDT1	Aggregated	Aggregated	ELEC	507.2331057
Kern (SJV)	2040	LDT2	Aggregated	Aggregated	GAS	6944932.209
Kern (SJV)	2040	LDT2	Aggregated	Aggregated	DSL	15266.18754
Kern (SJV)	2040	LHDT1	Aggregated	Aggregated	GAS	120340.2295
Kern (SJV)	2040	LHDT1	Aggregated	Aggregated	DSL	201904.8102
Kern (SJV)	2040	LHDT2	Aggregated	Aggregated	GAS	39886.03755
Kern (SJV)	2040	LHDT2	Aggregated	Aggregated	DSL	97999.82193
Kern (SJV)	2040	MCY	Aggregated	Aggregated	GAS	198322.8027
Kern (SJV)	2040	MDV	Aggregated	Aggregated	GAS	3473184.9
Kern (SJV)	2040	MDV	Aggregated	Aggregated	DSL	97281.16101
Kern (SJV)	2040	MH	Aggregated	Aggregated	GAS	13313.28616
Kern (SJV)	2040	MH	Aggregated	Aggregated	DSL	3842.342506
Kern (SJV)	2040	MHDT	Aggregated	Aggregated	GAS	62254.18599
Kern (SJV)	2040	MHDT	Aggregated	Aggregated	DSL	564061.8915
Kern (SJV)	2040	OBUS	Aggregated	Aggregated	GAS	33512.2267

Table A.2. EMFAC2014 Model Output for Kern County at Aggregated Speeds in Calendar Years 2015 and 2040
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Sub-Area
Region: Kern (SJV)
Calendar Year: 2015, 2040
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HTSK and RUNLS, g/vehicle/day for IDLEX, RESTL and DIURN

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT
Kern (SJV)	2040	OBUS	Aggregated	Aggregated	DSL	20127.40857
Kern (SJV)	2040	SBUS	Aggregated	Aggregated	GAS	9274.885333
Kern (SJV)	2040	SBUS	Aggregated	Aggregated	DSL	17566.2637
Kern (SJV)	2040	UBUS	Aggregated	Aggregated	GAS	23469.09926
Kern (SJV)	2040	UBUS	Aggregated	Aggregated	DSL	24821.0207

Notes:
1. Only a portion of the model output that is used in the analyses is shown.

Abbreviations:
CalYr - calendar year
CARB - California Air Resources Board
DIUR - diurnal loss
DSL - diesel
ELEC - electric
EMFAC - CARB's mobile source emission inventory model
g - grams
GAS - gasoline
HHDT - heavy-heavy duty truck
HTSK - hot soak
IDLEX - idling exhaust
LDA - passenger car
LDT1 - light duty trucks (0-3750 pounds)
LDT2- light duty trucks (3751-5750 pounds)
LHDT1 - light-heavy duty trucks (8501-10000 pounds)
LHDT2 - light-heavy duty trucks (10001-14000 pounds)
MCY - motorcycle
MdlYr - model year
MDV - medium duty trucks (5751-8500 pounds)
MH - motor homes
MHDT - medium-heavy duty truck
OBUS - other buses
PMBW - particulate matter brake wear
PMTW - particulate matter tire wear
RESTL - resting loss
RUNEX - running exhaust
RUNLS - running loss
SBUS - school bus
SJV - San Joaquin Valley
STREX - starting exhaust
UBUS - urban bus
VehClass - vehicle class
VMT - vehicle miles travelled

Source:
\\wcirvfps1\projects\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]TA.2_EMFAC_Kern_AggSpeeds

Table A.3. EMFAC2014 Model Output for California at Specific Speeds in Calendar Years 2015 and 2040
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Statewide
Region: California
Calendar Year: 2015, 2040
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Statewide	2015	MH	Aggregated	60	GAS	132072.5163	0.326366068	0.416704964	12.20952172	1.227854924	957.9073786	0.003175045	0.002956109
Statewide	2015	MH	Aggregated	60	DSL	40239.83829	0.081113548	0.092342382	0.387060961	5.875102093	917.2104681	0.195870009	0.187396759
Statewide	2015	MH	Aggregated	65	GAS	60017.24519	0.36743092	0.47014235	14.65942943	1.22984046	975.4744928	0.003558984	0.00331415
Statewide	2015	MH	Aggregated	65	DSL	18469.05639	0.090249008	0.102742496	0.40301658	5.884090779	930.5231038	0.227093973	0.217269989
Statewide	2015	MH	Aggregated	70	GAS	20891.37538	0.405622616	0.520437219	16.7248058	1.335604318	1006.915282	0.003943788	0.003670686
Statewide	2015	MH	Aggregated	70	DSL	6794.075454	0.117152056	0.133369827	0.473336385	6.612679519	956.5975062	0.281541777	0.269362404
Statewide	2015	OBUS	Aggregated	60	GAS	116811.7815	0.087208781	0.124229186	2.43827722	0.737737003	953.5354474	0.000615327	0.000567615
Statewide	2015	OBUS	Aggregated	60	DSL	153832.7327	0.108221806	0.123202288	0.357458514	5.601639088	1250.393495	0.071492131	0.068399413
Statewide	2015	OBUS	Aggregated	65	GAS	53090.84242	0.093552778	0.133473443	2.299064313	0.710320481	970.8377587	0.000676348	0.000623778
Statewide	2015	OBUS	Aggregated	65	DSL	61409.68588	0.105501928	0.120105914	0.348093552	5.420530476	1247.337359	0.069120582	0.066130456
Statewide	2015	OBUS	Aggregated	70	GAS	18760.77472	0.096748639	0.139083722	2.134251951	0.72934213	1001.599102	0.000675572	0.000622457
Statewide	2015	OBUS	Aggregated	70	DSL	7184.989372	0.105887278	0.120544606	0.34819531	5.36091767	1259.003275	0.067687783	0.064759639
Statewide	2015	SBUS	Aggregated	60	GAS	4587.717358	0.161676175	0.235917494	4.536348388	1.106455313	451.7961606	0.001544753	0.001420343
Statewide	2015	SBUS	Aggregated	60	DSL	13298.87322	0.093390876	0.106318404	0.240497237	8.495398947	1046.469118	0.07013229	0.067098398
Statewide	2015	SBUS	Aggregated	65	DSL	0	0	0	0	0	0	0	0
Statewide	2015	SBUS	Aggregated	70	DSL	0	0	0	0	0	0	0	0
Statewide	2015	UBUS	Aggregated	60	GAS	16217.84358	0.488224485	0.684906923	8.719018903	1.94818156	955.6602813	0.001463033	0.001358726
Statewide	2015	UBUS	Aggregated	60	DSL	41925.18306	0.389367188	1.250440304	4.573251003	16.10971657	1602.07203	0.178408933	0.170691041
Statewide	2015	UBUS	Aggregated	65	GAS	6722.92871	0.630526622	0.891540607	10.54648635	2.206409704	973.0871637	0.001755275	0.001628335
Statewide	2015	UBUS	Aggregated	65	DSL	16808.80708	0.468077601	1.855804965	5.822770266	16.04505823	1592.268905	0.173056137	0.165569805
Statewide	2015	UBUS	Aggregated	70	GAS	2797.181693	0.679591513	0.953706051	12.28968886	2.466743462	1004.842727	0.001871507	0.001740298
Statewide	2015	UBUS	Aggregated	70	DSL	4453.45957	0.481470009	2.139229752	6.486275434	13.27785694	1577.873151	0.145073908	0.138798075
Statewide	2040	MH	Aggregated	60	GAS	75934.22532	0.007822881	0.01141513	0.149565328	0.106054948	891.3039114	0.000880203	0.000809315
Statewide	2040	MH	Aggregated	60	DSL	26637.23988	0.023267753	0.02648879	0.081542212	1.626543296	866.4454491	0.025872474	0.024753242
Statewide	2040	MH	Aggregated	65	GAS	29905.44616	0.008931457	0.01303276	0.140932515	0.10981228	907.8599323	0.000996456	0.000916204
Statewide	2040	MH	Aggregated	65	DSL	10705.45039	0.024034619	0.027361816	0.084270541	1.636569057	879.3180545	0.028797606	0.027551835
Statewide	2040	MH	Aggregated	70	GAS	6138.677421	0.010397217	0.015171594	0.148119937	0.121129507	937.3058247	0.001078053	0.00099123
Statewide	2040	MH	Aggregated	70	DSL	2185.087172	0.027932828	0.031799667	0.101558931	1.77290095	904.7705429	0.039792733	0.038071317
Statewide	2040	OBUS	Aggregated	60	GAS	146590.0445	0.007909329	0.011541274	0.159532092	0.091761341	887.5906712	0.000898939	0.000826541
Statewide	2040	OBUS	Aggregated	60	DSL	252718.2659	0.014765826	0.016809769	0.083187089	0.213751102	1162.881274	0.003082648	0.002949294
Statewide	2040	OBUS	Aggregated	65	GAS	61547.50025	0.008935418	0.01303854	0.147848464	0.093761234	903.9774111	0.001018928	0.000936867
Statewide	2040	OBUS	Aggregated	65	DSL	93647.41532	0.014369542	0.01635863	0.080648062	0.20845013	1148.709223	0.003025255	0.002894384
Statewide	2040	OBUS	Aggregated	70	GAS	15255.44137	0.009884307	0.014423158	0.145091248	0.099092537	932.3601024	0.00110617	0.001017082
Statewide	2040	OBUS	Aggregated	70	DSL	8607.373863	0.014476686	0.016480605	0.081364883	0.209852172	1153.121514	0.003036404	0.00290505
Statewide	2040	SBUS	Aggregated	60	GAS	8032.774219	0.006635663	0.009682744	0.132879542	0.082322166	421.1880955	0.000871833	0.000801618
Statewide	2040	SBUS	Aggregated	60	DSL	14411.62367	0.009525989	0.010844613	0.049573993	0.171867523	996.1793823	0.002299052	0.002199596
Statewide	2040	SBUS	Aggregated	65	DSL	0	0	0	0	0	0	0	0
Statewide	2040	SBUS	Aggregated	70	DSL	0	0	0	0	0	0	0	0
Statewide	2040	UBUS	Aggregated	60	GAS	20655.82117	0.01298464	0.018947157	0.355013323	0.324075187	891.1664084	0.000872875	0.000802576
Statewide	2040	UBUS	Aggregated	60	DSL	21631.02881	0.037674715	0.302672797	1.221465068	1.549159924	1326.118773	0.011968972	0.0114512
Statewide	2040	UBUS	Aggregated	65	GAS	8328.071325	0.014616611	0.021328524	0.330419415	0.329669722	907.4016387	0.000990531	0.000910757
Statewide	2040	UBUS	Aggregated	65	DSL	8657.895618	0.041912011	0.380616774	1.408995005	1.305905684	1314.067269	0.009121682	0.008727082

Table A.3. EMFAC2014 Model Output for California at Specific Speeds in Calendar Years 2015 and 2040
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Statewide
Region: California
Calendar Year: 2015, 2040
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Statewide	2040	UBUS	Aggregated	70	GAS	1978.490837	0.017901043	0.02612116	0.359398079	0.358450456	936.7194843	0.001066001	0.000980148
Statewide	2040	UBUS	Aggregated	70	DSL	2009.218753	0.041467645	0.42398783	1.541134851	0.997949393	1316.926619	0.006182405	0.005914957

Abbreviations:

CARB - California Air Resources Board
CalYr - calendar year
CO - carbon monoxide
CO2 - carbon dioxide
DSL - diesel
EMFAC - CARB's mobile source emission inventory model
g - grams
GAS - gasoline
MdlYr - model year
MH - motor homes
NOX - oxides of nitrogen
OBUS - other buses
PM10 - particulate matter less than 10 microns in diameter
PM2_5 - particulate matter less than 2.5 microns in diameter
PMBW - particulate matter brake wear
PMTW - particulate matter tire wear
ROG - reactive organic gases
RUNEX - running exhaust
SBUS - school bus
SJV - San Joaquin Valley
TOG - total organic gases
UBUS - urban bus
VehClass - vehicle class
VMT - vehicle miles travelled

Source:
\\wcirvfps1\projects\T\Tejon Ranch\Technical_Work\Emissions\[Grapevine_I-5_HRA_Report_Tables.xlsx]TA.3_EMFAC_State_AllSpeeds

Table A.4. EMFAC2014 Model Output for Trucks in Kern County at Specific Speeds in Calendar Years 2018, 2019, 2020, 2025, 2030, 2035, 2045, and 2050
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Sub-Area
Region: Kern (SJV)
Calendar Year: 2018, 2019, 2020, 2025, 2030, 2035, 2045, 2050
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Kern (SJV)	2018	HHDT	Aggregated	30	GAS	907.614164	0.509166662	0.732877131	38.62316089	3.440429535	1919.237506	0.000572169	0.000528929
Kern (SJV)	2018	HHDT	Aggregated	30	DSL	207396.2059	0.233841394	0.270317742	0.991719797	5.419259768	1794.077173	0.028855972	0.027607675
Kern (SJV)	2018	HHDT	Aggregated	35	GAS	1616.004668	0.421372054	0.606067528	35.68257642	3.241090908	1840.701824	0.000476673	0.000440765
Kern (SJV)	2018	HHDT	Aggregated	35	DSL	379262.0094	0.174596509	0.203230591	0.744117471	4.772269884	1702.71141	0.026624993	0.025473207
Kern (SJV)	2018	HHDT	Aggregated	50	GAS	1581.42116	0.326417156	0.468530177	28.83429782	3.012422803	1713.536846	0.000376793	0.00034862
Kern (SJV)	2018	HHDT	Aggregated	50	DSL	592180.7002	0.076443762	0.08735411	0.329211662	3.709473921	1484.498289	0.023715013	0.022689112
Kern (SJV)	2018	HHDT	Aggregated	55	GAS	2310.070263	0.334195899	0.479582782	27.2898286	3.009608033	1681.272617	0.000386422	0.000357576
Kern (SJV)	2018	HHDT	Aggregated	55	DSL	697183.1632	0.060055285	0.068368371	0.258238235	3.510937594	1440.828558	0.02382999	0.022799115
Kern (SJV)	2018	LHDT1	Aggregated	30	GAS	36203.64634	0.070021919	0.100174835	1.659068678	0.409717132	691.8343944	0.001581423	0.001456038
Kern (SJV)	2018	LHDT1	Aggregated	30	DSL	41672.79101	0.141656864	0.161266922	0.712958141	3.779410253	486.4705882	0.032335945	0.030937106
Kern (SJV)	2018	LHDT1	Aggregated	35	GAS	13768.55799	0.059046351	0.084364221	1.518432177	0.400340776	691.8343944	0.001316577	0.001212272
Kern (SJV)	2018	LHDT1	Aggregated	35	DSL	22001.66023	0.122235208	0.139156658	0.645867705	3.9507041	486.4705882	0.028407993	0.027179076
Kern (SJV)	2018	LHDT1	Aggregated	50	GAS	37627.80512	0.049364925	0.070504537	1.41539755	0.377509744	723.5107099	0.001039053	0.000956884
Kern (SJV)	2018	LHDT1	Aggregated	50	DSL	50356.18297	0.102827491	0.117062262	0.656647682	4.446034447	483.8455736	0.024486055	0.023426799
Kern (SJV)	2018	LHDT1	Aggregated	55	GAS	11028.3291	0.050148765	0.071475309	1.450883856	0.397713489	762.2990087	0.001065231	0.000981025
Kern (SJV)	2018	LHDT1	Aggregated	55	DSL	30337.42489	0.106149794	0.120844483	0.733264771	4.632835604	505.601454	0.02524796	0.024155744
Kern (SJV)	2018	LHDT2	Aggregated	30	GAS	8807.59639	0.032255868	0.04701097	0.79146613	0.266810099	778.2589761	0.001040292	0.000956566
Kern (SJV)	2018	LHDT2	Aggregated	30	DSL	16395.04999	0.114512998	0.130365435	0.568079868	2.780521327	549.5518188	0.026692397	0.025537695
Kern (SJV)	2018	LHDT2	Aggregated	35	GAS	3349.604637	0.026872473	0.039161341	0.72360539	0.258348511	778.2589761	0.00086048	0.000791229
Kern (SJV)	2018	LHDT2	Aggregated	35	DSL	8655.967373	0.097963557	0.111524997	0.509205514	2.899185937	549.5518188	0.023531896	0.022513917
Kern (SJV)	2018	LHDT2	Aggregated	50	GAS	9154.064686	0.021941599	0.031973801	0.645301829	0.239069121	774.1430571	0.000668847	0.000615023
Kern (SJV)	2018	LHDT2	Aggregated	50	DSL	19811.29934	0.080035317	0.091114887	0.501616698	3.248762573	527.7057737	0.020091729	0.019222569
Kern (SJV)	2018	LHDT2	Aggregated	55	GAS	2682.963774	0.022117994	0.032226293	0.638200285	0.250698388	809.3893351	0.000683374	0.000628382
Kern (SJV)	2018	LHDT2	Aggregated	55	DSL	11935.45202	0.081694867	0.093004175	0.554551849	3.382350635	546.200893	0.020511274	0.019623965
Kern (SJV)	2018	MHDT	Aggregated	30	GAS	3600.888711	0.169798091	0.24393394	4.508803056	0.936433227	1288.125994	0.00150692	0.001388124
Kern (SJV)	2018	MHDT	Aggregated	30	DSL	36809.66271	0.250798923	0.285515483	0.786032598	4.284424016	1272.522904	0.103418655	0.09894481
Kern (SJV)	2018	MHDT	Aggregated	35	GAS	4454.697795	0.142042387	0.203904396	4.155344839	0.892660482	1189.25264	0.001253351	0.001154652
Kern (SJV)	2018	MHDT	Aggregated	35	DSL	41885.77079	0.203723907	0.23192416	0.664915776	3.928022661	1207.697824	0.097936486	0.093699797
Kern (SJV)	2018	MHDT	Aggregated	50	GAS	4959.810425	0.113156328	0.162133464	3.558288724	0.846683272	961.6786322	0.000986955	0.000909431
Kern (SJV)	2018	MHDT	Aggregated	50	DSL	50381.24153	0.128802165	0.146631461	0.473886753	3.367682432	1076.671607	0.109325362	0.104595995
Kern (SJV)	2018	MHDT	Aggregated	55	GAS	6641.311004	0.116008212	0.16611614	3.511568568	0.859729927	935.1720663	0.001011321	0.000931928
Kern (SJV)	2018	MHDT	Aggregated	55	DSL	84619.53202	0.122686276	0.139668986	0.456013046	3.300378561	1049.964108	0.122352335	0.117059427
Kern (SJV)	2019	HHDT	Aggregated	30	GAS	892.4989418	0.484600492	0.702825599	38.89885428	3.434187971	1907.551835	0.000552097	0.000508841
Kern (SJV)	2019	HHDT	Aggregated	30	DSL	215926.2072	0.225822773	0.26096625	0.985693302	5.108309201	1772.97062	0.026445631	0.025301605
Kern (SJV)	2019	HHDT	Aggregated	35	GAS	1589.092054	0.400219873	0.580251523	35.93986772	3.232376104	1829.494335	0.000457425	0.000421641

Table A.4. EMFAC2014 Model Output for Trucks in Kern County at Specific Speeds in Calendar Years 2018, 2019, 2020, 2025, 2030, 2035, 2045, and 2050
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Sub-Area
Region: Kern (SJV)
Calendar Year: 2018, 2019, 2020, 2025, 2030, 2035, 2045, 2050
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Kern (SJV)	2019	HHDT	Aggregated	35	DSL	394827.0239	0.168367376	0.195879382	0.737944455	4.450671279	1683.357003	0.024409222	0.02335329
Kern (SJV)	2019	HHDT	Aggregated	50	GAS	1555.084493	0.308311235	0.446573505	28.88359427	2.998076153	1703.103626	0.000356952	0.000329128
Kern (SJV)	2019	HHDT	Aggregated	50	DSL	616659.6165	0.073074042	0.083494585	0.322322427	3.394265185	1469.431551	0.021622053	0.020686692
Kern (SJV)	2019	HHDT	Aggregated	55	GAS	2271.598821	0.315412971	0.456809323	27.21808388	2.99417534	1671.035844	0.000365026	0.000336596
Kern (SJV)	2019	HHDT	Aggregated	55	DSL	726033.7002	0.057057319	0.064955414	0.250982939	3.198521233	1426.390136	0.021639809	0.020703681
Kern (SJV)	2019	LHDT1	Aggregated	30	GAS	33642.32099	0.064197824	0.092318765	1.522978707	0.389852641	690.0583184	0.001517901	0.001397006
Kern (SJV)	2019	LHDT1	Aggregated	30	DSL	39663.35033	0.138646212	0.157839494	0.700170856	3.592305822	483.7728357	0.031700261	0.030328922
Kern (SJV)	2019	LHDT1	Aggregated	35	GAS	12794.46394	0.054051653	0.077652618	1.393040053	0.380675453	690.0583184	0.00126258	0.001162077
Kern (SJV)	2019	LHDT1	Aggregated	35	DSL	20940.75142	0.119484915	0.136025632	0.633073573	3.753858972	483.7728357	0.027868168	0.026662603
Kern (SJV)	2019	LHDT1	Aggregated	50	GAS	34965.72378	0.04515836	0.064857115	1.29428839	0.358456571	721.6533145	0.000994397	0.000915346
Kern (SJV)	2019	LHDT1	Aggregated	50	DSL	47928.03357	0.100087808	0.113943316	0.64004614	4.222124665	481.1623783	0.0239772	0.022939957
Kern (SJV)	2019	LHDT1	Aggregated	55	GAS	10248.09999	0.045767565	0.065628604	1.320988403	0.377526254	760.342036	0.001018987	0.000938004
Kern (SJV)	2019	LHDT1	Aggregated	55	DSL	28874.56976	0.103155357	0.117435516	0.713476738	4.399019663	502.7976102	0.024676479	0.023608986
Kern (SJV)	2019	LHDT2	Aggregated	30	GAS	8247.830445	0.028143286	0.041023925	0.691805212	0.244826249	774.9499756	0.001006753	0.000925714
Kern (SJV)	2019	LHDT2	Aggregated	30	DSL	15691.25242	0.110027151	0.125258597	0.548239827	2.554718178	545.132131	0.025816698	0.024699879
Kern (SJV)	2019	LHDT2	Aggregated	35	GAS	3136.720835	0.023410465	0.034122176	0.632525869	0.236748727	774.9499756	0.000831947	0.000764981
Kern (SJV)	2019	LHDT2	Aggregated	35	DSL	8284.38883	0.09390014	0.106899066	0.489692602	2.661720694	545.132131	0.022786122	0.021800405
Kern (SJV)	2019	LHDT2	Aggregated	50	GAS	8572.278982	0.019050741	0.027766183	0.560257623	0.218430809	770.8515567	0.000645209	0.000593278
Kern (SJV)	2019	LHDT2	Aggregated	50	DSL	18960.85092	0.076078662	0.086610498	0.477205099	2.978823035	523.4617794	0.019393881	0.01855491
Kern (SJV)	2019	LHDT2	Aggregated	55	GAS	2512.448268	0.019188484	0.027963486	0.551328362	0.228926084	805.9479746	0.000658885	0.000605855
Kern (SJV)	2019	LHDT2	Aggregated	55	DSL	11423.09359	0.077400306	0.088115103	0.525702084	3.100504761	541.8081546	0.019732591	0.018878968
Kern (SJV)	2019	MHDT	Aggregated	30	GAS	3562.565209	0.137231191	0.199003227	3.667819327	0.792748679	1280.357398	0.001375523	0.001265581
Kern (SJV)	2019	MHDT	Aggregated	30	DSL	37366.02947	0.222553145	0.253359814	0.705822528	3.852120368	1269.241994	0.08790329	0.084100632
Kern (SJV)	2019	MHDT	Aggregated	35	GAS	4407.287381	0.114507544	0.16599791	3.38010915	0.754978923	1182.080342	0.00114072	0.001049583
Kern (SJV)	2019	MHDT	Aggregated	35	DSL	42518.86137	0.180345589	0.205309725	0.593457661	3.495823805	1205.37799	0.083856482	0.080228888
Kern (SJV)	2019	MHDT	Aggregated	50	GAS	4907.024204	0.090663206	0.131327441	2.86257033	0.714547129	955.8788168	0.000892128	0.00082092
Kern (SJV)	2019	MHDT	Aggregated	50	DSL	51142.73854	0.111630408	0.127082722	0.416685956	2.939065645	1075.369522	0.094479937	0.090392777
Kern (SJV)	2019	MHDT	Aggregated	55	GAS	6570.628925	0.092776896	0.134353728	2.800238701	0.725257251	929.5321101	0.000912758	0.000839919
Kern (SJV)	2019	MHDT	Aggregated	55	DSL	85898.53028	0.104718213	0.119213714	0.398911801	2.866844027	1048.16894	0.105560378	0.100993883
Kern (SJV)	2020	HHDT	Aggregated	30	GAS	867.1254338	0.45976798	0.670572589	38.76591022	3.400159215	1894.35825	0.00055492	0.000510319
Kern (SJV)	2020	HHDT	Aggregated	30	DSL	224068.7722	0.213154381	0.246340912	0.958998982	4.73582572	1750.92865	0.022403866	0.021434684
Kern (SJV)	2020	HHDT	Aggregated	35	GAS	1543.914589	0.379137565	0.552958047	35.81878302	3.198402497	1816.840634	0.000457806	0.000421015
Kern (SJV)	2020	HHDT	Aggregated	35	DSL	409685.2472	0.158483186	0.184390077	0.715086282	4.074363681	1662.825702	0.020752948	0.019855185
Kern (SJV)	2020	HHDT	Aggregated	50	GAS	1510.873854	0.290863801	0.424181497	28.67969095	2.96227699	1691.324107	0.000353642	0.00032523
Kern (SJV)	2020	HHDT	Aggregated	50	DSL	640026.0376	0.067485418	0.077111119	0.305691867	3.033683526	1452.378128	0.018258321	0.017468474

Table A.4. EMFAC2014 Model Output for Trucks in Kern County at Specific Speeds in Calendar Years 2018, 2019, 2020, 2025, 2030, 2035, 2045, and 2050
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Sub-Area
Region: Kern (SJV)
Calendar Year: 2018, 2019, 2020, 2025, 2030, 2035, 2045, 2050
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Kern (SJV)	2020	HHDT	Aggregated	55	GAS	2207.01787	0.297392522	0.433698752	26.9460037	2.957666107	1659.478122	0.000360814	0.000331828
Kern (SJV)	2020	HHDT	Aggregated	55	DSL	753572.9004	0.051920002	0.05910697	0.235016835	2.842259261	1409.968842	0.018101382	0.017318324
Kern (SJV)	2020	LHDT1	Aggregated	30	GAS	31267.66366	0.058566854	0.084840669	1.392149188	0.371194696	688.1455	0.001458488	0.001341647
Kern (SJV)	2020	LHDT1	Aggregated	30	DSL	37799.31693	0.135087528	0.15378817	0.684295441	3.398098848	481.0255454	0.030936396	0.029598101
Kern (SJV)	2020	LHDT1	Aggregated	35	GAS	11891.36134	0.049206859	0.071246072	1.272277306	0.362229721	688.1455	0.001211909	0.001114848
Kern (SJV)	2020	LHDT1	Aggregated	35	DSL	19956.61216	0.116252273	0.132345484	0.61741606	3.549656505	481.0255454	0.027215334	0.026038011
Kern (SJV)	2020	LHDT1	Aggregated	50	GAS	32497.65351	0.041078526	0.059468084	1.176993041	0.340637601	719.6529158	0.000952193	0.000875981
Kern (SJV)	2020	LHDT1	Aggregated	50	DSL	45675.59007	0.096915927	0.110332339	0.620337861	3.990062054	478.4299126	0.023371865	0.022360809
Kern (SJV)	2020	LHDT1	Aggregated	55	GAS	9524.733556	0.041494474	0.060021433	1.194043971	0.358655282	758.2343935	0.000975217	0.000897173
Kern (SJV)	2020	LHDT1	Aggregated	55	DSL	27517.56986	0.099704442	0.113506879	0.690151488	4.156734892	499.9422804	0.024006514	0.022968003
Kern (SJV)	2020	LHDT2	Aggregated	30	GAS	7743.600627	0.024796135	0.03615982	0.610544736	0.225001466	771.4920573	0.000982911	0.000903773
Kern (SJV)	2020	LHDT2	Aggregated	30	DSL	15053.31039	0.105369849	0.119956567	0.527152138	2.334506204	540.6997323	0.02487856	0.023802324
Kern (SJV)	2020	LHDT2	Aggregated	35	GAS	2944.9579	0.020599553	0.030038495	0.558222155	0.217364134	771.4920573	0.000811619	0.000746274
Kern (SJV)	2020	LHDT2	Aggregated	35	DSL	7947.579522	0.089692036	0.10210842	0.46908713	2.430330737	540.6997323	0.021983397	0.021032405
Kern (SJV)	2020	LHDT2	Aggregated	50	GAS	8048.214053	0.016722025	0.024383442	0.491684876	0.200095461	767.411926	0.00062829	0.000577706
Kern (SJV)	2020	LHDT2	Aggregated	50	DSL	18189.98041	0.072009413	0.081977929	0.451794612	2.716156911	519.2055796	0.018651842	0.017844972
Kern (SJV)	2020	LHDT2	Aggregated	55	GAS	2358.850138	0.016827454	0.024535326	0.481729316	0.20962465	802.3517396	0.000641341	0.000589708
Kern (SJV)	2020	LHDT2	Aggregated	55	DSL	10958.6774	0.072993073	0.08309776	0.495775787	2.826329134	537.4027827	0.018913604	0.01809541
Kern (SJV)	2020	MHDT	Aggregated	30	GAS	3540.06279	0.112123683	0.163610615	3.005641637	0.670254663	1272.967082	0.001294129	0.001189904
Kern (SJV)	2020	MHDT	Aggregated	30	DSL	37852.86127	0.160383805	0.182584753	0.521283255	2.982541655	1265.953559	0.056248773	0.053815476
Kern (SJV)	2020	MHDT	Aggregated	35	GAS	4379.449399	0.093392166	0.13627763	2.769781691	0.637907821	1175.257288	0.001070971	0.000984718
Kern (SJV)	2020	MHDT	Aggregated	35	DSL	43072.828	0.129359087	0.147265474	0.43153803	2.631135412	1203.510562	0.055458947	0.053059817
Kern (SJV)	2020	MHDT	Aggregated	50	GAS	4876.029708	0.073628351	0.107438317	2.32804382	0.602849089	950.3614147	0.000833438	0.000766315
Kern (SJV)	2020	MHDT	Aggregated	50	DSL	51809.06331	0.074572612	0.084895242	0.291971864	2.085292184	1074.646663	0.064925382	0.062116739
Kern (SJV)	2020	MHDT	Aggregated	55	GAS	6529.126515	0.075248315	0.109802165	2.26350752	0.611710063	924.1667831	0.000851763	0.000783165
Kern (SJV)	2020	MHDT	Aggregated	55	DSL	87017.67878	0.065692971	0.074786447	0.275445074	2.004074351	1046.443139	0.071976071	0.068862418
Kern (SJV)	2025	HHDT	Aggregated	30	GAS	705.3578615	0.387299788	0.565146942	36.90515457	3.235870453	1809.538545	0.000825369	0.000758896
Kern (SJV)	2025	HHDT	Aggregated	30	DSL	251921.3095	0.131102774	0.15223321	0.777676588	2.131372123	1621.817268	0.006708219	0.006418024
Kern (SJV)	2025	HHDT	Aggregated	35	GAS	1255.887846	0.318945674	0.465404778	34.10047287	3.041647472	1735.491773	0.00067902	0.000624334
Kern (SJV)	2025	HHDT	Aggregated	35	DSL	460511.872	0.09657027	0.113086091	0.57373627	1.531954046	1545.708985	0.006231107	0.005961552
Kern (SJV)	2025	HHDT	Aggregated	50	GAS	1229.011062	0.243915887	0.355921489	27.21159619	2.812199483	1615.595236	0.000520998	0.000479039
Kern (SJV)	2025	HHDT	Aggregated	50	DSL	719944.5165	0.038796608	0.044376136	0.229050867	0.727544946	1361.094085	0.005135544	0.004913383
Kern (SJV)	2025	HHDT	Aggregated	55	GAS	1795.285139	0.2491924	0.363620966	25.49197395	2.806963433	1585.175152	0.000530748	0.000488003
Kern (SJV)	2025	HHDT	Aggregated	55	DSL	847760.9861	0.028618781	0.032580304	0.168781538	0.600623679	1322.81726	0.004853593	0.004643629
Kern (SJV)	2025	LHDT1	Aggregated	30	GAS	22225.05611	0.034808986	0.05079319	0.888539126	0.269756714	675.8938647	0.001294249	0.001190014

Table A.4. EMFAC2014 Model Output for Trucks in Kern County at Specific Speeds in Calendar Years 2018, 2019, 2020, 2025, 2030, 2035, 2045, and 2050
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Sub-Area
Region: Kern (SJV)
Calendar Year: 2018, 2019, 2020, 2025, 2030, 2035, 2045, 2050
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Kern (SJV)	2025	LHDT1	Aggregated	30	DSL	30424.4166	0.111945008	0.127441949	0.569362077	2.38115077	465.9634332	0.025454682	0.024353524
Kern (SJV)	2025	LHDT1	Aggregated	35	GAS	8452.379935	0.029098889	0.04246103	0.811887213	0.262143456	675.8938647	0.001071108	0.000984844
Kern (SJV)	2025	LHDT1	Aggregated	35	DSL	16062.94324	0.095391178	0.108596514	0.506367348	2.481965045	465.9634332	0.022475726	0.021503436
Kern (SJV)	2025	LHDT1	Aggregated	50	GAS	23099.33293	0.02401873	0.035048075	0.734737766	0.2444451	706.8403274	0.000833614	0.000766477
Kern (SJV)	2025	LHDT1	Aggregated	50	DSL	36763.97602	0.076874855	0.087516911	0.486852905	2.779704963	463.4490761	0.019108473	0.018281849
Kern (SJV)	2025	LHDT1	Aggregated	55	GAS	6770.180849	0.024205406	0.035320472	0.733137932	0.25679336	744.7349065	0.000851959	0.000783345
Kern (SJV)	2025	LHDT1	Aggregated	55	DSL	22148.70737	0.078043484	0.088847317	0.533935858	2.893684451	484.2878379	0.019419112	0.01857905
Kern (SJV)	2025	LHDT2	Aggregated	30	GAS	5943.389223	0.012851082	0.018752268	0.337982081	0.136832767	752.1937327	0.000988864	0.000909224
Kern (SJV)	2025	LHDT2	Aggregated	30	DSL	12684.17801	0.080185401	0.091285748	0.400087998	1.281780446	518.3376099	0.019065681	0.018240908
Kern (SJV)	2025	LHDT2	Aggregated	35	GAS	2260.322024	0.010642501	0.015529513	0.30908575	0.131892537	752.1937327	0.000814637	0.000749029
Kern (SJV)	2025	LHDT2	Aggregated	35	DSL	6696.767077	0.067027022	0.076305808	0.346699124	1.326421351	518.3376099	0.016956436	0.016222908
Kern (SJV)	2025	LHDT2	Aggregated	50	GAS	6177.186941	0.008571815	0.012507972	0.267787065	0.12081264	748.215663	0.000627118	0.000576612
Kern (SJV)	2025	LHDT2	Aggregated	50	DSL	15327.19007	0.050333575	0.057301428	0.305741554	1.467275655	497.7324068	0.014132395	0.013521034
Kern (SJV)	2025	LHDT2	Aggregated	55	GAS	1810.471015	0.008615431	0.012571617	0.259194574	0.126432377	782.281482	0.000639335	0.000587845
Kern (SJV)	2025	LHDT2	Aggregated	55	DSL	9233.969893	0.049598777	0.05646491	0.325164213	1.52360311	515.1770147	0.014053185	0.01344525
Kern (SJV)	2025	MHDT	Aggregated	30	GAS	3575.04524	0.0392994	0.057345592	1.079989566	0.281963832	1242.802951	0.001194148	0.001097975
Kern (SJV)	2025	MHDT	Aggregated	30	DSL	36755.85703	0.056102	0.063867856	0.293670699	1.11679005	1233.176664	0.003776462	0.003613094
Kern (SJV)	2025	MHDT	Aggregated	35	GAS	4422.726561	0.032490263	0.047409715	0.995576294	0.26705869	1147.408481	0.000983136	0.000903957
Kern (SJV)	2025	MHDT	Aggregated	35	DSL	41824.54523	0.041377563	0.047105205	0.216563945	0.810618955	1176.975984	0.003505463	0.003353818
Kern (SJV)	2025	MHDT	Aggregated	50	GAS	4924.214013	0.025180039	0.036742653	0.815073979	0.249562715	927.8417232	0.000755687	0.000694827
Kern (SJV)	2025	MHDT	Aggregated	50	DSL	50307.5979	0.016648483	0.018953031	0.087018409	0.41117365	1057.870594	0.002936573	0.002809538
Kern (SJV)	2025	MHDT	Aggregated	55	GAS	6593.646512	0.025646499	0.037423311	0.776085203	0.252676846	902.2677976	0.000770143	0.000708118
Kern (SJV)	2025	MHDT	Aggregated	55	DSL	84495.84136	0.012322315	0.014028018	0.06430489	0.349158959	1029.487942	0.002806755	0.002685336
Kern (SJV)	2030	HHDT	Aggregated	30	GAS	616.7813023	0.356954923	0.520867786	35.64700969	3.18525791	1729.679755	0.00111116	0.001021671
Kern (SJV)	2030	HHDT	Aggregated	30	DSL	269968.1703	0.126391626	0.146447622	0.751305579	1.8477298	1593.501788	0.006412847	0.00613543
Kern (SJV)	2030	HHDT	Aggregated	35	GAS	1098.177511	0.293775984	0.428677226	32.93830153	2.993146444	1658.900824	0.000913561	0.000839985
Kern (SJV)	2030	HHDT	Aggregated	35	DSL	493457.1749	0.093062115	0.108594766	0.554479348	1.277223598	1518.71408	0.005955476	0.005697845
Kern (SJV)	2030	HHDT	Aggregated	50	GAS	1074.675828	0.224351506	0.327373191	26.24883645	2.765308976	1544.295577	0.000699888	0.000643521
Kern (SJV)	2030	HHDT	Aggregated	50	DSL	771681.282	0.037398168	0.042738641	0.220962497	0.556581837	1338.570156	0.004909266	0.004696893
Kern (SJV)	2030	HHDT	Aggregated	55	GAS	1569.839037	0.229118797	0.33432961	24.56113971	2.759799786	1515.217996	0.000712736	0.000655334
Kern (SJV)	2030	HHDT	Aggregated	55	DSL	908723.9098	0.027583016	0.031401164	0.162754776	0.448367018	1301.02232	0.004637208	0.004436604
Kern (SJV)	2030	LHDT1	Aggregated	30	GAS	17406.72722	0.017540741	0.025595407	0.498757965	0.175077873	660.6338228	0.001251258	0.001150486
Kern (SJV)	2030	LHDT1	Aggregated	30	DSL	26294.04289	0.087366137	0.099460538	0.437555912	1.460189042	450.4195699	0.018716092	0.017906442
Kern (SJV)	2030	LHDT1	Aggregated	35	GAS	6619.928029	0.014476749	0.021124438	0.45634571	0.168600876	660.6338228	0.001030512	0.000947517
Kern (SJV)	2030	LHDT1	Aggregated	35	DSL	13882.26187	0.07334776	0.083501549	0.380675376	1.516749618	450.4195699	0.016599198	0.015881124

Table A.4. EMFAC2014 Model Output for Trucks in Kern County at Specific Speeds in Calendar Years 2018, 2019, 2020, 2025, 2030, 2035, 2045, and 2050
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Sub-Area
Region: Kern (SJV)
Calendar Year: 2018, 2019, 2020, 2025, 2030, 2035, 2045, 2050
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Kern (SJV)	2030	LHDT1	Aggregated	50	GAS	18091.46331	0.011533025	0.016828962	0.387985872	0.154160253	690.8815895	0.000792764	0.000728918
Kern (SJV)	2030	LHDT1	Aggregated	50	DSL	31772.95311	0.055998805	0.063750917	0.340386236	1.688719058	447.9890881	0.013941584	0.013338477
Kern (SJV)	2030	LHDT1	Aggregated	55	GAS	5302.424916	0.011592753	0.016916118	0.370602183	0.161230615	727.920601	0.000808083	0.000743003
Kern (SJV)	2030	LHDT1	Aggregated	55	DSL	19141.83168	0.055582851	0.06327738	0.363886439	1.75586666	468.132699	0.013982241	0.013377376
Kern (SJV)	2030	LHDT2	Aggregated	30	GAS	5117.849335	0.006861976	0.010012979	0.205059332	0.079048628	733.7665769	0.00112636	0.001035647
Kern (SJV)	2030	LHDT2	Aggregated	30	DSL	11573.36905	0.060588392	0.068975856	0.288278274	0.536180081	499.0670859	0.013427978	0.01284709
Kern (SJV)	2030	LHDT2	Aggregated	35	GAS	1946.362107	0.00563727	0.008225891	0.187663464	0.07591745	733.7665769	0.000926489	0.000851872
Kern (SJV)	2030	LHDT2	Aggregated	35	DSL	6110.301886	0.049444571	0.056289357	0.24040029	0.546900887	499.0670859	0.012031441	0.011510966
Kern (SJV)	2030	LHDT2	Aggregated	50	GAS	5319.172427	0.004442706	0.006482787	0.156271116	0.068979575	729.8859615	0.000710593	0.000653364
Kern (SJV)	2030	LHDT2	Aggregated	50	DSL	13984.92098	0.033663457	0.038323607	0.182788245	0.589779815	479.2279339	0.009822186	0.009397283
Kern (SJV)	2030	LHDT2	Aggregated	55	GAS	1558.995639	0.004454976	0.006500691	0.146818303	0.072058324	763.11724	0.000723824	0.000665529
Kern (SJV)	2030	LHDT2	Aggregated	55	DSL	8425.310752	0.031656811	0.036039174	0.18269157	0.609188726	496.0239939	0.009538875	0.009126227
Kern (SJV)	2030	MHDT	Aggregated	30	GAS	3774.644458	0.018215209	0.02657959	0.465380831	0.150184795	1225.01542	0.001243211	0.001143086
Kern (SJV)	2030	MHDT	Aggregated	30	DSL	35890.10527	0.056344946	0.064144432	0.295684302	1.039592682	1216.955672	0.003702472	0.003542305
Kern (SJV)	2030	MHDT	Aggregated	35	GAS	4669.652881	0.014971867	0.021846914	0.429119755	0.141742184	1130.986276	0.001022208	0.000939883
Kern (SJV)	2030	MHDT	Aggregated	35	DSL	40839.40499	0.041537661	0.047287466	0.217969671	0.732348943	1161.679566	0.003437907	0.003289185
Kern (SJV)	2030	MHDT	Aggregated	50	GAS	5199.139001	0.011444021	0.016699088	0.34294845	0.131362728	914.5620524	0.000783272	0.000720189
Kern (SJV)	2030	MHDT	Aggregated	50	DSL	49122.64685	0.016663107	0.018969679	0.08740395	0.343815305	1044.552108	0.002860085	0.002736359
Kern (SJV)	2030	MHDT	Aggregated	55	GAS	6961.77799	0.011620761	0.016956987	0.320042087	0.132791585	889.3541519	0.000797685	0.000733442
Kern (SJV)	2030	MHDT	Aggregated	55	DSL	82505.61642	0.012303412	0.014006498	0.064499567	0.28530894	1016.501812	0.002717568	0.002600007
Kern (SJV)	2035	HHDT	Aggregated	30	GAS	615.3030907	0.352390549	0.514207462	35.22922566	3.244245291	1691.067257	0.00125814	0.001156813
Kern (SJV)	2035	HHDT	Aggregated	30	DSL	288482.6204	0.123810645	0.143241245	0.736850556	1.713815124	1580.703265	0.006241787	0.00597177
Kern (SJV)	2035	HHDT	Aggregated	35	GAS	1095.545559	0.290019477	0.423195741	32.55226364	3.048576138	1621.868359	0.001034403	0.000951095
Kern (SJV)	2035	HHDT	Aggregated	35	DSL	527261.8186	0.09113911	0.106095269	0.543913413	1.158581507	1506.434538	0.005795767	0.005545045
Kern (SJV)	2035	HHDT	Aggregated	50	GAS	1072.100201	0.221482729	0.323187079	25.9411993	2.816519376	1509.821502	0.000792466	0.000728643
Kern (SJV)	2035	HHDT	Aggregated	50	DSL	824737.5504	0.036631461	0.04183867	0.21653435	0.479781023	1328.586111	0.004778324	0.004571616
Kern (SJV)	2035	HHDT	Aggregated	55	GAS	1566.076675	0.22618906	0.330054546	24.27328241	2.810908162	1481.393034	0.000807013	0.000742019
Kern (SJV)	2035	HHDT	Aggregated	55	DSL	971236.355	0.02701504	0.030754567	0.159456002	0.380410843	1291.399551	0.004512181	0.004316986
Kern (SJV)	2035	LHDT1	Aggregated	30	GAS	15721.70698	0.00841263	0.01227569	0.266005027	0.104696303	647.7749684	0.001225975	0.001127239
Kern (SJV)	2035	LHDT1	Aggregated	30	DSL	24986.83302	0.069673051	0.079318136	0.341072684	0.823364334	438.2261819	0.01315528	0.012586188
Kern (SJV)	2035	LHDT1	Aggregated	35	GAS	5979.100342	0.006858167	0.010007422	0.243517574	0.100227014	647.7749684	0.001007958	0.00092678
Kern (SJV)	2035	LHDT1	Aggregated	35	DSL	13192.10441	0.057510832	0.065472259	0.289127087	0.850599788	438.2261819	0.011722921	0.011215793
Kern (SJV)	2035	LHDT1	Aggregated	50	GAS	16340.15869	0.00530628	0.007742912	0.196567224	0.090387041	677.4339798	0.000772206	0.000710015
Kern (SJV)	2035	LHDT1	Aggregated	50	DSL	30193.3589	0.041083977	0.046771376	0.235002373	0.938174186	435.861496	0.009717377	0.009297007
Kern (SJV)	2035	LHDT1	Aggregated	55	GAS	4789.135243	0.005298762	0.007731941	0.179936208	0.094287764	713.7520485	0.000786381	0.000723049

Table A.4. EMFAC2014 Model Output for Trucks in Kern County at Specific Speeds in Calendar Years 2018, 2019, 2020, 2025, 2030, 2035, 2045, and 2050
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Sub-Area
Region: Kern (SJV)
Calendar Year: 2018, 2019, 2020, 2025, 2030, 2035, 2045, 2050
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Kern (SJV)	2035	LHDT1	Aggregated	55	DSL	18190.1944	0.03956483	0.045041929	0.241927651	0.973604611	455.4597958	0.009603887	0.009188427
Kern (SJV)	2035	LHDT2	Aggregated	30	GAS	4962.164108	0.004401498	0.006422656	0.153293447	0.049647901	721.4298092	0.001236732	0.00113713
Kern (SJV)	2035	LHDT2	Aggregated	30	DSL	11597.36541	0.051922852	0.059110715	0.236426215	0.213149706	487.0875647	0.009983813	0.009551917
Kern (SJV)	2035	LHDT2	Aggregated	35	GAS	1887.153676	0.003588202	0.005235895	0.140334372	0.047528525	721.4298092	0.001016802	0.000934912
Kern (SJV)	2035	LHDT2	Aggregated	35	DSL	6122.971061	0.041694439	0.047466347	0.191630105	0.211270974	487.0875647	0.008992546	0.008603533
Kern (SJV)	2035	LHDT2	Aggregated	50	GAS	5157.362942	0.002776252	0.004051101	0.113277812	0.042862324	717.6144383	0.000778982	0.000716245
Kern (SJV)	2035	LHDT2	Aggregated	50	DSL	14013.91749	0.026381601	0.030033698	0.127865933	0.215930626	467.7246283	0.007233453	0.006920537
Kern (SJV)	2035	LHDT2	Aggregated	55	GAS	1511.570916	0.002772319	0.004045361	0.103693685	0.044712081	750.2870016	0.000793282	0.000729393
Kern (SJV)	2035	LHDT2	Aggregated	55	DSL	8442.779895	0.023842278	0.027142849	0.119505129	0.220439412	484.1175186	0.006902485	0.006603886
Kern (SJV)	2035	MHDT	Aggregated	30	GAS	4076.379954	0.012464459	0.01818811	0.286018391	0.110447212	1216.738922	0.001283733	0.001180345
Kern (SJV)	2035	MHDT	Aggregated	30	DSL	36959.44948	0.055293937	0.062947938	0.290636101	0.955629117	1206.554986	0.003570761	0.003416292
Kern (SJV)	2035	MHDT	Aggregated	35	GAS	5042.933078	0.010236886	0.01493764	0.263743158	0.104190331	1123.345062	0.001055444	0.000970442
Kern (SJV)	2035	MHDT	Aggregated	35	DSL	42056.21338	0.040753847	0.046395152	0.214208011	0.656924365	1151.854888	0.003315456	0.003172031
Kern (SJV)	2035	MHDT	Aggregated	50	GAS	5614.744974	0.007809619	0.011395778	0.209966035	0.096456106	908.383052	0.000808586	0.000743465
Kern (SJV)	2035	MHDT	Aggregated	50	DSL	50586.25409	0.016325549	0.018585395	0.08579994	0.28825217	1035.957937	0.002745445	0.002626678
Kern (SJV)	2035	MHDT	Aggregated	55	GAS	7518.284851	0.007926714	0.011566642	0.195292742	0.097485268	883.3454621	0.00082343	0.000757113
Kern (SJV)	2035	MHDT	Aggregated	55	DSL	84963.86787	0.012040381	0.013707057	0.063266974	0.234196004	1008.127147	0.002599315	0.00248687
Kern (SJV)	2045	HHDT	Aggregated	30	GAS	713.978913	0.353300363	0.51553506	34.94967946	3.262462242	1677.444755	0.001311163	0.001205566
Kern (SJV)	2045	HHDT	Aggregated	30	DSL	326840.1435	0.12299739	0.142053687	0.732537156	1.643534014	1575.265162	0.006190658	0.005922853
Kern (SJV)	2045	HHDT	Aggregated	35	GAS	1271.237605	0.290768259	0.424288362	32.29395931	3.065694375	1608.803293	0.001077997	0.000991178
Kern (SJV)	2045	HHDT	Aggregated	35	DSL	597302.961	0.090526825	0.105102719	0.540782437	1.092243006	1505.668401	0.005748152	0.005499489
Kern (SJV)	2045	HHDT	Aggregated	50	GAS	1244.032328	0.222054561	0.324021494	25.73535419	2.832334578	1497.659037	0.000825864	0.000759351
Kern (SJV)	2045	HHDT	Aggregated	50	DSL	934635.5824	0.036388205	0.041537418	0.215167853	0.435136627	1336.338018	0.004739341	0.004534319
Kern (SJV)	2045	HHDT	Aggregated	55	GAS	1817.227541	0.226773043	0.330906691	24.08067233	2.826691856	1469.459576	0.000841024	0.000773291
Kern (SJV)	2045	HHDT	Aggregated	55	DSL	1100715.907	0.026833463	0.030547855	0.158427868	0.340642962	1293.02997	0.004473924	0.004280384
Kern (SJV)	2045	LHDT1	Aggregated	30	GAS	16389.60126	0.003842102	0.005606387	0.145347402	0.042132733	635.8681673	0.001277375	0.001174499
Kern (SJV)	2045	LHDT1	Aggregated	30	DSL	26666.56739	0.053219144	0.060586457	0.252022691	0.22483617	426.5397599	0.007738548	0.007403782
Kern (SJV)	2045	LHDT1	Aggregated	35	GAS	6233.106282	0.003132169	0.004570454	0.133060068	0.040334166	635.8681673	0.001050217	0.000965636
Kern (SJV)	2045	LHDT1	Aggregated	35	DSL	14078.94074	0.042783664	0.048706357	0.204576061	0.225176768	426.5397599	0.006957098	0.006656137
Kern (SJV)	2045	LHDT1	Aggregated	50	GAS	17034.32622	0.002423412	0.003536238	0.107405998	0.036374284	664.9820141	0.000804582	0.000739783
Kern (SJV)	2045	LHDT1	Aggregated	50	DSL	32223.10084	0.027215862	0.030983449	0.137515114	0.234776256	424.2381345	0.005626054	0.005382673
Kern (SJV)	2045	LHDT1	Aggregated	55	GAS	4992.588727	0.002419979	0.003531227	0.09831867	0.037944045	700.6325176	0.000819351	0.000753363
Kern (SJV)	2045	LHDT1	Aggregated	55	DSL	19413.02624	0.024671491	0.028086852	0.129058898	0.240745078	443.3137954	0.005403029	0.005169297
Kern (SJV)	2045	LHDT2	Aggregated	30	GAS	5600.660616	0.00350277	0.005111234	0.137016342	0.033091815	714.434597	0.001306262	0.00120106
Kern (SJV)	2045	LHDT2	Aggregated	30	DSL	13289.67241	0.048201149	0.054873803	0.213999037	0.066455968	480.4316029	0.00791624	0.007573787

Table A.4. EMFAC2014 Model Output for Trucks in Kern County at Specific Speeds in Calendar Years 2018, 2019, 2020, 2025, 2030, 2035, 2045, and 2050
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Sub-Area
Region: Kern (SJV)
Calendar Year: 2018, 2019, 2020, 2025, 2030, 2035, 2045, 2050
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Kern (SJV)	2045	LHDT2	Aggregated	35	GAS	2129.979388	0.002855538	0.004166794	0.125433296	0.031679187	714.434597	0.001073967	0.000987473
Kern (SJV)	2045	LHDT2	Aggregated	35	DSL	7016.445258	0.038362815	0.043673514	0.170487356	0.059973955	480.4316029	0.007154828	0.006845313
Kern (SJV)	2045	LHDT2	Aggregated	50	GAS	5820.976268	0.002209378	0.00322392	0.101249673	0.028569024	710.6562212	0.000822777	0.000756513
Kern (SJV)	2045	LHDT2	Aggregated	50	DSL	16058.85181	0.023242988	0.026460597	0.103917257	0.049533457	461.3332575	0.005699221	0.005452676
Kern (SJV)	2045	LHDT2	Aggregated	55	GAS	1706.06927	0.002206248	0.003219351	0.092683215	0.029801943	743.0119809	0.00083788	0.0007704
Kern (SJV)	2045	LHDT2	Aggregated	55	DSL	9674.764484	0.020471177	0.023305074	0.091909324	0.047859909	477.5021419	0.005373986	0.00514151
Kern (SJV)	2045	MHDT	Aggregated	30	GAS	4848.236073	0.010183409	0.014859607	0.213917092	0.093007307	1212.758434	0.001309974	0.001204472
Kern (SJV)	2045	MHDT	Aggregated	30	DSL	41288.93251	0.053262404	0.060635192	0.280284716	0.848192917	1196.998001	0.003380929	0.003234671
Kern (SJV)	2045	MHDT	Aggregated	35	GAS	5997.804507	0.008363491	0.012203987	0.197257138	0.087738404	1119.670106	0.001077019	0.000990279
Kern (SJV)	2045	MHDT	Aggregated	35	DSL	46982.73866	0.039251562	0.044684916	0.206554212	0.565614652	1143.433572	0.003138996	0.003003204
Kern (SJV)	2045	MHDT	Aggregated	50	GAS	6677.888085	0.006380425	0.009310301	0.157036488	0.081225434	905.4113317	0.000825115	0.000758662
Kern (SJV)	2045	MHDT	Aggregated	50	DSL	56512.00059	0.015710535	0.017885248	0.082674263	0.226764398	1029.545792	0.002590669	0.002478598
Kern (SJV)	2045	MHDT	Aggregated	55	GAS	8941.860236	0.006476091	0.009449897	0.14606213	0.082092089	880.4556507	0.000840261	0.000772589
Kern (SJV)	2045	MHDT	Aggregated	55	DSL	94916.65745	0.011578595	0.013181349	0.060930927	0.178789799	1001.061696	0.002446566	0.002340729
Kern (SJV)	2050	HHDT	Aggregated	30	GAS	779.0806734	0.353718024	0.516144511	34.99458761	3.265544808	1677.024288	0.001312802	0.001207073
Kern (SJV)	2050	HHDT	Aggregated	30	DSL	345738.9595	0.123096082	0.142007121	0.733225221	1.638323056	1577.941304	0.006195403	0.005927392
Kern (SJV)	2050	HHDT	Aggregated	35	GAS	1387.151121	0.291111997	0.424789943	32.33545502	3.068591023	1608.400032	0.001079344	0.000992417
Kern (SJV)	2050	HHDT	Aggregated	35	DSL	631809.2609	0.090592148	0.104998073	0.541284441	1.085985558	1508.119594	0.005751953	0.005503126
Kern (SJV)	2050	HHDT	Aggregated	50	GAS	1357.465222	0.222317067	0.324404542	25.76842251	2.835010734	1497.283635	0.000826896	0.0007603
Kern (SJV)	2050	HHDT	Aggregated	50	DSL	988793.8243	0.036417104	0.041555762	0.215357099	0.430720238	1338.929158	0.004742842	0.004537669
Kern (SJV)	2050	HHDT	Aggregated	55	GAS	1982.925308	0.227041127	0.33129788	24.11161449	2.829362681	1469.091243	0.000842075	0.000774257
Kern (SJV)	2050	HHDT	Aggregated	55	DSL	1164526.857	0.026854865	0.030572219	0.158563978	0.336671745	1295.613986	0.004476946	0.004283275
Kern (SJV)	2050	LHDT1	Aggregated	30	GAS	17470.36181	0.003499515	0.005106484	0.139639314	0.034135625	633.6154932	0.001297058	0.001192597
Kern (SJV)	2050	LHDT1	Aggregated	30	DSL	28443.29066	0.049611849	0.056479791	0.231590199	0.091364804	424.1056214	0.006553508	0.006270006
Kern (SJV)	2050	LHDT1	Aggregated	35	GAS	6644.128809	0.002852884	0.004162922	0.127834528	0.032678439	633.6154932	0.0010664	0.000980516
Kern (SJV)	2050	LHDT1	Aggregated	35	DSL	15016.98355	0.039546132	0.045020642	0.185082875	0.085560405	424.1056214	0.005916775	0.005660818
Kern (SJV)	2050	LHDT1	Aggregated	50	GAS	18157.60112	0.002207325	0.003220923	0.103187946	0.029470172	662.6261992	0.00081698	0.000751183
Kern (SJV)	2050	LHDT1	Aggregated	50	DSL	34370.04132	0.02414346	0.027485724	0.114776034	0.077474099	421.8171307	0.004727566	0.004523054
Kern (SJV)	2050	LHDT1	Aggregated	55	GAS	5321.809238	0.002204197	0.003216359	0.094457495	0.030741981	698.1504046	0.000831977	0.000764972
Kern (SJV)	2050	LHDT1	Aggregated	55	DSL	20706.46513	0.021363689	0.024321139	0.102651291	0.076795993	440.7839324	0.004474663	0.004281091
Kern (SJV)	2050	LHDT2	Aggregated	30	GAS	6082.428219	0.003449556	0.005033584	0.136584797	0.031919211	713.9193606	0.001311133	0.001205538
Kern (SJV)	2050	LHDT2	Aggregated	30	DSL	14448.97011	0.047962872	0.054602541	0.212940271	0.055645309	479.951209	0.007767351	0.007431339
Kern (SJV)	2050	LHDT2	Aggregated	35	GAS	2313.19975	0.002812156	0.004103492	0.125038233	0.03055664	713.9193606	0.001077972	0.000991155
Kern (SJV)	2050	LHDT2	Aggregated	35	DSL	7628.510674	0.038146091	0.043426789	0.169404572	0.048836496	479.951209	0.007022516	0.006718725
Kern (SJV)	2050	LHDT2	Aggregated	50	GAS	6321.695375	0.002175813	0.003174941	0.100930778	0.027556685	710.1437097	0.000825845	0.000759334

Table A.4. EMFAC2014 Model Output for Trucks in Kern County at Specific Speeds in Calendar Years 2018, 2019, 2020, 2025, 2030, 2035, 2045, and 2050
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Sub-Area
Region: Kern (SJV)
Calendar Year: 2018, 2019, 2020, 2025, 2030, 2035, 2045, 2050
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	PM10_RUNEX	PM2_5_RUNEX
Kern (SJV)	2050	LHDT2	Aggregated	50	DSL	17459.71328	0.023029602	0.026217671	0.10244919	0.037308279	460.8719604	0.005588703	0.005346938
Kern (SJV)	2050	LHDT2	Aggregated	55	GAS	1852.824976	0.00217273	0.003170443	0.092391301	0.028745915	742.4761351	0.000841005	0.000773273
Kern (SJV)	2050	LHDT2	Aggregated	55	DSL	10518.723	0.020238773	0.023040497	0.090142299	0.035185619	477.0246772	0.005263817	0.005036106
Kern (SJV)	2050	MHDT	Aggregated	30	GAS	5292.992829	0.010112181	0.014755671	0.212054063	0.092466063	1212.469484	0.001312528	0.001206821
Kern (SJV)	2050	MHDT	Aggregated	30	DSL	43484.15155	0.053064587	0.060409993	0.279291506	0.836111313	1196.014615	0.003361796	0.003216366
Kern (SJV)	2050	MHDT	Aggregated	35	GAS	6548.01783	0.008304993	0.012118626	0.195539203	0.087227822	1119.403335	0.001079119	0.00099221
Kern (SJV)	2050	MHDT	Aggregated	35	DSL	49480.68172	0.039104952	0.044518012	0.205818487	0.555121745	1142.497606	0.003120983	0.002985971
Kern (SJV)	2050	MHDT	Aggregated	50	GAS	7290.48941	0.006335797	0.00924518	0.155668839	0.080752753	905.1956096	0.000826724	0.000760142
Kern (SJV)	2050	MHDT	Aggregated	50	DSL	59516.58831	0.015650054	0.017816396	0.082370147	0.219499731	1028.711081	0.002574118	0.002462763
Kern (SJV)	2050	MHDT	Aggregated	55	GAS	9762.14883	0.006430794	0.009383799	0.144790058	0.081614364	880.2458746	0.0008419	0.000774096
Kern (SJV)	2050	MHDT	Aggregated	55	DSL	99963.1152	0.011533098	0.013129554	0.060701853	0.172216685	1000.251826	0.002429963	0.002324844

Abbreviations:
CARB - California Air Resources Board
CalYr - calendar year
CO - carbon monoxide
CO2 - carbon dioxide
DSL - diesel
EMFAC - CARB's mobile source emission inventory model
g - grams
GAS - gasoline
HHDT - heavy-heavy duty truck
LDA - passenger car
LDT1 - light duty trucks (0-3750 pounds)
LDT2- light duty trucks (3751-5750 pounds)
LHDT1 - light-heavy duty trucks (8501-10000 pounds)
LHDT2 - light-heavy duty trucks (10001-14000 pounds)
MCY - motorcycle
MdlYr - model year
MDV - medium duty trucks (5751-8500 pounds)
MH - motor homes
MHDT - medium-heavy duty truck
NOX - oxides of nitrogen
OBUS - other buses
PM10 - particulate matter less than 10 microns in diameter
PM2_5 - particulate matter less than 2.5 microns in diameter
PMBW - particulate matter brake wear
PMTW - particulate matter tire wear
ROG - reactive organic gases
RUNEX - running exhaust
SBUS - school bus
SJV - San Joaquin Valley
TOG - total organic gases
UBUS - urban bus
VehClass - vehicle class
VMT - vehicle miles travelled

Source:
\\wcirvfps1\projects\T\Tejon Ranch\Technical_Work\Emissions\[EmissionFactorComparison.xlsx]TA.4_EMFAC_Kern_AllSpds_AllYrs

Table A.5. EMFAC2014 Model Output for Trucks in Kern County at Aggregated Speeds in Calendar Years 2018, 2019, 2020, 2025, 2030, 2035, 2045, and 2050
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Sub-Area
Region: Kern (SJV)
Calendar Year: 2018, 2019, 2020, 2025, 2030, 2035, 2045, 2050
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HTSK and RUNLS, g/vehicle/day for IDLEX, RESTL and DIURN

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT
Kern (SJV)	2018	HHDT	Aggregated	Aggregated	GAS	11563.16701
Kern (SJV)	2018	HHDT	Aggregated	Aggregated	DSL	3528287.296
Kern (SJV)	2018	LHDT1	Aggregated	Aggregated	GAS	277802.6794
Kern (SJV)	2018	LHDT1	Aggregated	Aggregated	DSL	332364.7974
Kern (SJV)	2018	LHDT2	Aggregated	Aggregated	GAS	67583.63102
Kern (SJV)	2018	LHDT2	Aggregated	Aggregated	DSL	130760.0795
Kern (SJV)	2018	MHDT	Aggregated	Aggregated	GAS	50479.49749
Kern (SJV)	2018	MHDT	Aggregated	Aggregated	DSL	533399.2955
Kern (SJV)	2019	HHDT	Aggregated	Aggregated	GAS	11370.59637
Kern (SJV)	2019	HHDT	Aggregated	Aggregated	DSL	3672832.232
Kern (SJV)	2019	LHDT1	Aggregated	Aggregated	GAS	258148.7738
Kern (SJV)	2019	LHDT1	Aggregated	Aggregated	DSL	316338.3367
Kern (SJV)	2019	LHDT2	Aggregated	Aggregated	GAS	63288.35982
Kern (SJV)	2019	LHDT2	Aggregated	Aggregated	DSL	125146.8837
Kern (SJV)	2019	MHDT	Aggregated	Aggregated	GAS	49942.2548
Kern (SJV)	2019	MHDT	Aggregated	Aggregated	DSL	541461.4622
Kern (SJV)	2020	HHDT	Aggregated	Aggregated	GAS	11047.33334
Kern (SJV)	2020	HHDT	Aggregated	Aggregated	DSL	3810668.538
Kern (SJV)	2020	LHDT1	Aggregated	Aggregated	GAS	239927.2344
Kern (SJV)	2020	LHDT1	Aggregated	Aggregated	DSL	301471.5839
Kern (SJV)	2020	LHDT2	Aggregated	Aggregated	GAS	59419.23589
Kern (SJV)	2020	LHDT2	Aggregated	Aggregated	DSL	120058.9242
Kern (SJV)	2020	MHDT	Aggregated	Aggregated	GAS	49626.8019
Kern (SJV)	2020	MHDT	Aggregated	Aggregated	DSL	548516.0157
Kern (SJV)	2025	HHDT	Aggregated	Aggregated	GAS	8986.385493
Kern (SJV)	2025	HHDT	Aggregated	Aggregated	DSL	4280008.853
Kern (SJV)	2025	LHDT1	Aggregated	Aggregated	GAS	170540.2842
Kern (SJV)	2025	LHDT1	Aggregated	Aggregated	DSL	242652.4553
Kern (SJV)	2025	LHDT2	Aggregated	Aggregated	GAS	45605.61207
Kern (SJV)	2025	LHDT2	Aggregated	Aggregated	DSL	101163.7126
Kern (SJV)	2025	MHDT	Aggregated	Aggregated	GAS	50117.20764
Kern (SJV)	2025	MHDT	Aggregated	Aggregated	DSL	532619.6113
Kern (SJV)	2030	HHDT	Aggregated	Aggregated	GAS	7857.904264
Kern (SJV)	2030	HHDT	Aggregated	Aggregated	DSL	4582894.15
Kern (SJV)	2030	LHDT1	Aggregated	Aggregated	GAS	133567.6361
Kern (SJV)	2030	LHDT1	Aggregated	Aggregated	DSL	209710.3176
Kern (SJV)	2030	LHDT2	Aggregated	Aggregated	GAS	39270.96858
Kern (SJV)	2030	LHDT2	Aggregated	Aggregated	DSL	92304.36371
Kern (SJV)	2030	MHDT	Aggregated	Aggregated	GAS	52915.31362
Kern (SJV)	2030	MHDT	Aggregated	Aggregated	DSL	520074.2266
Kern (SJV)	2035	HHDT	Aggregated	Aggregated	GAS	7839.071583
Kern (SJV)	2035	HHDT	Aggregated	Aggregated	DSL	4894986.735
Kern (SJV)	2035	LHDT1	Aggregated	Aggregated	GAS	120637.9126
Kern (SJV)	2035	LHDT1	Aggregated	Aggregated	DSL	199284.5569
Kern (SJV)	2035	LHDT2	Aggregated	Aggregated	GAS	38076.34379
Kern (SJV)	2035	LHDT2	Aggregated	Aggregated	DSL	92495.74872
Kern (SJV)	2035	MHDT	Aggregated	Aggregated	GAS	57145.22946
Kern (SJV)	2035	MHDT	Aggregated	Aggregated	DSL	535569.8168
Kern (SJV)	2045	HHDT	Aggregated	Aggregated	GAS	9096.219233
Kern (SJV)	2045	HHDT	Aggregated	Aggregated	DSL	5544271.636
Kern (SJV)	2045	LHDT1	Aggregated	Aggregated	GAS	125762.8887
Kern (SJV)	2045	LHDT1	Aggregated	Aggregated	DSL	212681.4176
Kern (SJV)	2045	LHDT2	Aggregated	Aggregated	GAS	42975.74091

Table A.5. EMFAC2014 Model Output for Trucks in Kern County at Aggregated Speeds in Calendar Years 2018, 2019, 2020, 2025, 2030, 2035, 2045, and 2050
Tejon Ranch
Lebec, California

EMFAC2014 (v1.0.7) Emission Rates
Region Type: Sub-Area
Region: Kern (SJV)
Calendar Year: 2018, 2019, 2020, 2025, 2030, 2035, 2045, 2050
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HTSK and RUNLS, g/vehicle/day for IDLEX, RESTL and DIURN

Region	CalYr	VehClass	MdlYr	Speed	Fuel	VMT
Kern (SJV)	2045	LHDT2	Aggregated	Aggregated	DSL	105992.8834
Kern (SJV)	2045	MHDT	Aggregated	Aggregated	GAS	67965.58859
Kern (SJV)	2045	MHDT	Aggregated	Aggregated	DSL	598307.2348
Kern (SJV)	2050	HHDT	Aggregated	Aggregated	GAS	9925.627321
Kern (SJV)	2050	HHDT	Aggregated	Aggregated	DSL	5864846.076
Kern (SJV)	2050	LHDT1	Aggregated	Aggregated	GAS	134055.9256
Kern (SJV)	2050	LHDT1	Aggregated	Aggregated	DSL	226851.8213
Kern (SJV)	2050	LHDT2	Aggregated	Aggregated	GAS	46672.50476
Kern (SJV)	2050	LHDT2	Aggregated	Aggregated	DSL	115238.9582
Kern (SJV)	2050	MHDT	Aggregated	Aggregated	GAS	74200.46541
Kern (SJV)	2050	MHDT	Aggregated	Aggregated	DSL	630117.5857

Notes:
1. Only a portion of the model output that is used in the analyses is shown.

Abbreviations:
CalYr - calendar year
CARB - California Air Resources Board
DIUR - diurnal loss
DSL - diesel
ELEC - electric
EMFAC - CARB's mobile source emission inventory model
g - grams
GAS - gasoline
HHDT - heavy-heavy duty truck
HTSK - hot soak
IDLEX - idling exhaust
LDA - passenger car
LDT1 - light duty trucks (0-3750 pounds)
LDT2- light duty trucks (3751-5750 pounds)
LHDT1 - light-heavy duty trucks (8501-10000 pounds)
LHDT2 - light-heavy duty trucks (10001-14000 pounds)
MCY - motorcycle
MdlYr - model year
MDV - medium duty trucks (5751-8500 pounds)
MH - motor homes
MHDT - medium-heavy duty truck
OBUS - other buses
PMBW - particulate matter brake wear
PMTW - particulate matter tire wear
RESTL - resting loss
RUNEX - running exhaust
RUNLS - running loss
SBUS - school bus
SJV - San Joaquin Valley
STREX - starting exhaust
UBUS - urban bus
VehClass - vehicle class
VMT - vehicle miles travelled

Source:
\\wcirvfps1\projects\T\Tejon Ranch\Technical_Work\Emissions\[EmissionFactorComparison.xlsx]TA.5_EMFAC_Kern_AggSpds_AllYrs

Table A.6. Vehicle Miles Travelled by Trucks in Kern County
Tejon Ranch
Lebec, California

		Vehicle Miles Travelled							
EMFAC Vehicle Class		LHDT1	LHDT1	LHDT2	LHDT2	MHDT	MHDT	HHDT	HHDT
Fuel		GAS	DSL	GAS	DSL	GAS	DSL	GAS	DSL
Calendar Year	2015	340,324	378,435	80,833	147,191	52,476	509,656	11,135	3,139,094
	2018	277,803	332,365	67,584	130,760	50,479	533,399	11,563	3,528,287
	2019	258,149	316,338	63,288	125,147	49,942	541,461	11,371	3,672,832
	2020	239,927	301,472	59,419	120,059	49,627	548,516	11,047	3,810,669
	2025	170,540	242,652	45,606	101,164	50,117	532,620	8,986	4,280,009
	2030	133,568	209,710	39,271	92,304	52,915	520,074	7,858	4,582,894
	2035	120,638	199,285	38,076	92,496	57,145	535,570	7,839	4,894,987
	2040	120,340	201,905	39,886	98,000	62,254	564,062	8,358	5,220,817
	2045	125,763	212,681	42,976	105,993	67,966	598,307	9,096	5,544,272
	2050	134,056	226,852	46,673	115,239	74,200	630,118	9,926	5,864,846

Notes:

1. Vehicle miles travelled for each combination of vehicle class, fuel, and calendar year are obtained from EMFAC2014 Model Output Table A.2 and Table A.5.

Abbreviations:

CARB - California Air Resources Board

DSL - diesel

EMFAC - CARB's mobile source emission inventory model

GAS - gasoline

HHDT - heavy-heavy duty truck

LHDT1 - light-heavy duty trucks (8501-10000 pounds)

LHDT2 - light-heavy duty trucks (10001-14000 pounds)

MHDT - medium-heavy duty truck

Source:

\\wcirvfps1\projects\T\Tejon Ranch\Technical_Work\Emissions\[EmissionFactorComparison.xlsx]TA.6_Truck_VMT

Table A.7. Diesel Particulate Matter Emission Factors for Trucks from Calendar Year 2018 to 2050
Tejon Ranch
Lebec, California

Calendar Year	Speed (mph)	Diesel Particulate Emission Factors[1] (g/mile)								Diesel Particulate Matter Emission Factors for Trucks (g/mile)[2]
		LHDT1 GAS	LHDT1 DSL	LHDT2 GAS	LHDT2 DSL	MHDT GAS	MHDT DSL	HHDT GAS	HHDT DSL	
2018	55	0.00E+00	2.52E-02	0.00E+00	2.05E-02	0.00E+00	1.22E-01	0.00E+00	2.38E-02	3.25E-02
	50	0.00E+00	2.45E-02	0.00E+00	2.01E-02	0.00E+00	1.09E-01	0.00E+00	2.37E-02	3.10E-02
	35	0.00E+00	2.84E-02	0.00E+00	2.35E-02	0.00E+00	9.79E-02	0.00E+00	2.66E-02	3.22E-02
	30	0.00E+00	3.23E-02	0.00E+00	2.67E-02	0.00E+00	1.03E-01	0.00E+00	2.89E-02	3.47E-02
2019	55	0.00E+00	2.47E-02	0.00E+00	1.97E-02	0.00E+00	1.06E-01	0.00E+00	2.16E-02	2.92E-02
	50	0.00E+00	2.40E-02	0.00E+00	1.94E-02	0.00E+00	9.45E-02	0.00E+00	2.16E-02	2.79E-02
	35	0.00E+00	2.79E-02	0.00E+00	2.28E-02	0.00E+00	8.39E-02	0.00E+00	2.44E-02	2.91E-02
	30	0.00E+00	3.17E-02	0.00E+00	2.58E-02	0.00E+00	8.79E-02	0.00E+00	2.64E-02	3.14E-02
2020	55	0.00E+00	2.40E-02	0.00E+00	1.89E-02	0.00E+00	7.20E-02	0.00E+00	1.81E-02	2.29E-02
	50	0.00E+00	2.34E-02	0.00E+00	1.87E-02	0.00E+00	6.49E-02	0.00E+00	1.83E-02	2.23E-02
	35	0.00E+00	2.72E-02	0.00E+00	2.20E-02	0.00E+00	5.55E-02	0.00E+00	2.08E-02	2.34E-02
	30	0.00E+00	3.09E-02	0.00E+00	2.49E-02	0.00E+00	5.62E-02	0.00E+00	2.24E-02	2.50E-02
2021	55	--	--	--	--	--	--	--	--	1.94E-02
	50	--	--	--	--	--	--	--	--	1.89E-02
	35	--	--	--	--	--	--	--	--	2.00E-02
	30	--	--	--	--	--	--	--	--	2.14E-02
2022	55	--	--	--	--	--	--	--	--	1.59E-02
	50	--	--	--	--	--	--	--	--	1.55E-02
	35	--	--	--	--	--	--	--	--	1.67E-02
	30	--	--	--	--	--	--	--	--	1.79E-02
2023	55	--	--	--	--	--	--	--	--	1.23E-02
	50	--	--	--	--	--	--	--	--	1.22E-02
	35	--	--	--	--	--	--	--	--	1.33E-02
	30	--	--	--	--	--	--	--	--	1.43E-02
2024	55	--	--	--	--	--	--	--	--	8.77E-03
	50	--	--	--	--	--	--	--	--	8.81E-03
	35	--	--	--	--	--	--	--	--	9.94E-03
	30	--	--	--	--	--	--	--	--	1.07E-02
2025	55	0.00E+00	1.94E-02	0.00E+00	1.41E-02	0.00E+00	2.81E-03	0.00E+00	4.85E-03	5.23E-03
	50	0.00E+00	1.91E-02	0.00E+00	1.41E-02	0.00E+00	2.94E-03	0.00E+00	5.14E-03	5.45E-03
	35	0.00E+00	2.25E-02	0.00E+00	1.70E-02	0.00E+00	3.51E-03	0.00E+00	6.23E-03	6.57E-03
	30	0.00E+00	2.55E-02	0.00E+00	1.91E-02	0.00E+00	3.78E-03	0.00E+00	6.71E-03	7.15E-03
2026	55	--	--	--	--	--	--	--	--	5.12E-03
	50	--	--	--	--	--	--	--	--	5.35E-03
	35	--	--	--	--	--	--	--	--	6.45E-03
	30	--	--	--	--	--	--	--	--	7.01E-03
2027	55	--	--	--	--	--	--	--	--	5.02E-03
	50	--	--	--	--	--	--	--	--	5.24E-03
	35	--	--	--	--	--	--	--	--	6.33E-03
	30	--	--	--	--	--	--	--	--	6.88E-03

Table A.7. Diesel Particulate Matter Emission Factors for Trucks from Calendar Year 2018 to 2050
Tejon Ranch
Lebec, California

Calendar Year	Speed (mph)	Diesel Particulate Emission Factors[1] (g/mile)								Diesel Particulate Matter Emission Factors for Trucks (g/mile)[2]
		LHDT1 GAS	LHDT1 DSL	LHDT2 GAS	LHDT2 DSL	MHDT GAS	MHDT DSL	HHDT GAS	HHDT DSL	
2028	55	--	--	--	--	--	--	--	--	4.91E-03
	50	--	--	--	--	--	--	--	--	5.14E-03
	35	--	--	--	--	--	--	--	--	6.21E-03
	30	--	--	--	--	--	--	--	--	6.74E-03
2029	55	--	--	--	--	--	--	--	--	4.80E-03
	50	--	--	--	--	--	--	--	--	5.04E-03
	35	--	--	--	--	--	--	--	--	6.09E-03
	30	--	--	--	--	--	--	--	--	6.61E-03
2030	55	0.00E+00	1.40E-02	0.00E+00	9.54E-03	0.00E+00	2.72E-03	0.00E+00	4.64E-03	4.70E-03
	50	0.00E+00	1.39E-02	0.00E+00	9.82E-03	0.00E+00	2.86E-03	0.00E+00	4.91E-03	4.93E-03
	35	0.00E+00	1.66E-02	0.00E+00	1.20E-02	0.00E+00	3.44E-03	0.00E+00	5.96E-03	5.97E-03
	30	0.00E+00	1.87E-02	0.00E+00	1.34E-02	0.00E+00	3.70E-03	0.00E+00	6.41E-03	6.47E-03
2031	55	--	--	--	--	--	--	--	--	4.63E-03
	50	--	--	--	--	--	--	--	--	4.87E-03
	35	--	--	--	--	--	--	--	--	5.90E-03
	30	--	--	--	--	--	--	--	--	6.39E-03
2032	55	--	--	--	--	--	--	--	--	4.57E-03
	50	--	--	--	--	--	--	--	--	4.81E-03
	35	--	--	--	--	--	--	--	--	5.82E-03
	30	--	--	--	--	--	--	--	--	6.30E-03
2033	55	--	--	--	--	--	--	--	--	4.51E-03
	50	--	--	--	--	--	--	--	--	4.74E-03
	35	--	--	--	--	--	--	--	--	5.75E-03
	30	--	--	--	--	--	--	--	--	6.22E-03
2034	55	--	--	--	--	--	--	--	--	4.44E-03
	50	--	--	--	--	--	--	--	--	4.68E-03
	35	--	--	--	--	--	--	--	--	5.68E-03
	30	--	--	--	--	--	--	--	--	6.14E-03
2035	55	0.00E+00	9.60E-03	0.00E+00	6.90E-03	0.00E+00	2.60E-03	0.00E+00	4.51E-03	4.38E-03
	50	0.00E+00	9.72E-03	0.00E+00	7.23E-03	0.00E+00	2.75E-03	0.00E+00	4.78E-03	4.62E-03
	35	0.00E+00	1.17E-02	0.00E+00	8.99E-03	0.00E+00	3.32E-03	0.00E+00	5.80E-03	5.60E-03
	30	0.00E+00	1.32E-02	0.00E+00	9.98E-03	0.00E+00	3.57E-03	0.00E+00	6.24E-03	6.06E-03
2036	55	--	--	--	--	--	--	--	--	4.35E-03
	50	--	--	--	--	--	--	--	--	4.59E-03
	35	--	--	--	--	--	--	--	--	5.57E-03
	30	--	--	--	--	--	--	--	--	6.02E-03
2037	55	--	--	--	--	--	--	--	--	4.32E-03
	50	--	--	--	--	--	--	--	--	4.56E-03
	35	--	--	--	--	--	--	--	--	5.53E-03
	30	--	--	--	--	--	--	--	--	5.98E-03

Table A.7. Diesel Particulate Matter Emission Factors for Trucks from Calendar Year 2018 to 2050
Tejon Ranch
Lebec, California

Calendar Year	Speed (mph)	Diesel Particulate Emission Factors[1] (g/mile)								Diesel Particulate Matter Emission Factors for Trucks (g/mile)[2]
		LHDT1 GAS	LHDT1 DSL	LHDT2 GAS	LHDT2 DSL	MHDT GAS	MHDT DSL	HHDT GAS	HHDT DSL	
2038	55	--	--	--	--	--	--	--	--	4.29E-03
	50	--	--	--	--	--	--	--	--	4.53E-03
	35	--	--	--	--	--	--	--	--	5.50E-03
	30	--	--	--	--	--	--	--	--	5.94E-03
2039	55	--	--	--	--	--	--	--	--	4.26E-03
	50	--	--	--	--	--	--	--	--	4.50E-03
	35	--	--	--	--	--	--	--	--	5.46E-03
	30	--	--	--	--	--	--	--	--	5.90E-03
2040	55	0.00E+00	6.86E-03	0.00E+00	5.75E-03	0.00E+00	2.50E-03	0.00E+00	4.47E-03	4.23E-03
	50	0.00E+00	7.05E-03	0.00E+00	6.08E-03	0.00E+00	2.64E-03	0.00E+00	4.74E-03	4.47E-03
	35	0.00E+00	8.62E-03	0.00E+00	7.62E-03	0.00E+00	3.20E-03	0.00E+00	5.75E-03	5.43E-03
	30	0.00E+00	9.63E-03	0.00E+00	8.43E-03	0.00E+00	3.44E-03	0.00E+00	6.19E-03	5.86E-03
2041	55	--	--	--	--	--	--	--	--	4.22E-03
	50	--	--	--	--	--	--	--	--	4.46E-03
	35	--	--	--	--	--	--	--	--	5.42E-03
	30	--	--	--	--	--	--	--	--	5.85E-03
2042	55	--	--	--	--	--	--	--	--	4.21E-03
	50	--	--	--	--	--	--	--	--	4.45E-03
	35	--	--	--	--	--	--	--	--	5.40E-03
	30	--	--	--	--	--	--	--	--	5.83E-03
2043	55	--	--	--	--	--	--	--	--	4.20E-03
	50	--	--	--	--	--	--	--	--	4.44E-03
	35	--	--	--	--	--	--	--	--	5.39E-03
	30	--	--	--	--	--	--	--	--	5.82E-03
2044	55	--	--	--	--	--	--	--	--	4.18E-03
	50	--	--	--	--	--	--	--	--	4.43E-03
	35	--	--	--	--	--	--	--	--	5.38E-03
	30	--	--	--	--	--	--	--	--	5.80E-03
2045	55	0.00E+00	5.40E-03	0.00E+00	5.37E-03	0.00E+00	2.45E-03	0.00E+00	4.47E-03	4.17E-03
	50	0.00E+00	5.63E-03	0.00E+00	5.70E-03	0.00E+00	2.59E-03	0.00E+00	4.74E-03	4.42E-03
	35	0.00E+00	6.96E-03	0.00E+00	7.15E-03	0.00E+00	3.14E-03	0.00E+00	5.75E-03	5.37E-03
	30	0.00E+00	7.74E-03	0.00E+00	7.92E-03	0.00E+00	3.38E-03	0.00E+00	6.19E-03	5.79E-03
2046	55	--	--	--	--	--	--	--	--	4.17E-03
	50	--	--	--	--	--	--	--	--	4.41E-03
	35	--	--	--	--	--	--	--	--	5.36E-03
	30	--	--	--	--	--	--	--	--	5.78E-03
2047	55	--	--	--	--	--	--	--	--	4.16E-03
	50	--	--	--	--	--	--	--	--	4.41E-03
	35	--	--	--	--	--	--	--	--	5.35E-03
	30	--	--	--	--	--	--	--	--	5.77E-03

Table A.7. Diesel Particulate Matter Emission Factors for Trucks from Calendar Year 2018 to 2050
Tejon Ranch
Lebec, California

Calendar Year	Speed (mph)	Diesel Particulate Emission Factors[1] (g/mile)								Diesel Particulate Matter Emission Factors for Trucks (g/mile)[2]
		LHDT1 GAS	LHDT1 DSL	LHDT2 GAS	LHDT2 DSL	MHDT GAS	MHDT DSL	HHDT GAS	HHDT DSL	
2048	55	--	--	--	--	--	--	--	--	4.15E-03
	50	--	--	--	--	--	--	--	--	4.40E-03
	35	--	--	--	--	--	--	--	--	5.34E-03
	30	--	--	--	--	--	--	--	--	5.77E-03
2049	55	--	--	--	--	--	--	--	--	4.15E-03
	50	--	--	--	--	--	--	--	--	4.39E-03
	35	--	--	--	--	--	--	--	--	5.34E-03
	30	--	--	--	--	--	--	--	--	5.76E-03
2050 and Beyond[3]	55	0.00E+00	4.47E-03	0.00E+00	5.26E-03	0.00E+00	2.43E-03	0.00E+00	4.48E-03	4.14E-03
	50	0.00E+00	4.73E-03	0.00E+00	5.59E-03	0.00E+00	2.57E-03	0.00E+00	4.74E-03	4.39E-03
	35	0.00E+00	5.92E-03	0.00E+00	7.02E-03	0.00E+00	3.12E-03	0.00E+00	5.75E-03	5.33E-03
	30	0.00E+00	6.55E-03	0.00E+00	7.77E-03	0.00E+00	3.36E-03	0.00E+00	6.20E-03	5.75E-03

Notes:

1. For purposes of this analysis, diesel particulate matter emissions are assumed to be equal to PM_{10} running exhaust emissions from diesel vehicles. Therefore, emission factors for the gasoline vehicles are set to zero. For diesel vehicles, emission factors for each combination of vehicle class, speed, and calendar year are obtained from EMFAC2014 Model Output Table A.1 and Table A.4.
2. Emission factors for calendar years 2018, 2019, 2020, 2025, 2030, 2035, 2040, 2045, and 2050 are calculated as a VMT weighted average using the VMT data summarized in Table A.6. Emission factors for all other calendar years are estimated by interpolation.
3. Since calendar year 2050 is the furthest future year that can be modeled in EMFAC2014, emission factors for all calendar years beyond 2050 are assumed to equal to that in 2050.

Abbreviations:
CARB - California Air Resources Board
DSL - diesel
EMFAC - CARB's mobile source emission inventory model
g - grams
GAS - gasoline
HHDT - heavy-heavy duty truck
LHDT1 - light-heavy duty trucks (8501-10000 pounds)
LHDT2 - light-heavy duty trucks (10001-14000 pounds)
MHDT - medium-heavy duty truck

Source:
P:\T\Tejon Ranch\Technical_Work\Emissions\[EmissionFactorComparison.xlsx]TA.7_Truck_EF

APPENDIX B
LIST OF AIR DISPERSION MODELING FILES

This appendix is provided in electronic format

List of Tables

Model Run 1: AERMOD Model Run for Receptors in Zone 1
Model Run 2: AERMOD Model Run for Receptors in Zone 2
Model Run 3: AERMOD Model Run for Receptors in Zone 3
Model Run 4: AERMOD Model Run for Receptors in Zone 4
Model Run 5: AERMOD Model Run for Receptors in Zone 5
Model Run 6: AERMOD Model Run for Receptors in Zone 6
Model Run 7: AERMOD Model Run for Receptors in Zone 7
Model Run 8: AERMOD Model Run for Receptors in Zone 8
Model Run 9: AERMOD Model Run for Receptors in Zone 9
Model Run 10: AERMOD Model Run for Receptors in Zone 10
Model Run 11: AERMOD Model Run for Receptors in Zone 11
Model Run 12: AERMOD Model Run for Receptors in Zone 12
Model Run 13: AERMOD Model Run for Receptors in Zone 13
Model Run 14: AERMOD Model Run for Receptors in Zone 14
Model Run 15: AERMOD Model Run for Receptors in Zone 15

APPENDIX C
LIST OF HARP2 MODELING FILES

This appendix is provided in electronic format

List of Tables

Model Run 1: Existing No Project HARP2 Model Run using 2015 Emission Factors
Model Run 2: Future No Project HARP2 Model Run using 2040 Emission Factors
Model Run 3: Existing Plus Project HARP2 Model Run using 2040 Emission Factors
Model Run 4: Future Plus Project HARP2 Model Run using 2040 Emission Factors

APPENDIX D
HEALTH RISK ASSESSMENT RESULTS AT SENSITIVE RECEPTORS

List of Tables

Table D.1: Cancer Risk Estimates at Sensitive Receptors
Table D.2: Chronic Non-Cancer Hazard Index Estimates at Sensitive Receptors

Table D.1. Cancer Risk Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2,3]	Cancer Risk Estimates (in a million)			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[4]	Future Plus Project 2040
321,817.3	3,867,538.8	Resident	33.2	7.0	3.3	8.0
321,812.1	3,867,638.7	Resident	33.2	7.0	3.3	8.0
321,807.0	3,867,738.5	Resident	32.8	6.9	3.2	7.9
321,801.8	3,867,838.4	Resident	33.0	6.9	3.2	8.0
321,796.6	3,867,938.3	Resident	32.6	6.9	3.2	7.9
321,791.4	3,868,038.1	Resident	32.3	6.8	3.2	7.8
321,786.2	3,868,138.0	Resident	32.2	6.8	3.2	7.8
321,753.7	3,868,209.6	Resident	31.5	6.6	3.1	7.6
321,653.7	3,868,211.5	Resident	30.1	6.3	3.0	7.2
321,625.7	3,868,283.4	Resident	30.1	6.3	3.0	7.2
321,626.5	3,868,383.4	Resident	30.0	6.3	2.9	7.2
321,627.2	3,868,483.4	Resident	30.3	6.3	3.0	7.3
321,628.0	3,868,583.4	Resident	30.3	6.3	3.0	7.2
321,628.8	3,868,683.4	Resident	30.9	6.4	3.0	7.4
321,629.6	3,868,783.4	Resident	31.4	6.5	3.0	7.4
321,630.4	3,868,883.4	Resident	31.2	6.4	3.0	7.4
321,636.1	3,868,982.3	Resident	31.4	6.4	3.0	7.3
321,678.4	3,869,073.0	Resident	32.7	6.6	3.1	7.6
321,720.7	3,869,163.6	Resident	33.8	6.7	3.1	7.7
321,762.9	3,869,254.2	Resident	34.3	6.8	3.1	7.7
321,805.2	3,869,344.8	Resident	36.4	7.0	3.3	8.0
321,847.5	3,869,435.5	Resident	41.5	7.8	3.6	8.9
321,873.7	3,869,529.9	Resident	44.3	8.2	3.8	9.4
321,875.9	3,869,629.8	Resident	43.8	8.0	3.8	9.2
321,878.1	3,869,729.8	Resident	51.1	9.1	4.3	10.5
321,880.3	3,869,829.8	Resident	55.0	9.6	4.7	11.2
321,882.5	3,869,929.8	Resident	56.3	9.8	4.8	11.3
321,884.8	3,870,029.8	Resident	62.1	10.6	5.2	12.4
321,887.0	3,870,129.8	Resident	66.9	11.4	5.6	13.3
321,889.2	3,870,229.7	Resident	68.8	11.6	5.8	13.6
321,891.4	3,870,329.7	Resident	73.4	12.3	6.2	14.4
321,893.6	3,870,429.7	Resident	81.4	13.5	6.9	15.9
321,895.8	3,870,529.7	Resident	83.9	13.9	7.1	16.3
321,898.1	3,870,629.7	Resident	86.0	14.2	7.2	16.7
321,900.3	3,870,729.6	Resident	91.1	15.0	7.7	17.7
321,902.5	3,870,829.6	Resident	93.2	15.3	7.8	18.0
321,904.7	3,870,929.6	Resident	92.8	15.3	7.8	17.9
321,906.9	3,871,029.6	Resident	95.9	15.7	8.0	18.5
321,909.1	3,871,129.6	Resident	102.0	16.7	8.6	19.7
321,911.4	3,871,229.6	Resident	105.3	17.2	8.8	20.3
321,913.6	3,871,329.5	Resident	108.8	17.7	9.1	20.9
321,915.8	3,871,429.5	Resident	114.5	18.6	9.6	22.0
321,918.0	3,871,529.5	Resident	120.5	19.6	10.1	23.1
321,920.2	3,871,629.5	Resident	125.1	20.3	10.5	24.0
324,995.6	3,872,185.7	Resident	29.6	4.9	2.5	5.8
325,095.6	3,872,184.1	Resident	28.3	4.7	2.4	5.6
325,195.6	3,872,182.5	Resident	27.1	4.5	2.3	5.3
325,295.6	3,872,180.8	Resident	26.0	4.4	2.2	5.1
325,395.5	3,872,179.2	Resident	24.9	4.2	2.1	4.9
325,495.5	3,872,177.6	Resident	24.0	4.0	2.0	4.7
323,255.1	3,871,224.5	Resident	158.9	25.7	13.3	30.3
323,266.6	3,871,175.8	Resident	159.5	25.8	13.3	30.4
323,278.1	3,871,127.2	Resident	160.5	25.9	13.4	30.6
323,289.7	3,871,078.5	Resident	159.7	25.8	13.3	30.5
323,301.5	3,871,029.9	Resident	159.1	25.7	13.3	30.4
323,313.4	3,870,981.4	Resident	158.6	25.6	13.2	30.3
323,325.0	3,870,932.7	Resident	158.6	25.6	13.2	30.3

Table D.1. Cancer Risk Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2,3]	Cancer Risk Estimates (in a million)			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[4]	Future Plus Project 2040
323,336.6	3,870,884.1	Resident	158.3	25.6	13.2	30.2
323,348.1	3,870,835.4	Resident	159.1	25.7	13.3	30.4
323,359.7	3,870,786.8	Resident	159.8	25.9	13.4	30.5
323,371.2	3,870,738.1	Resident	160.8	26.0	13.4	30.7
323,382.7	3,870,689.5	Resident	161.8	26.2	13.5	30.9
323,394.2	3,870,640.8	Resident	164.5	26.6	13.7	31.4
323,405.7	3,870,592.2	Resident	164.4	26.6	13.7	31.4
323,417.3	3,870,543.5	Resident	164.4	26.6	13.7	31.4
323,428.9	3,870,494.9	Resident	164.9	26.7	13.8	31.5
323,440.6	3,870,446.3	Resident	164.2	26.6	13.7	31.4
323,452.3	3,870,397.6	Resident	164.0	26.6	13.7	31.4
323,371.8	3,867,980.9	Resident	250.5	51.2	23.6	58.5
323,366.1	3,868,030.6	Resident	251.9	51.1	23.5	58.3
323,359.0	3,868,080.1	Resident	253.0	50.8	23.3	57.9
323,349.6	3,868,129.2	Resident	249.6	49.7	22.7	56.6
323,339.2	3,868,178.1	Resident	247.3	48.7	22.1	55.4
323,328.2	3,868,226.8	Resident	245.4	47.7	21.5	54.1
323,317.2	3,868,275.6	Resident	231.5	44.6	20.0	50.5
323,305.6	3,868,324.3	Resident	226.6	43.1	19.2	48.7
323,294.1	3,868,372.9	Resident	219.7	41.2	18.3	46.6
323,282.4	3,868,421.5	Resident	213.6	39.6	17.5	44.7
323,270.2	3,868,470.0	Resident	214.6	39.2	17.3	44.2
323,258.1	3,868,518.5	Resident	217.8	39.2	17.2	44.1
323,246.7	3,868,567.2	Resident	223.3	39.6	17.4	44.6
323,235.7	3,868,616.0	Resident	226.4	39.7	17.6	44.8
323,224.5	3,868,664.7	Resident	229.9	39.9	17.9	45.2
322,618.4	3,871,193.2	Resident	266.0	42.9	22.2	50.6
322,606.8	3,871,241.9	Resident	266.0	42.8	22.2	50.6
322,595.3	3,871,290.5	Resident	266.6	42.9	22.2	50.7
322,583.8	3,871,339.2	Resident	265.7	42.8	22.1	50.6
322,572.2	3,871,387.8	Resident	265.5	42.7	22.1	50.5
322,560.5	3,871,436.4	Resident	268.2	43.2	22.3	51.0
323,311.5	3,871,203.3	Resident	141.9	23.0	11.9	27.1
323,323.0	3,871,154.6	Resident	142.3	23.0	11.9	27.2
323,334.5	3,871,106.0	Resident	142.3	23.0	11.9	27.2
323,346.3	3,871,057.4	Resident	141.8	23.0	11.9	27.1
323,358.2	3,871,008.8	Resident	141.8	23.0	11.9	27.1
323,369.9	3,870,960.2	Resident	141.6	22.9	11.8	27.1
323,381.4	3,870,911.6	Resident	141.7	23.0	11.8	27.1
323,393.0	3,870,862.9	Resident	141.8	23.0	11.9	27.1
323,404.5	3,870,814.3	Resident	142.7	23.1	11.9	27.3
323,416.1	3,870,765.6	Resident	143.4	23.3	12.0	27.4
323,427.6	3,870,717.0	Resident	144.7	23.5	12.1	27.7
323,439.1	3,870,668.3	Resident	145.8	23.7	12.2	27.9
323,450.6	3,870,619.6	Resident	147.0	23.9	12.3	28.1
323,462.2	3,870,571.0	Resident	148.0	24.0	12.4	28.3
323,473.7	3,870,522.3	Resident	147.8	24.0	12.4	28.3
323,485.4	3,870,473.7	Resident	147.4	23.9	12.3	28.2
323,497.1	3,870,425.1	Resident	147.3	23.9	12.3	28.2
323,508.8	3,870,376.5	Resident	147.8	24.0	12.4	28.3
323,765.9	3,869,306.9	Resident	159.2	26.3	13.3	30.9
323,777.5	3,869,258.3	Resident	159.7	26.4	13.4	31.0
323,800.5	3,869,160.9	Resident	161.4	26.8	13.5	31.4
323,811.9	3,869,112.2	Resident	162.4	27.0	13.6	31.6
323,823.2	3,869,063.6	Resident	163.2	27.1	13.7	31.8
323,834.8	3,869,014.9	Resident	162.3	27.1	13.6	31.7
323,846.4	3,868,966.3	Resident	160.8	26.9	13.4	31.4

Table D.1. Cancer Risk Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2,3]	Cancer Risk Estimates (in a million)			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[4]	Future Plus Project 2040
323,857.9	3,868,917.6	Resident	151.4	25.4	12.7	29.7
323,869.3	3,868,868.9	Resident	144.1	24.4	12.0	28.3
323,880.7	3,868,820.2	Resident	148.2	25.1	12.4	29.2
323,892.1	3,868,771.5	Resident	149.0	25.3	12.4	29.4
323,903.5	3,868,722.9	Resident	152.1	25.9	12.7	30.0
323,915.2	3,868,674.3	Resident	154.1	26.3	12.8	30.5
323,927.3	3,868,625.7	Resident	153.9	26.4	12.8	30.5
323,939.4	3,868,577.2	Resident	153.7	26.5	12.7	30.6
323,951.6	3,868,528.7	Resident	150.8	26.2	12.4	30.1
323,963.9	3,868,480.3	Resident	146.2	25.6	12.0	29.3
323,976.0	3,868,431.7	Resident	149.9	26.4	12.3	30.2
323,990.3	3,868,383.9	Resident	150.8	26.7	12.4	30.5
324,006.7	3,868,336.6	Resident	134.2	24.2	11.1	27.6
324,025.0	3,868,290.1	Resident	120.6	22.2	10.2	25.3
323,319.9	3,867,996.1	Resident	223.3	45.6	21.1	52.2
323,313.5	3,868,045.7	Resident	223.0	45.2	20.8	51.7
323,305.2	3,868,095.0	Resident	220.8	44.4	20.4	50.7
323,295.6	3,868,144.1	Resident	219.6	43.8	20.0	49.9
323,284.6	3,868,192.8	Resident	217.3	42.9	19.5	48.8
323,273.6	3,868,241.6	Resident	210.6	41.2	18.7	46.8
323,262.3	3,868,290.3	Resident	198.8	38.5	17.4	43.7
323,250.7	3,868,339.0	Resident	191.9	36.7	16.5	41.7
323,239.2	3,868,387.6	Resident	185.6	35.2	15.7	39.8
323,227.2	3,868,436.2	Resident	185.9	34.7	15.5	39.2
323,215.0	3,868,484.7	Resident	189.1	34.8	15.4	39.3
323,203.1	3,868,533.2	Resident	188.8	34.3	15.2	38.7
323,192.1	3,868,582.0	Resident	193.2	34.6	15.3	39.1
323,181.0	3,868,630.8	Resident	195.0	34.5	15.4	39.0
322,680.2	3,870,721.7	Resident	235.6	38.1	19.6	44.9
322,668.6	3,870,770.4	Resident	233.7	37.8	19.5	44.6
322,656.9	3,870,819.0	Resident	232.3	37.5	19.4	44.3
322,645.1	3,870,867.6	Resident	233.0	37.6	19.4	44.4
322,633.1	3,870,916.1	Resident	235.2	38.0	19.6	44.8
322,621.2	3,870,964.7	Resident	236.5	38.2	19.7	45.1
322,586.6	3,871,110.6	Resident	239.8	38.7	20.0	45.7
322,575.1	3,871,159.3	Resident	239.8	38.7	20.0	45.7
322,563.5	3,871,207.9	Resident	238.6	38.5	19.9	45.4
322,551.9	3,871,256.6	Resident	239.3	38.6	19.9	45.6
322,540.4	3,871,305.2	Resident	239.0	38.5	19.9	45.5
322,528.9	3,871,353.9	Resident	239.2	38.5	19.9	45.5
322,517.2	3,871,402.5	Resident	241.1	38.9	20.1	45.9
322,505.5	3,871,451.1	Resident	240.6	38.8	20.0	45.8
323,356.4	3,871,230.8	Resident	127.7	20.7	10.7	24.4
323,367.9	3,871,182.1	Resident	127.9	20.7	10.7	24.5
323,379.3	3,871,133.5	Resident	128.4	20.8	10.7	24.6
323,391.1	3,871,084.9	Resident	128.5	20.8	10.7	24.6
323,403.0	3,871,036.3	Resident	128.3	20.8	10.7	24.6
323,414.7	3,870,987.7	Resident	128.4	20.8	10.7	24.6
323,426.3	3,870,939.0	Resident	128.1	20.8	10.7	24.5
323,437.8	3,870,890.4	Resident	128.4	20.9	10.7	24.6
323,449.4	3,870,841.7	Resident	129.3	21.0	10.8	24.8
323,461.0	3,870,793.1	Resident	129.6	21.0	10.8	24.8
323,472.5	3,870,744.4	Resident	130.7	21.2	10.9	25.0
323,484.0	3,870,695.8	Resident	131.5	21.4	11.0	25.2
323,495.5	3,870,647.1	Resident	132.7	21.6	11.1	25.4
323,507.0	3,870,598.5	Resident	133.5	21.7	11.2	25.6
323,518.6	3,870,549.8	Resident	133.9	21.8	11.2	25.7

Table D.1. Cancer Risk Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2,3]	Cancer Risk Estimates (in a million)			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[4]	Future Plus Project 2040
323,530.2	3,870,501.2	Resident	133.8	21.8	11.2	25.7
323,541.9	3,870,452.6	Resident	133.7	21.8	11.2	25.7
323,553.6	3,870,404.0	Resident	134.1	21.8	11.2	25.7
323,565.3	3,870,355.3	Resident	133.8	21.8	11.2	25.7
323,762.6	3,869,528.5	Resident	144.1	23.7	12.1	27.9
323,774.5	3,869,479.9	Resident	144.2	23.8	12.1	27.9
323,786.6	3,869,431.4	Resident	143.7	23.7	12.0	27.9
323,798.7	3,869,382.9	Resident	143.6	23.8	12.0	27.9
323,810.8	3,869,334.4	Resident	143.7	23.8	12.1	27.9
323,822.3	3,869,285.7	Resident	144.3	23.9	12.1	28.1
323,845.4	3,869,188.4	Resident	146.3	24.3	12.3	28.5
323,856.8	3,869,139.7	Resident	147.0	24.5	12.3	28.6
323,868.2	3,869,091.0	Resident	147.4	24.6	12.4	28.8
323,879.6	3,869,042.4	Resident	146.4	24.5	12.3	28.6
323,891.2	3,868,993.7	Resident	144.2	24.2	12.1	28.2
323,902.8	3,868,945.1	Resident	141.2	23.8	11.8	27.7
323,914.2	3,868,896.4	Resident	119.4	20.3	10.0	23.6
323,925.7	3,868,847.7	Resident	126.9	21.6	10.6	25.1
323,937.0	3,868,799.0	Resident	130.0	22.2	10.9	25.8
323,948.4	3,868,750.3	Resident	133.7	22.8	11.2	26.5
323,959.9	3,868,701.7	Resident	136.6	23.4	11.4	27.1
323,972.0	3,868,653.2	Resident	138.2	23.7	11.5	27.5
323,984.1	3,868,604.7	Resident	139.6	24.1	11.6	27.8
323,996.2	3,868,556.1	Resident	140.0	24.3	11.6	28.0
324,008.6	3,868,507.7	Resident	139.7	24.3	11.6	28.0
324,020.7	3,868,459.2	Resident	135.2	23.8	11.2	27.3
324,034.1	3,868,411.0	Resident	131.7	23.4	10.9	26.7
324,050.2	3,868,363.7	Resident	126.7	22.8	10.5	26.0
324,067.9	3,868,316.9	Resident	117.1	21.4	9.9	24.4
324,089.2	3,868,271.7	Resident	109.5	20.2	9.4	23.1
323,267.7	3,868,011.4	Resident	199.0	40.7	18.8	46.5
323,251.4	3,868,110.0	Resident	197.1	39.7	18.3	45.3
323,241.0	3,868,158.9	Resident	194.7	38.9	17.8	44.4
323,230.0	3,868,207.7	Resident	190.8	37.8	17.2	43.0
323,219.0	3,868,256.4	Resident	181.7	35.7	16.2	40.6
323,207.4	3,868,305.1	Resident	174.2	33.9	15.4	38.5
323,195.8	3,868,353.7	Resident	168.9	32.5	14.7	36.9
323,184.1	3,868,402.3	Resident	168.2	32.0	14.4	36.3
323,172.0	3,868,450.8	Resident	172.3	32.3	14.4	36.5
323,159.8	3,868,499.3	Resident	168.2	31.2	13.9	35.2
323,148.5	3,868,548.1	Resident	167.3	30.6	13.6	34.6
323,137.5	3,868,596.8	Resident	168.6	30.5	13.6	34.5
323,126.3	3,868,645.6	Resident	167.4	30.0	13.4	33.9
323,115.1	3,868,694.3	Resident	164.2	29.2	13.1	33.1
323,103.8	3,868,743.0	Resident	163.8	28.8	13.1	32.8
323,092.2	3,868,791.7	Resident	162.3	28.4	13.0	32.3
323,080.3	3,868,840.2	Resident	160.6	27.9	13.0	31.9
323,068.4	3,868,888.8	Resident	162.4	28.0	13.2	32.1
323,056.7	3,868,937.4	Resident	164.2	28.1	13.4	32.4
323,045.0	3,868,986.0	Resident	164.5	28.0	13.5	32.4
323,020.9	3,869,083.0	Resident	166.3	28.1	13.7	32.6
323,008.7	3,869,131.6	Resident	158.2	26.7	13.1	31.0
322,997.5	3,869,180.3	Resident	160.5	27.0	13.3	31.4
322,986.2	3,869,229.0	Resident	162.9	27.3	13.5	31.8
322,974.7	3,869,277.7	Resident	168.3	28.1	14.0	32.8
322,963.3	3,869,326.3	Resident	174.6	29.0	14.5	34.0
322,951.7	3,869,375.0	Resident	181.5	30.1	15.1	35.2

Table D.1. Cancer Risk Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2,3]	Cancer Risk Estimates (in a million)			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[4]	Future Plus Project 2040
322,940.2	3,869,423.6	Resident	184.2	30.4	15.4	35.7
322,928.3	3,869,472.2	Resident	185.9	30.7	15.5	36.0
322,916.4	3,869,520.8	Resident	185.5	30.6	15.5	35.9
322,904.5	3,869,569.3	Resident	183.6	30.2	15.3	35.5
322,892.7	3,869,617.9	Resident	180.2	29.7	15.1	34.8
322,881.0	3,869,666.5	Resident	177.3	29.1	14.8	34.3
322,869.2	3,869,715.1	Resident	177.6	29.2	14.8	34.3
322,636.9	3,870,687.8	Resident	214.2	34.7	17.9	40.9
322,625.3	3,870,736.5	Resident	211.2	34.2	17.6	40.3
322,613.6	3,870,785.1	Resident	208.7	33.8	17.4	39.8
322,601.9	3,870,833.7	Resident	209.4	33.9	17.5	40.0
322,590.0	3,870,882.3	Resident	211.8	34.2	17.7	40.4
322,578.0	3,870,930.8	Resident	214.5	34.7	17.9	40.9
322,566.3	3,870,979.4	Resident	216.3	34.9	18.0	41.3
322,543.3	3,871,076.8	Resident	220.4	35.6	18.4	42.0
322,531.7	3,871,125.4	Resident	220.6	35.6	18.4	42.1
322,520.2	3,871,174.0	Resident	219.2	35.4	18.3	41.8
322,508.6	3,871,222.7	Resident	217.4	35.1	18.1	41.5
322,497.0	3,871,271.3	Resident	216.2	34.9	18.0	41.2
322,485.6	3,871,320.0	Resident	215.7	34.8	18.0	41.1
322,474.0	3,871,368.6	Resident	217.5	35.1	18.1	41.4
322,462.2	3,871,417.3	Resident	216.9	35.0	18.1	41.3
322,450.5	3,871,465.9	Resident	218.2	35.2	18.2	41.6
323,412.7	3,871,209.6	Resident	116.8	19.0	9.8	22.4
323,424.2	3,871,160.9	Resident	116.8	19.0	9.8	22.4
323,435.8	3,871,112.3	Resident	117.3	19.0	9.8	22.5
323,447.7	3,871,063.7	Resident	117.2	19.0	9.8	22.5
323,459.6	3,871,015.2	Resident	117.1	19.0	9.8	22.4
323,471.2	3,870,966.5	Resident	117.2	19.1	9.8	22.5
323,482.7	3,870,917.9	Resident	117.6	19.1	9.8	22.6
323,494.3	3,870,869.2	Resident	118.0	19.2	9.9	22.6
323,505.8	3,870,820.6	Resident	118.4	19.3	9.9	22.7
323,517.4	3,870,771.9	Resident	119.2	19.4	10.0	22.9
323,528.9	3,870,723.3	Resident	119.8	19.5	10.0	23.0
323,540.3	3,870,674.6	Resident	120.7	19.6	10.1	23.2
323,551.9	3,870,625.9	Resident	121.3	19.8	10.2	23.3
323,563.5	3,870,577.3	Resident	121.7	19.8	10.2	23.4
323,575.1	3,870,528.7	Resident	121.7	19.8	10.2	23.4
323,586.8	3,870,480.0	Resident	122.9	20.0	10.3	23.6
323,598.5	3,870,431.4	Resident	123.1	20.1	10.3	23.7
323,610.1	3,870,382.8	Resident	122.9	20.1	10.3	23.6
323,773.1	3,869,702.0	Resident	129.7	21.4	10.9	25.1
323,784.8	3,869,653.4	Resident	130.1	21.5	10.9	25.2
323,796.2	3,869,604.7	Resident	130.4	21.5	10.9	25.3
323,807.5	3,869,556.0	Resident	130.8	21.6	11.0	25.4
323,819.2	3,869,507.4	Resident	131.0	21.7	11.0	25.4
323,831.3	3,869,458.9	Resident	130.7	21.6	11.0	25.4
323,843.4	3,869,410.3	Resident	130.6	21.6	11.0	25.4
323,855.5	3,869,361.8	Resident	130.4	21.6	10.9	25.4
323,867.2	3,869,313.2	Resident	131.2	21.8	11.0	25.5
323,878.7	3,869,264.6	Resident	132.7	22.1	11.1	25.9
323,890.3	3,869,215.9	Resident	133.7	22.3	11.2	26.1
323,901.7	3,869,167.2	Resident	134.1	22.4	11.3	26.2
323,913.1	3,869,118.5	Resident	133.9	22.4	11.2	26.2
323,924.5	3,869,069.8	Resident	133.2	22.3	11.2	26.1
323,936.1	3,869,021.2	Resident	131.3	22.0	11.0	25.8
323,947.7	3,868,972.6	Resident	129.0	21.7	10.8	25.4

Table D.1. Cancer Risk Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2,3]	Cancer Risk Estimates (in a million)			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[4]	Future Plus Project 2040
323,959.2	3,868,923.9	Resident	127.2	21.5	10.7	25.1
323,970.6	3,868,875.2	Resident	111.9	19.1	9.4	22.2
323,982.0	3,868,826.5	Resident	117.0	20.0	9.8	23.2
323,993.3	3,868,777.8	Resident	118.7	20.4	9.9	23.6
324,004.7	3,868,729.1	Resident	122.1	21.0	10.2	24.3
324,016.7	3,868,680.6	Resident	123.9	21.3	10.4	24.7
324,028.8	3,868,632.1	Resident	127.3	22.0	10.6	25.4
324,040.9	3,868,583.6	Resident	128.2	22.2	10.7	25.7
324,053.2	3,868,535.1	Resident	128.0	22.3	10.7	25.7
324,065.4	3,868,486.6	Resident	122.5	21.6	10.2	24.8
324,077.9	3,868,438.2	Resident	119.9	21.3	10.0	24.4
324,155.0	3,868,254.1	Resident	99.7	18.5	8.6	21.2
323,224.6	3,867,927.2	Resident	182.7	37.8	17.6	43.3
323,215.2	3,868,026.7	Resident	178.1	36.5	16.9	41.7
323,207.1	3,868,076.0	Resident	178.4	36.3	16.7	41.4
323,197.4	3,868,125.1	Resident	177.1	35.7	16.5	40.8
323,186.4	3,868,173.8	Resident	172.7	34.6	15.9	39.5
323,175.4	3,868,222.6	Resident	166.0	33.0	15.2	37.7
323,164.0	3,868,271.3	Resident	159.8	31.6	14.4	35.9
323,152.5	3,868,320.0	Resident	155.4	30.4	13.8	34.6
323,140.9	3,868,368.6	Resident	153.1	29.6	13.4	33.6
323,128.9	3,868,417.1	Resident	153.1	29.2	13.2	33.2
323,116.7	3,868,465.6	Resident	149.7	28.3	12.7	32.1
323,104.9	3,868,514.2	Resident	148.3	27.7	12.4	31.4
323,093.9	3,868,563.0	Resident	148.0	27.3	12.2	30.9
323,082.8	3,868,611.8	Resident	147.2	26.9	12.0	30.4
323,071.6	3,868,660.5	Resident	144.9	26.2	11.8	29.7
323,060.3	3,868,709.2	Resident	140.1	25.2	11.4	28.6
323,049.0	3,868,757.9	Resident	137.6	24.6	11.2	27.9
323,037.1	3,868,806.5	Resident	138.5	24.5	11.2	27.9
323,025.1	3,868,855.0	Resident	140.0	24.6	11.4	28.1
323,013.4	3,868,903.6	Resident	141.5	24.6	11.5	28.2
323,001.7	3,868,952.2	Resident	142.2	24.6	11.6	28.3
322,977.7	3,869,049.3	Resident	143.4	24.5	11.8	28.3
322,965.6	3,869,097.8	Resident	141.9	24.2	11.7	28.0
322,954.0	3,869,146.5	Resident	140.9	23.9	11.6	27.8
322,942.8	3,869,195.2	Resident	141.9	24.0	11.7	27.9
322,931.3	3,869,243.9	Resident	143.6	24.2	11.9	28.2
322,919.9	3,869,292.6	Resident	150.4	25.2	12.5	29.4
322,908.4	3,869,341.2	Resident	156.1	26.1	13.0	30.5
322,896.8	3,869,389.9	Resident	159.9	26.6	13.3	31.1
322,885.1	3,869,438.5	Resident	162.4	27.0	13.6	31.6
322,873.2	3,869,487.0	Resident	164.5	27.3	13.7	31.9
322,861.3	3,869,535.6	Resident	164.8	27.3	13.8	32.0
322,849.4	3,869,584.2	Resident	162.9	26.9	13.6	31.6
322,837.7	3,869,632.8	Resident	160.8	26.6	13.4	31.2
322,825.9	3,869,681.4	Resident	160.2	26.4	13.4	31.0
322,814.2	3,869,730.0	Resident	164.5	27.1	13.8	31.8
322,605.1	3,870,605.4	Resident	197.8	32.1	16.5	37.8
322,593.6	3,870,654.1	Resident	197.8	32.0	16.5	37.8
322,582.0	3,870,702.7	Resident	193.3	31.3	16.1	37.0
322,570.3	3,870,751.3	Resident	190.8	30.9	15.9	36.5
322,558.6	3,870,799.9	Resident	189.9	30.8	15.9	36.3
322,546.8	3,870,848.5	Resident	191.8	31.1	16.0	36.7
322,534.8	3,870,897.1	Resident	193.7	31.3	16.2	37.0
322,522.9	3,870,945.6	Resident	195.7	31.7	16.3	37.4
322,511.4	3,870,994.3	Resident	199.9	32.3	16.7	38.2

Table D.1. Cancer Risk Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2,3]	Cancer Risk Estimates (in a million)			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[4]	Future Plus Project 2040
322,499.9	3,871,043.0	Resident	204.9	33.1	17.1	39.1
322,488.4	3,871,091.6	Resident	203.5	32.9	17.0	38.8
322,476.8	3,871,140.3	Resident	201.9	32.6	16.8	38.5
322,465.2	3,871,188.9	Resident	200.5	32.4	16.7	38.2
322,453.7	3,871,237.6	Resident	198.6	32.1	16.6	37.9
322,442.2	3,871,286.2	Resident	197.1	31.8	16.4	37.6
322,430.7	3,871,334.9	Resident	198.6	32.1	16.6	37.9
322,418.9	3,871,383.5	Resident	198.2	32.0	16.5	37.8
322,407.2	3,871,432.1	Resident	198.2	32.0	16.5	37.8
322,395.5	3,871,480.7	Resident	197.6	31.9	16.5	37.7
323,469.1	3,871,188.4	Resident	107.6	17.5	9.0	20.6
323,480.6	3,871,139.8	Resident	107.6	17.5	9.0	20.6
323,492.5	3,871,091.2	Resident	108.0	17.6	9.0	20.7
323,504.4	3,871,042.6	Resident	107.8	17.5	9.0	20.7
323,516.0	3,870,994.0	Resident	108.0	17.6	9.0	20.7
323,527.6	3,870,945.3	Resident	108.5	17.7	9.1	20.8
323,539.1	3,870,896.7	Resident	108.7	17.7	9.1	20.9
323,550.7	3,870,848.1	Resident	109.3	17.8	9.2	21.0
323,562.3	3,870,799.4	Resident	109.8	17.9	9.2	21.1
323,573.7	3,870,750.7	Resident	110.3	18.0	9.2	21.2
323,585.2	3,870,702.1	Resident	110.7	18.1	9.3	21.3
323,596.8	3,870,653.4	Resident	111.3	18.2	9.3	21.4
323,608.3	3,870,604.8	Resident	111.7	18.2	9.4	21.5
323,619.9	3,870,556.1	Resident	112.1	18.3	9.4	21.6
323,631.6	3,870,507.5	Resident	113.2	18.5	9.5	21.8
323,643.3	3,870,458.9	Resident	114.1	18.7	9.6	22.0
323,655.0	3,870,410.3	Resident	113.3	18.5	9.5	21.8
323,666.6	3,870,361.6	Resident	113.3	18.5	9.5	21.8
323,829.6	3,869,680.9	Resident	119.3	19.7	10.0	23.1
323,841.1	3,869,632.2	Resident	119.6	19.8	10.1	23.2
323,852.5	3,869,583.5	Resident	119.9	19.8	10.1	23.3
323,863.9	3,869,534.8	Resident	120.4	19.9	10.1	23.4
323,876.0	3,869,486.3	Resident	120.5	20.0	10.1	23.5
323,888.1	3,869,437.8	Resident	120.3	20.0	10.1	23.4
323,900.2	3,869,389.3	Resident	119.7	19.9	10.1	23.3
323,912.1	3,869,340.7	Resident	120.0	20.0	10.1	23.4
323,923.6	3,869,292.0	Resident	121.3	20.2	10.2	23.7
323,946.7	3,869,194.7	Resident	122.8	20.5	10.3	24.0
323,958.0	3,869,146.0	Resident	122.7	20.5	10.3	24.0
323,969.4	3,869,097.3	Resident	122.3	20.5	10.3	24.0
323,980.9	3,869,048.7	Resident	120.7	20.3	10.1	23.7
323,992.5	3,869,000.0	Resident	118.9	20.1	10.0	23.4
324,004.1	3,868,951.4	Resident	117.3	19.9	9.9	23.2
324,015.5	3,868,902.7	Resident	113.7	19.3	9.6	22.5
324,026.9	3,868,854.0	Resident	103.6	17.8	8.7	20.7
324,038.3	3,868,805.3	Resident	108.2	18.6	9.1	21.6
324,049.6	3,868,756.6	Resident	112.8	19.4	9.5	22.5
324,061.4	3,868,708.0	Resident	116.2	20.0	9.8	23.2
324,073.5	3,868,659.5	Resident	118.7	20.5	10.0	23.7
323,173.0	3,867,842.9	Resident	168.3	35.0	16.3	40.2
323,174.5	3,867,892.9	Resident	164.9	34.3	16.0	39.3
323,162.6	3,868,042.2	Resident	162.4	33.3	15.4	38.1
323,153.2	3,868,091.3	Resident	163.0	33.1	15.3	37.9
323,142.7	3,868,140.2	Resident	156.0	31.6	14.6	36.1
323,131.7	3,868,189.0	Resident	148.8	30.0	13.8	34.3
323,120.6	3,868,237.7	Resident	145.0	29.0	13.4	33.1
323,109.1	3,868,286.4	Resident	141.8	28.1	12.9	32.1

Table D.1. Cancer Risk Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2,3]	Cancer Risk Estimates (in a million)			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[4]	Future Plus Project 2040
323,097.5	3,868,335.0	Resident	139.0	27.3	12.5	31.1
323,085.7	3,868,383.6	Resident	136.4	26.5	12.1	30.2
323,073.5	3,868,432.1	Resident	133.3	25.7	11.6	29.2
323,061.4	3,868,480.6	Resident	130.9	25.0	11.3	28.3
323,050.2	3,868,529.4	Resident	130.4	24.6	11.1	27.9
323,039.2	3,868,578.1	Resident	130.5	24.3	10.9	27.6
323,028.0	3,868,626.9	Resident	132.1	24.3	10.9	27.6
323,016.8	3,868,675.6	Resident	124.5	22.8	10.3	25.9
323,005.5	3,868,724.3	Resident	118.7	21.6	9.8	24.6
322,993.9	3,868,772.9	Resident	119.1	21.5	9.8	24.5
322,981.9	3,868,821.5	Resident	121.4	21.7	9.9	24.7
322,970.0	3,868,870.1	Resident	123.3	21.8	10.1	24.9
322,958.4	3,868,918.7	Resident	123.7	21.8	10.1	24.9
322,934.6	3,869,015.8	Resident	126.1	21.9	10.4	25.1
322,922.5	3,869,064.3	Resident	126.5	21.8	10.4	25.2
322,910.4	3,869,112.8	Resident	127.7	21.9	10.5	25.3
322,899.2	3,869,161.6	Resident	127.5	21.8	10.5	25.2
322,887.9	3,869,210.3	Resident	129.2	22.0	10.7	25.5
322,876.4	3,869,259.0	Resident	133.8	22.6	11.1	26.3
322,864.9	3,869,307.6	Resident	140.0	23.5	11.6	27.4
322,853.4	3,869,356.3	Resident	141.7	23.8	11.8	27.7
322,841.8	3,869,404.9	Resident	143.8	24.0	12.0	28.1
322,830.0	3,869,453.5	Resident	146.6	24.4	12.2	28.6
322,818.0	3,869,502.1	Resident	148.5	24.7	12.4	28.9
322,806.2	3,869,550.6	Resident	147.9	24.6	12.4	28.8
322,794.3	3,869,599.2	Resident	146.5	24.3	12.3	28.5
322,782.6	3,869,647.8	Resident	147.1	24.4	12.3	28.6
322,770.9	3,869,696.4	Resident	149.4	24.7	12.5	29.0
322,573.2	3,870,523.2	Resident	178.3	29.0	14.9	34.2
322,561.7	3,870,571.8	Resident	180.7	29.3	15.1	34.6
322,550.2	3,870,620.5	Resident	183.1	29.7	15.3	35.0
322,538.6	3,870,669.1	Resident	177.3	28.8	14.8	33.9
322,527.0	3,870,717.8	Resident	174.0	28.2	14.5	33.3
322,515.3	3,870,766.4	Resident	173.7	28.2	14.5	33.2
322,503.5	3,870,815.0	Resident	174.7	28.3	14.6	33.4
322,491.6	3,870,863.6	Resident	175.8	28.5	14.7	33.6
322,479.7	3,870,912.1	Resident	177.9	28.8	14.8	34.0
322,468.0	3,870,960.7	Resident	182.0	29.5	15.2	34.8
322,456.5	3,871,009.4	Resident	186.3	30.2	15.5	35.6
322,445.0	3,871,058.0	Resident	187.1	30.3	15.6	35.7
322,433.4	3,871,106.7	Resident	186.2	30.1	15.5	35.6
322,421.8	3,871,155.3	Resident	185.1	30.0	15.5	35.4
322,410.2	3,871,204.0	Resident	183.2	29.6	15.3	35.0
322,398.7	3,871,252.6	Resident	182.2	29.5	15.2	34.8
322,387.3	3,871,301.3	Resident	182.6	29.5	15.2	34.8
322,375.6	3,871,349.9	Resident	182.2	29.5	15.2	34.8
322,363.9	3,871,398.5	Resident	182.2	29.5	15.2	34.8
322,352.1	3,871,447.2	Resident	181.1	29.3	15.1	34.6
322,340.5	3,871,495.8	Resident	180.0	29.1	15.0	34.3
323,593.9	3,871,097.5	Resident	94.0	15.3	7.9	18.1
323,617.3	3,871,000.3	Resident	94.6	15.4	7.9	18.2
323,640.4	3,870,903.0	Resident	95.4	15.6	8.0	18.4
323,663.5	3,870,805.7	Resident	95.7	15.6	8.0	18.4
323,686.5	3,870,708.4	Resident	96.0	15.7	8.1	18.5
323,709.6	3,870,611.1	Resident	96.7	15.8	8.1	18.7
323,732.9	3,870,513.8	Resident	97.3	16.0	8.2	18.8
323,779.6	3,870,319.3	Resident	98.5	16.2	8.3	19.0

Table D.1. Cancer Risk Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2,3]	Cancer Risk Estimates (in a million)			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[4]	Future Plus Project 2040
323,802.5	3,870,222.0	Resident	98.7	16.2	8.3	19.1
323,825.7	3,870,124.7	Resident	99.1	16.3	8.3	19.2
323,942.3	3,869,638.5	Resident	103.0	17.1	8.7	20.1
323,965.3	3,869,541.2	Resident	104.2	17.3	8.8	20.3
323,989.5	3,869,444.1	Resident	104.6	17.4	8.8	20.4
324,013.4	3,869,347.0	Resident	102.0	17.1	8.6	20.0
324,036.4	3,869,249.7	Resident	103.4	17.4	8.7	20.3
324,059.2	3,869,152.3	Resident	104.4	17.6	8.8	20.6
324,353.8	3,868,202.1	Resident	75.6	14.2	6.6	16.3
323,062.5	3,867,678.1	Resident	140.4	29.5	13.7	33.8
323,070.1	3,867,777.7	Resident	141.7	29.6	13.8	34.0
323,070.4	3,867,977.5	Resident	137.8	28.5	13.3	32.7
323,032.6	3,868,173.8	Resident	121.2	24.7	11.5	28.3
323,009.9	3,868,271.2	Resident	118.3	23.8	11.0	27.2
322,986.4	3,868,368.4	Resident	109.6	21.8	10.0	24.9
322,962.2	3,868,465.4	Resident	105.0	20.5	9.4	23.4
322,940.1	3,868,562.9	Resident	103.0	19.8	9.0	22.5
322,917.6	3,868,660.4	Resident	98.3	18.5	8.4	21.1
322,894.6	3,868,757.7	Resident	97.9	18.1	8.3	20.6
322,870.8	3,868,854.8	Resident	97.0	17.7	8.1	20.1
322,847.5	3,868,952.1	Resident	99.7	17.8	8.3	20.4
322,823.2	3,869,049.1	Resident	104.6	18.4	8.6	21.1
322,800.1	3,869,146.4	Resident	107.3	18.6	8.9	21.5
322,777.2	3,869,243.7	Resident	112.4	19.3	9.3	22.3
322,754.2	3,869,341.1	Resident	113.6	19.3	9.5	22.5
322,730.7	3,869,438.3	Resident	121.1	20.4	10.1	23.8
322,706.9	3,869,535.4	Resident	122.3	20.5	10.2	23.9
322,683.4	3,869,632.6	Resident	125.5	20.9	10.5	24.5
322,497.2	3,870,410.7	Resident	143.7	23.5	12.0	27.7
322,474.1	3,870,508.0	Resident	150.0	24.5	12.5	28.8
322,451.0	3,870,605.3	Resident	151.3	24.6	12.7	29.0
322,427.8	3,870,702.5	Resident	149.3	24.3	12.5	28.6
322,404.3	3,870,799.8	Resident	145.8	23.7	12.2	28.0
322,380.4	3,870,896.9	Resident	150.0	24.4	12.5	28.7
322,334.2	3,871,091.5	Resident	158.6	25.7	13.3	30.4
322,311.1	3,871,188.8	Resident	159.2	25.8	13.3	30.5
322,288.1	3,871,286.1	Resident	159.0	25.8	13.3	30.4
322,264.7	3,871,383.3	Resident	157.8	25.5	13.2	30.2
322,241.4	3,871,480.6	Resident	157.7	25.5	13.2	30.1
322,218.1	3,871,577.8	Resident	159.2	25.8	13.3	30.4
323,707.1	3,871,055.3	Resident	84.0	13.8	7.1	16.2
323,730.2	3,870,958.0	Resident	84.3	13.8	7.1	16.3
323,776.3	3,870,763.3	Resident	84.4	13.9	7.1	16.3
323,799.4	3,870,666.0	Resident	84.8	13.9	7.1	16.4
323,822.6	3,870,568.8	Resident	85.4	14.0	7.2	16.5
323,845.9	3,870,471.5	Resident	86.1	14.2	7.2	16.7
323,869.3	3,870,374.3	Resident	86.5	14.3	7.3	16.8
323,892.4	3,870,277.0	Resident	86.7	14.3	7.3	16.8
323,915.3	3,870,179.6	Resident	87.0	14.4	7.3	16.9
324,032.2	3,869,693.5	Resident	90.6	15.1	7.6	17.7
324,054.9	3,869,596.1	Resident	90.9	15.2	7.7	17.8
324,078.9	3,869,499.0	Resident	91.4	15.3	7.7	17.9
324,103.1	3,869,402.0	Resident	89.4	15.0	7.5	17.6
324,126.2	3,869,304.7	Resident	88.4	14.9	7.5	17.4
324,149.1	3,869,207.3	Resident	90.7	15.3	7.7	17.9
324,438.6	3,868,255.4	Resident	69.7	13.0	6.1	14.9
324,486.2	3,868,167.4	Resident	64.9	12.3	5.8	14.1

Table D.1. Cancer Risk Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2,3]	Cancer Risk Estimates (in a million)			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[4]	Future Plus Project 2040
322,964.1	3,867,713.5	Resident	118.6	24.9	11.6	28.6
322,974.5	3,867,913.1	Resident	118.2	24.6	11.5	28.2
322,964.7	3,868,012.6	Resident	120.2	24.9	11.6	28.5
322,944.4	3,868,110.5	Resident	111.4	22.9	10.7	26.3
322,899.0	3,868,305.3	Resident	96.2	19.5	9.1	22.3
322,874.8	3,868,402.3	Resident	88.6	17.8	8.2	20.3
322,851.9	3,868,499.6	Resident	83.9	16.6	7.7	19.0
322,829.6	3,868,597.1	Resident	81.0	15.8	7.3	18.0
322,807.0	3,868,694.6	Resident	81.1	15.5	7.1	17.7
322,759.8	3,868,888.9	Resident	82.4	15.2	7.0	17.3
322,735.9	3,868,986.0	Resident	88.2	15.9	7.4	18.2
322,712.0	3,869,083.1	Resident	90.2	16.0	7.5	18.4
322,689.4	3,869,180.5	Resident	93.8	16.4	7.8	18.9
322,666.4	3,869,277.9	Resident	97.6	16.9	8.1	19.5
322,643.2	3,869,375.1	Resident	103.6	17.7	8.6	20.6
322,619.4	3,869,472.3	Resident	103.4	17.6	8.6	20.4
322,595.7	3,869,569.4	Resident	106.2	17.9	8.9	20.9
322,572.3	3,869,666.7	Resident	108.3	18.2	9.1	21.2
322,433.0	3,870,250.3	Resident	121.4	20.0	10.2	23.5
322,409.5	3,870,347.5	Resident	130.3	21.4	10.9	25.1
322,386.3	3,870,444.8	Resident	127.5	20.9	10.7	24.6
322,363.2	3,870,542.1	Resident	130.1	21.3	10.9	25.1
322,340.0	3,870,639.4	Resident	131.5	21.5	11.0	25.3
322,316.7	3,870,736.6	Resident	129.5	21.1	10.8	24.9
322,269.5	3,870,931.0	Resident	133.4	21.7	11.2	25.6
322,246.5	3,871,028.3	Resident	136.7	22.2	11.4	26.2
322,223.3	3,871,125.6	Resident	140.9	22.9	11.8	27.0
322,200.2	3,871,222.9	Resident	141.7	23.0	11.8	27.1
322,177.0	3,871,320.2	Resident	140.1	22.7	11.7	26.8
322,153.6	3,871,417.4	Resident	140.3	22.8	11.7	26.9
322,130.5	3,871,514.7	Resident	140.5	22.8	11.7	26.9
322,106.9	3,871,611.9	Resident	138.9	22.5	11.6	26.6
323,819.9	3,871,012.9	Resident	75.5	12.4	6.3	14.6
323,843.0	3,870,915.6	Resident	75.3	12.4	6.3	14.6
323,866.1	3,870,818.3	Resident	75.4	12.4	6.3	14.6
323,889.1	3,870,721.0	Resident	75.6	12.4	6.4	14.6
323,912.2	3,870,623.7	Resident	75.9	12.5	6.4	14.7
323,935.6	3,870,526.5	Resident	76.4	12.6	6.4	14.8
323,958.9	3,870,429.2	Resident	77.0	12.7	6.5	14.9
323,982.2	3,870,332.0	Resident	77.6	12.8	6.5	15.1
324,005.0	3,870,234.6	Resident	77.6	12.9	6.5	15.1
324,052.0	3,870,040.2	Resident	78.2	13.0	6.6	15.3
324,075.2	3,869,942.9	Resident	78.5	13.1	6.6	15.3
324,098.5	3,869,845.7	Resident	78.6	13.1	6.6	15.4
324,121.9	3,869,748.4	Resident	80.1	13.4	6.8	15.7
324,144.8	3,869,651.1	Resident	80.4	13.5	6.8	15.8
324,168.3	3,869,553.9	Resident	80.9	13.6	6.8	15.9
324,431.4	3,868,486.0	Resident	70.5	12.7	6.0	14.6
324,475.8	3,868,396.5	Resident	68.0	12.4	5.8	14.2
324,523.5	3,868,308.6	Resident	64.5	11.9	5.6	13.7
324,571.2	3,868,220.7	Resident	61.8	11.5	5.4	13.2
322,861.1	3,867,648.7	Resident	103.2	21.7	10.1	24.9
322,866.3	3,867,748.5	Resident	102.8	21.6	10.1	24.8
322,872.9	3,867,848.3	Resident	101.2	21.2	9.9	24.3
322,872.4	3,867,948.1	Resident	104.4	21.8	10.2	24.9
322,856.2	3,868,046.8	Resident	99.2	20.6	9.6	23.6
322,834.2	3,868,144.3	Resident	92.9	19.2	9.0	22.0

Table D.1. Cancer Risk Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2,3]	Cancer Risk Estimates (in a million)			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[4]	Future Plus Project 2040
322,811.3	3,868,241.7	Resident	86.9	17.9	8.3	20.5
322,763.7	3,868,435.9	Resident	74.4	15.1	7.0	17.2
322,741.6	3,868,533.5	Resident	70.7	14.2	6.6	16.2
322,719.1	3,868,630.9	Resident	70.7	13.9	6.4	15.9
322,695.9	3,868,728.2	Resident	69.7	13.5	6.2	15.4
322,672.2	3,868,825.4	Resident	71.2	13.5	6.2	15.4
322,648.7	3,868,922.5	Resident	73.7	13.7	6.3	15.7
322,624.4	3,869,019.6	Resident	75.1	13.8	6.4	15.7
322,601.6	3,869,116.9	Resident	78.2	14.1	6.6	16.1
322,578.7	3,869,214.3	Resident	80.5	14.3	6.7	16.4
322,555.6	3,869,311.6	Resident	85.3	14.9	7.1	17.2
322,461.4	3,869,700.4	Resident	95.2	16.1	8.0	18.8
322,438.1	3,869,797.6	Resident	97.2	16.3	8.2	19.1
322,414.6	3,869,894.8	Resident	98.7	16.5	8.3	19.3
322,391.6	3,869,992.1	Resident	101.2	16.9	8.5	19.8
322,322.0	3,870,284.0	Resident	109.1	18.0	9.2	21.2
322,298.6	3,870,381.2	Resident	113.4	18.7	9.5	21.9
322,275.5	3,870,478.5	Resident	114.3	18.8	9.6	22.1
322,252.4	3,870,575.8	Resident	116.3	19.1	9.8	22.5
322,205.6	3,870,770.3	Resident	117.5	19.2	9.8	22.6
322,181.7	3,870,867.4	Resident	116.2	19.0	9.7	22.4
322,158.8	3,870,964.7	Resident	115.8	18.9	9.7	22.3
322,135.6	3,871,062.0	Resident	120.5	19.6	10.1	23.2
322,112.5	3,871,159.3	Resident	125.2	20.4	10.5	24.0
322,089.5	3,871,256.6	Resident	125.0	20.3	10.5	24.0
322,066.0	3,871,353.8	Resident	125.1	20.3	10.5	24.0
322,042.8	3,871,451.1	Resident	127.4	20.7	10.7	24.4
322,019.4	3,871,548.3	Resident	129.3	21.0	10.8	24.8
321,995.9	3,871,645.5	Resident	130.2	21.1	10.9	24.9
323,909.6	3,871,067.9	Resident	68.9	11.3	5.8	13.3
323,932.7	3,870,970.6	Resident	68.3	11.3	5.8	13.2
323,955.8	3,870,873.3	Resident	68.4	11.3	5.8	13.3
323,978.8	3,870,775.9	Resident	68.3	11.3	5.8	13.3
324,001.9	3,870,678.7	Resident	68.4	11.3	5.8	13.3
324,025.2	3,870,581.4	Resident	68.8	11.4	5.8	13.4
324,048.6	3,870,484.2	Resident	69.0	11.4	5.8	13.4
324,071.9	3,870,386.9	Resident	69.5	11.5	5.9	13.5
324,164.9	3,869,997.8	Resident	71.4	11.9	6.0	14.0
324,188.2	3,869,900.6	Resident	71.9	12.0	6.1	14.1
324,211.6	3,869,803.4	Resident	72.3	12.1	6.1	14.2
324,443.1	3,868,830.5	Resident	68.1	11.9	5.8	13.8
324,467.3	3,868,733.5	Resident	67.8	11.9	5.8	13.8
324,491.7	3,868,636.5	Resident	66.5	11.8	5.7	13.6
324,518.3	3,868,540.1	Resident	64.7	11.6	5.6	13.4
324,560.7	3,868,449.8	Resident	61.0	11.1	5.3	12.8
324,608.3	3,868,361.9	Resident	59.5	10.9	5.1	12.5
324,701.9	3,868,185.2	Resident	55.5	10.4	4.9	11.9
324,751.1	3,868,098.1	Resident	51.7	9.8	4.6	11.3
322,758.6	3,867,583.6	Resident	87.5	18.5	8.6	21.2
322,762.4	3,867,683.5	Resident	87.9	18.5	8.6	21.2
322,769.2	3,867,783.3	Resident	91.2	19.1	8.9	22.0
322,774.3	3,867,883.1	Resident	90.5	19.0	8.9	21.7
322,766.7	3,867,982.6	Resident	86.2	18.0	8.4	20.6
322,746.1	3,868,080.4	Resident	82.3	17.1	8.0	19.6
322,723.7	3,868,177.9	Resident	77.7	16.1	7.5	18.4
322,700.5	3,868,275.2	Resident	72.6	15.0	7.0	17.1
322,676.2	3,868,372.2	Resident	68.4	14.0	6.5	16.0

Table D.1. Cancer Risk Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2,3]	Cancer Risk Estimates (in a million)			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[4]	Future Plus Project 2040
322,631.3	3,868,567.1	Resident	63.7	12.8	6.0	14.7
322,608.6	3,868,664.5	Resident	61.8	12.3	5.7	14.0
322,584.7	3,868,761.6	Resident	62.4	12.2	5.6	13.9
322,561.3	3,868,858.8	Resident	62.8	12.1	5.6	13.8
322,537.2	3,868,955.9	Resident	64.3	12.1	5.6	13.8
322,513.7	3,869,053.1	Resident	67.4	12.5	5.8	14.2
322,491.0	3,869,150.5	Resident	67.3	12.3	5.7	14.1
322,350.5	3,869,733.8	Resident	84.2	14.3	7.1	16.7
322,327.3	3,869,831.1	Resident	85.9	14.5	7.2	17.0
322,303.7	3,869,928.3	Resident	87.3	14.7	7.3	17.2
322,211.1	3,870,317.4	Resident	99.0	16.4	8.3	19.2
322,187.8	3,870,414.7	Resident	102.8	17.0	8.6	19.9
322,141.6	3,870,609.3	Resident	105.3	17.3	8.8	20.4
322,118.2	3,870,706.5	Resident	105.7	17.4	8.9	20.4
322,094.4	3,870,803.7	Resident	104.8	17.2	8.8	20.2
322,071.1	3,870,900.9	Resident	103.1	16.9	8.6	19.9
322,048.0	3,870,998.2	Resident	100.9	16.5	8.5	19.5
322,024.9	3,871,095.5	Resident	108.2	17.7	9.1	20.8
322,001.8	3,871,192.8	Resident	111.9	18.3	9.4	21.5
321,978.5	3,871,290.1	Resident	112.2	18.3	9.4	21.6
321,955.2	3,871,387.3	Resident	115.5	18.8	9.7	22.2
321,932.0	3,871,484.6	Resident	119.2	19.4	10.0	22.8
324,022.5	3,871,025.5	Resident	62.2	10.3	5.2	12.1
324,045.6	3,870,928.2	Resident	62.1	10.3	5.2	12.1
324,068.6	3,870,830.9	Resident	62.2	10.3	5.2	12.1
324,091.7	3,870,733.6	Resident	62.2	10.3	5.3	12.1
324,114.9	3,870,636.3	Resident	62.5	10.4	5.3	12.2
324,138.3	3,870,539.1	Resident	62.7	10.4	5.3	12.2
324,161.6	3,870,441.8	Resident	63.0	10.5	5.3	12.3
324,184.7	3,870,344.6	Resident	63.1	10.5	5.3	12.3
324,207.6	3,870,247.2	Resident	63.5	10.6	5.4	12.4
324,231.2	3,870,150.0	Resident	64.0	10.7	5.4	12.5
324,441.4	3,869,274.9	Resident	64.1	11.0	5.5	12.8
324,464.2	3,869,177.5	Resident	64.0	11.0	5.4	12.8
324,487.4	3,869,080.2	Resident	64.0	11.0	5.5	12.9
324,510.3	3,868,982.9	Resident	63.3	11.0	5.4	12.8
324,533.0	3,868,885.5	Resident	62.4	10.9	5.3	12.7
324,556.7	3,868,788.3	Resident	61.8	10.9	5.3	12.6
324,581.0	3,868,691.3	Resident	61.1	10.8	5.2	12.5
324,605.5	3,868,594.4	Resident	60.0	10.7	5.2	12.4
324,645.6	3,868,503.1	Resident	57.6	10.4	5.0	12.0
324,693.2	3,868,415.1	Resident	55.1	10.0	4.8	11.6
324,786.7	3,868,238.4	Resident	52.3	9.7	4.6	11.1
324,836.0	3,868,151.4	Resident	49.3	9.3	4.4	10.6
322,659.8	3,867,617.8	Resident	78.3	16.5	7.7	18.9
322,671.4	3,867,817.4	Resident	78.5	16.5	7.7	18.9
322,674.4	3,867,917.4	Resident	77.9	16.3	7.6	18.7
322,658.1	3,868,016.0	Resident	74.6	15.6	7.3	17.9
322,636.1	3,868,113.5	Resident	70.6	14.7	6.9	16.9
322,613.1	3,868,210.8	Resident	65.9	13.7	6.4	15.7
322,589.2	3,868,307.9	Resident	63.0	13.0	6.1	14.9
322,565.6	3,868,405.1	Resident	59.4	12.2	5.7	14.0
322,543.5	3,868,502.7	Resident	58.1	11.9	5.5	13.6
322,521.0	3,868,600.1	Resident	57.5	11.6	5.4	13.3
322,497.5	3,868,697.3	Resident	56.5	11.3	5.2	12.9
322,473.9	3,868,794.5	Resident	54.9	10.8	5.0	12.4
322,450.2	3,868,891.6	Resident	55.2	10.7	5.0	12.2

Table D.1. Cancer Risk Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2,3]	Cancer Risk Estimates (in a million)			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[4]	Future Plus Project 2040
322,426.0	3,868,988.7	Resident	57.0	10.9	5.0	12.4
322,263.1	3,869,669.5	Resident	72.5	12.5	6.1	14.5
322,239.9	3,869,766.8	Resident	75.5	12.9	6.4	15.0
322,216.3	3,869,863.9	Resident	77.0	13.1	6.5	15.3
322,193.4	3,869,961.3	Resident	78.9	13.3	6.6	15.6
322,100.3	3,870,350.3	Resident	90.9	15.1	7.6	17.7
322,077.3	3,870,447.7	Resident	94.2	15.6	7.9	18.3
322,054.1	3,870,544.9	Resident	96.5	15.9	8.1	18.7
322,030.8	3,870,642.2	Resident	96.0	15.8	8.1	18.6
322,007.2	3,870,739.4	Resident	97.0	16.0	8.1	18.8
321,983.5	3,870,836.5	Resident	96.8	15.9	8.1	18.7
321,960.5	3,870,933.9	Resident	95.7	15.7	8.0	18.5
321,937.4	3,871,031.2	Resident	97.5	16.0	8.2	18.8
321,914.3	3,871,128.4	Resident	102.3	16.7	8.6	19.7
324,327.6	3,870,822.3	Resident	50.9	8.5	4.3	9.9
324,385.7	3,870,579.2	Resident	51.3	8.6	4.3	10.0
324,443.5	3,870,336.0	Resident	52.6	8.8	4.5	10.3
324,618.9	3,869,606.7	Resident	52.4	8.9	4.5	10.4
324,677.4	3,869,363.7	Resident	52.4	9.0	4.5	10.5
324,857.9	3,868,636.2	Resident	49.3	8.8	4.3	10.2
324,976.5	3,868,416.2	Resident	46.6	8.4	4.1	9.8
325,094.8	3,868,196.0	Resident	44.2	8.1	3.9	9.4
322,410.8	3,867,650.0	Resident	57.4	12.1	5.7	13.9
322,424.4	3,867,899.6	Resident	56.4	11.8	5.5	13.6
322,372.0	3,868,143.8	Resident	50.8	10.6	5.0	12.2
322,313.5	3,868,386.9	Resident	48.0	9.9	4.7	11.4
322,256.5	3,868,630.3	Resident	45.8	9.4	4.4	10.7
322,139.4	3,869,116.4	Resident	46.9	9.0	4.2	10.3
322,022.1	3,869,602.5	Resident	54.1	9.7	4.6	11.1
321,906.1	3,870,088.9	Resident	66.2	11.3	5.6	13.1
324,377.5	3,871,689.2	Resident	42.8	7.1	3.6	8.4
324,435.8	3,871,446.1	Resident	42.8	7.1	3.6	8.4
324,609.9	3,870,716.5	Resident	43.5	7.3	3.7	8.6
324,784.5	3,869,987.1	Resident	43.8	7.4	3.7	8.7
324,901.8	3,869,501.1	Resident	43.8	7.5	3.7	8.8
325,307.4	3,868,329.1	Resident	39.4	7.2	3.5	8.3
322,163.9	3,867,729.1	Resident	43.7	9.2	4.3	10.6
322,154.4	3,867,976.6	Resident	41.5	8.7	4.1	10.0
322,095.8	3,868,219.7	Resident	40.0	8.4	3.9	9.6
322,039.4	3,868,463.2	Resident	37.6	7.8	3.7	9.0
321,980.9	3,868,706.3	Resident	37.1	7.6	3.6	8.7
321,921.9	3,868,949.3	Resident	37.0	7.5	3.5	8.6
321,864.3	3,869,192.5	Resident	35.5	7.0	3.3	8.0
324,543.9	3,872,069.8	Resident	37.0	6.2	3.1	7.2
324,602.0	3,871,826.7	Resident	37.1	6.2	3.1	7.3
324,660.2	3,871,583.5	Resident	37.4	6.2	3.2	7.3
324,718.4	3,871,340.4	Resident	37.3	6.2	3.2	7.3
324,950.2	3,870,367.6	Resident	37.9	6.4	3.2	7.5
325,008.6	3,870,124.5	Resident	37.8	6.4	3.2	7.5
325,126.2	3,869,638.5	Resident	37.7	6.5	3.2	7.6
325,241.1	3,869,151.8	Resident	37.9	6.6	3.3	7.7
325,299.7	3,868,908.8	Resident	37.5	6.6	3.2	7.7
325,520.0	3,868,462.1	Resident	36.0	6.5	3.1	7.5
325,637.8	3,868,241.6	Resident	35.2	6.4	3.1	7.4
321,903.7	3,867,557.4	Resident	35.6	7.5	3.5	8.6
321,917.9	3,867,807.0	Resident	36.2	7.6	3.6	8.7
321,879.9	3,868,051.9	Resident	34.4	7.2	3.4	8.3

Table D.1. Cancer Risk Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2,3]	Cancer Risk Estimates (in a million)			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[4]	Future Plus Project 2040
321,821.6	3,868,295.0	Resident	32.8	6.9	3.2	7.9
321,764.2	3,868,538.3	Resident	32.6	6.8	3.2	7.8
321,704.7	3,868,781.2	Resident	32.4	6.7	3.1	7.7
324,826.2	3,871,964.0	Resident	32.7	5.5	2.8	6.4
324,942.3	3,871,477.6	Resident	32.9	5.5	2.8	6.5
325,000.7	3,871,234.6	Resident	32.9	5.5	2.8	6.5
325,174.3	3,870,504.9	Resident	33.3	5.6	2.8	6.6
325,232.8	3,870,261.8	Resident	33.1	5.6	2.8	6.6
325,291.2	3,870,018.7	Resident	33.1	5.7	2.8	6.6
325,349.8	3,869,775.7	Resident	33.2	5.7	2.8	6.7
325,408.2	3,869,532.6	Resident	33.3	5.8	2.9	6.7
325,523.1	3,869,046.0	Resident	33.5	5.9	2.9	6.8
325,732.6	3,868,595.2	Resident	32.7	5.8	2.8	6.7
325,850.2	3,868,374.6	Resident	31.8	5.7	2.8	6.6
325,967.5	3,868,153.8	Resident	31.1	5.6	2.7	6.5
325,391.0	3,871,752.4	Resident	26.5	4.5	2.3	5.2
325,739.4	3,870,293.4	Resident	27.1	4.6	2.3	5.4
325,971.8	3,869,320.7	Resident	27.1	4.7	2.3	5.5
326,392.6	3,868,419.7	Resident	25.8	4.6	2.3	5.3
326,619.9	3,867,974.5	Resident	24.5	4.4	2.2	5.1
326,420.7	3,869,595.6	Resident	23.0	4.0	2.0	4.7
326,582.1	3,869,126.6	Resident	22.8	4.0	2.0	4.7
326,817.8	3,868,685.6	Resident	22.3	3.9	1.9	4.6
327,047.2	3,868,241.4	Resident	21.4	3.8	1.9	4.4
328,364.6	3,867,354.6	Resident	10.6	2.0	1.0	2.3
326,334.9	3,868,717.1	School	3.5	0.6	0.3	0.7
324,761.8	3,871,620.5	School	4.9	0.8	0.4	1.0
324,028.5	3,870,137.4	School	10.8	1.8	0.9	2.1
322,532.0	3,869,408.8	School	12.2	2.1	1.0	2.4
322,508.2	3,869,505.9	School	12.7	2.2	1.1	2.5
322,484.8	3,869,603.1	School	12.6	2.1	1.1	2.5
324,118.1	3,870,192.3	School	9.7	1.6	0.8	1.9
324,141.6	3,870,095.1	School	9.8	1.6	0.8	1.9
322,420.9	3,869,442.2	School	10.8	1.9	0.9	2.2
322,397.3	3,869,539.4	School	11.0	1.9	0.9	2.2
322,333.7	3,869,377.9	School	9.5	1.7	0.8	1.9
322,309.9	3,869,475.0	School	9.9	1.7	0.8	2.0
322,286.5	3,869,572.3	School	10.0	1.7	0.8	2.0
322,147.2	3,870,155.9	School	11.6	1.9	1.0	2.3
322,123.7	3,870,253.1	School	12.0	2.0	1.0	2.3
324,792.3	3,868,877.0	School	7.0	1.2	0.6	1.4
325,857.0	3,869,807.4	School	3.8	0.6	0.3	0.8

Notes:
1. The projection datum is WGS-84.
2. Receptor types are designated based on the Project's conceptual land use map seen in Figure 1.
3. Exposure periods vary with receptor type. Refer to Section 4.2 for further details.
4. Traffic data were provided for calendar year 2015. Since the project will not be built out until calendar year 2040, emission factors from for calendar year 2040 were used for these health risk estimates.

Abbreviations:
UTM - Universal Transverse Mercator
WGS - World Geodetic System

Source:
\\wcirvfps1\projects\T\Tejon Ranch\Report\Appendix D_HRA at Sensitive Receptors\Grapevine_I-5_HRA_Report_Appendix D\[HARP2_Results_Summary.xlsx]D.1_Cancer Summary

Table D.2. Chronic Noncancer Hazard Index Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2]	Chronic Noncancer Hazard Index Estimates			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[3]	Future Plus Project 2040
321817.3	3867538.8	Resident	6.73E-03	1.42E-03	6.64E-04	1.63E-03
321812.1	3867638.7	Resident	6.73E-03	1.42E-03	6.64E-04	1.63E-03
321807.0	3867738.5	Resident	6.66E-03	1.40E-03	6.57E-04	1.61E-03
321801.8	3867838.4	Resident	6.69E-03	1.41E-03	6.59E-04	1.62E-03
321796.6	3867938.3	Resident	6.61E-03	1.39E-03	6.51E-04	1.60E-03
321791.4	3868038.1	Resident	6.55E-03	1.38E-03	6.45E-04	1.58E-03
321786.2	3868138.0	Resident	6.54E-03	1.37E-03	6.43E-04	1.57E-03
321753.7	3868209.6	Resident	6.39E-03	1.34E-03	6.27E-04	1.54E-03
321653.7	3868211.5	Resident	6.10E-03	1.28E-03	5.99E-04	1.47E-03
321625.7	3868283.4	Resident	6.12E-03	1.28E-03	6.00E-04	1.47E-03
321626.5	3868383.4	Resident	6.08E-03	1.27E-03	5.96E-04	1.46E-03
321627.2	3868483.4	Resident	6.15E-03	1.28E-03	6.01E-04	1.47E-03
321628.0	3868583.4	Resident	6.14E-03	1.28E-03	5.99E-04	1.47E-03
321628.8	3868683.4	Resident	6.28E-03	1.30E-03	6.11E-04	1.49E-03
321629.6	3868783.4	Resident	6.36E-03	1.31E-03	6.16E-04	1.51E-03
321630.4	3868883.4	Resident	6.33E-03	1.30E-03	6.09E-04	1.49E-03
321636.1	3868982.3	Resident	6.38E-03	1.30E-03	6.08E-04	1.49E-03
321678.4	3869073.0	Resident	6.63E-03	1.34E-03	6.25E-04	1.53E-03
321720.7	3869163.6	Resident	6.86E-03	1.37E-03	6.37E-04	1.56E-03
321762.9	3869254.2	Resident	6.97E-03	1.37E-03	6.38E-04	1.57E-03
321805.2	3869344.8	Resident	7.39E-03	1.43E-03	6.63E-04	1.63E-03
321847.5	3869435.5	Resident	8.42E-03	1.58E-03	7.35E-04	1.81E-03
321873.7	3869529.9	Resident	8.99E-03	1.66E-03	7.74E-04	1.90E-03
321875.9	3869629.8	Resident	8.88E-03	1.62E-03	7.63E-04	1.86E-03
321878.1	3869729.8	Resident	1.04E-02	1.84E-03	8.80E-04	2.13E-03
321880.3	3869829.8	Resident	1.12E-02	1.96E-03	9.45E-04	2.26E-03
321882.5	3869929.8	Resident	1.14E-02	1.98E-03	9.67E-04	2.30E-03
321884.8	3870029.8	Resident	1.26E-02	2.16E-03	1.06E-03	2.51E-03
321887.0	3870129.8	Resident	1.36E-02	2.30E-03	1.15E-03	2.69E-03
321889.2	3870229.7	Resident	1.40E-02	2.36E-03	1.18E-03	2.76E-03
321891.4	3870329.7	Resident	1.49E-02	2.50E-03	1.26E-03	2.92E-03
321893.6	3870429.7	Resident	1.65E-02	2.75E-03	1.39E-03	3.22E-03
321895.8	3870529.7	Resident	1.70E-02	2.82E-03	1.43E-03	3.32E-03
321898.1	3870629.7	Resident	1.74E-02	2.89E-03	1.47E-03	3.39E-03
321900.3	3870729.6	Resident	1.85E-02	3.05E-03	1.55E-03	3.58E-03
321902.5	3870829.6	Resident	1.89E-02	3.11E-03	1.59E-03	3.66E-03
321904.7	3870929.6	Resident	1.88E-02	3.09E-03	1.58E-03	3.64E-03
321906.9	3871029.6	Resident	1.95E-02	3.19E-03	1.63E-03	3.76E-03
321909.1	3871129.6	Resident	2.07E-02	3.39E-03	1.73E-03	3.99E-03
321911.4	3871229.6	Resident	2.14E-02	3.49E-03	1.79E-03	4.11E-03
321913.6	3871329.5	Resident	2.21E-02	3.60E-03	1.85E-03	4.24E-03
321915.8	3871429.5	Resident	2.32E-02	3.78E-03	1.94E-03	4.46E-03
321918.0	3871529.5	Resident	2.44E-02	3.97E-03	2.04E-03	4.69E-03
321920.2	3871629.5	Resident	2.54E-02	4.12E-03	2.12E-03	4.86E-03
324995.6	3872185.7	Resident	6.00E-03	1.00E-03	5.10E-04	1.18E-03
325095.6	3872184.1	Resident	5.74E-03	9.61E-04	4.89E-04	1.13E-03
325195.6	3872182.5	Resident	5.50E-03	9.21E-04	4.68E-04	1.08E-03
325295.6	3872180.8	Resident	5.27E-03	8.84E-04	4.49E-04	1.04E-03
325395.5	3872179.2	Resident	5.05E-03	8.48E-04	4.30E-04	9.96E-04
325495.5	3872177.6	Resident	4.86E-03	8.17E-04	4.14E-04	9.59E-04
323255.1	3871224.5	Resident	3.22E-02	5.21E-03	2.69E-03	6.15E-03
323266.6	3871175.8	Resident	3.24E-02	5.23E-03	2.70E-03	6.17E-03
323278.1	3871127.2	Resident	3.26E-02	5.26E-03	2.72E-03	6.21E-03
323289.7	3871078.5	Resident	3.24E-02	5.23E-03	2.70E-03	6.18E-03
323301.5	3871029.9	Resident	3.23E-02	5.22E-03	2.70E-03	6.16E-03
323313.4	3870981.4	Resident	3.22E-02	5.20E-03	2.69E-03	6.14E-03
323325.0	3870932.7	Resident	3.22E-02	5.20E-03	2.69E-03	6.14E-03
323336.6	3870884.1	Resident	3.21E-02	5.20E-03	2.68E-03	6.13E-03

Table D.2. Chronic Noncancer Hazard Index Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2]	Chronic Noncancer Hazard Index Estimates			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[3]	Future Plus Project 2040
323348.1	3870835.4	Resident	3.23E-02	5.22E-03	2.70E-03	6.16E-03
323359.7	3870786.8	Resident	3.24E-02	5.25E-03	2.71E-03	6.19E-03
323371.2	3870738.1	Resident	3.26E-02	5.28E-03	2.73E-03	6.23E-03
323382.7	3870689.5	Resident	3.28E-02	5.32E-03	2.74E-03	6.27E-03
323394.2	3870640.8	Resident	3.34E-02	5.40E-03	2.79E-03	6.38E-03
323405.7	3870592.2	Resident	3.33E-02	5.40E-03	2.79E-03	6.37E-03
323417.3	3870543.5	Resident	3.34E-02	5.40E-03	2.79E-03	6.37E-03
323428.9	3870494.9	Resident	3.34E-02	5.42E-03	2.79E-03	6.39E-03
323440.6	3870446.3	Resident	3.33E-02	5.40E-03	2.78E-03	6.37E-03
323452.3	3870397.6	Resident	3.33E-02	5.40E-03	2.78E-03	6.36E-03
323371.8	3867980.9	Resident	5.08E-02	1.04E-02	4.79E-03	1.19E-02
323366.1	3868030.6	Resident	5.11E-02	1.04E-02	4.76E-03	1.18E-02
323359.0	3868080.1	Resident	5.13E-02	1.03E-02	4.72E-03	1.18E-02
323349.6	3868129.2	Resident	5.06E-02	1.01E-02	4.60E-03	1.15E-02
323339.2	3868178.1	Resident	5.02E-02	9.88E-03	4.48E-03	1.12E-02
323328.2	3868226.8	Resident	4.98E-02	9.68E-03	4.37E-03	1.10E-02
323317.2	3868275.6	Resident	4.70E-02	9.04E-03	4.06E-03	1.03E-02
323305.6	3868324.3	Resident	4.60E-02	8.74E-03	3.90E-03	9.89E-03
323294.1	3868372.9	Resident	4.46E-02	8.37E-03	3.72E-03	9.46E-03
323282.4	3868421.5	Resident	4.33E-02	8.03E-03	3.56E-03	9.07E-03
323270.2	3868470.0	Resident	4.35E-02	7.95E-03	3.50E-03	8.96E-03
323258.1	3868518.5	Resident	4.42E-02	7.95E-03	3.49E-03	8.95E-03
323246.7	3868567.2	Resident	4.53E-02	8.04E-03	3.54E-03	9.06E-03
323235.7	3868616.0	Resident	4.59E-02	8.05E-03	3.57E-03	9.09E-03
323224.5	3868664.7	Resident	4.66E-02	8.09E-03	3.63E-03	9.17E-03
322618.4	3871193.2	Resident	5.40E-02	8.69E-03	4.50E-03	1.03E-02
322606.8	3871241.9	Resident	5.40E-02	8.69E-03	4.49E-03	1.03E-02
322595.3	3871290.5	Resident	5.41E-02	8.71E-03	4.50E-03	1.03E-02
322583.8	3871339.2	Resident	5.39E-02	8.68E-03	4.49E-03	1.03E-02
322572.2	3871387.8	Resident	5.39E-02	8.67E-03	4.49E-03	1.02E-02
322560.5	3871436.4	Resident	5.44E-02	8.76E-03	4.53E-03	1.04E-02
323311.5	3871203.3	Resident	2.88E-02	4.66E-03	2.40E-03	5.50E-03
323323.0	3871154.6	Resident	2.89E-02	4.67E-03	2.41E-03	5.51E-03
323334.5	3871106.0	Resident	2.89E-02	4.67E-03	2.41E-03	5.52E-03
323346.3	3871057.4	Resident	2.88E-02	4.66E-03	2.40E-03	5.50E-03
323358.2	3871008.8	Resident	2.88E-02	4.66E-03	2.40E-03	5.50E-03
323369.9	3870960.2	Resident	2.87E-02	4.66E-03	2.40E-03	5.49E-03
323381.4	3870911.6	Resident	2.87E-02	4.66E-03	2.40E-03	5.50E-03
323393.0	3870862.9	Resident	2.88E-02	4.66E-03	2.40E-03	5.50E-03
323404.5	3870814.3	Resident	2.89E-02	4.69E-03	2.42E-03	5.54E-03
323416.1	3870765.6	Resident	2.91E-02	4.72E-03	2.43E-03	5.57E-03
323427.6	3870717.0	Resident	2.94E-02	4.76E-03	2.45E-03	5.62E-03
323439.1	3870668.3	Resident	2.96E-02	4.80E-03	2.47E-03	5.66E-03
323450.6	3870619.6	Resident	2.98E-02	4.84E-03	2.49E-03	5.71E-03
323462.2	3870571.0	Resident	3.00E-02	4.87E-03	2.51E-03	5.75E-03
323473.7	3870522.3	Resident	3.00E-02	4.87E-03	2.51E-03	5.74E-03
323485.4	3870473.7	Resident	2.99E-02	4.86E-03	2.50E-03	5.73E-03
323497.1	3870425.1	Resident	2.99E-02	4.86E-03	2.50E-03	5.72E-03
323508.8	3870376.5	Resident	3.00E-02	4.87E-03	2.51E-03	5.74E-03
323765.9	3869306.9	Resident	3.23E-02	5.34E-03	2.71E-03	6.26E-03
323777.5	3869258.3	Resident	3.24E-02	5.36E-03	2.71E-03	6.29E-03
323800.5	3869160.9	Resident	3.27E-02	5.43E-03	2.74E-03	6.37E-03
323811.9	3869112.2	Resident	3.29E-02	5.47E-03	2.76E-03	6.41E-03
323823.2	3869063.6	Resident	3.31E-02	5.51E-03	2.77E-03	6.45E-03
323834.8	3869014.9	Resident	3.29E-02	5.49E-03	2.75E-03	6.42E-03
323846.4	3868966.3	Resident	3.26E-02	5.45E-03	2.73E-03	6.37E-03
323857.9	3868917.6	Resident	3.07E-02	5.16E-03	2.57E-03	6.02E-03
323869.3	3868868.9	Resident	2.92E-02	4.94E-03	2.44E-03	5.75E-03

Table D.2. Chronic Noncancer Hazard Index Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2]	Chronic Noncancer Hazard Index Estimates			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[3]	Future Plus Project 2040
323880.7	3868820.2	Resident	3.01E-02	5.09E-03	2.51E-03	5.92E-03
323892.1	3868771.5	Resident	3.02E-02	5.13E-03	2.52E-03	5.96E-03
323903.5	3868722.9	Resident	3.09E-02	5.25E-03	2.57E-03	6.09E-03
323915.2	3868674.3	Resident	3.13E-02	5.34E-03	2.60E-03	6.18E-03
323927.3	3868625.7	Resident	3.12E-02	5.35E-03	2.59E-03	6.19E-03
323939.4	3868577.2	Resident	3.12E-02	5.37E-03	2.58E-03	6.20E-03
323951.6	3868528.7	Resident	3.06E-02	5.31E-03	2.52E-03	6.11E-03
323963.9	3868480.3	Resident	2.97E-02	5.20E-03	2.43E-03	5.95E-03
323976.0	3868431.7	Resident	3.04E-02	5.35E-03	2.50E-03	6.12E-03
323990.3	3868383.9	Resident	3.06E-02	5.41E-03	2.51E-03	6.18E-03
324006.7	3868336.6	Resident	2.72E-02	4.92E-03	2.26E-03	5.60E-03
324025.0	3868290.1	Resident	2.45E-02	4.51E-03	2.07E-03	5.14E-03
323319.9	3867996.1	Resident	4.53E-02	9.26E-03	4.27E-03	1.06E-02
323313.5	3868045.7	Resident	4.52E-02	9.18E-03	4.23E-03	1.05E-02
323305.2	3868095.0	Resident	4.48E-02	9.01E-03	4.14E-03	1.03E-02
323295.6	3868144.1	Resident	4.46E-02	8.88E-03	4.06E-03	1.01E-02
323284.6	3868192.8	Resident	4.41E-02	8.70E-03	3.96E-03	9.90E-03
323273.6	3868241.6	Resident	4.27E-02	8.35E-03	3.78E-03	9.49E-03
323262.3	3868290.3	Resident	4.03E-02	7.81E-03	3.53E-03	8.86E-03
323250.7	3868339.0	Resident	3.89E-02	7.45E-03	3.35E-03	8.45E-03
323239.2	3868387.6	Resident	3.77E-02	7.13E-03	3.19E-03	8.08E-03
323227.2	3868436.2	Resident	3.77E-02	7.04E-03	3.14E-03	7.96E-03
323215.0	3868484.7	Resident	3.84E-02	7.06E-03	3.13E-03	7.97E-03
323203.1	3868533.2	Resident	3.83E-02	6.95E-03	3.08E-03	7.85E-03
323192.1	3868582.0	Resident	3.92E-02	7.02E-03	3.11E-03	7.92E-03
323181.0	3868630.8	Resident	3.96E-02	7.00E-03	3.12E-03	7.92E-03
322680.2	3870721.7	Resident	4.78E-02	7.72E-03	3.99E-03	9.12E-03
322668.6	3870770.4	Resident	4.74E-02	7.66E-03	3.95E-03	9.04E-03
322656.9	3870819.0	Resident	4.71E-02	7.61E-03	3.93E-03	8.99E-03
322645.1	3870867.6	Resident	4.73E-02	7.64E-03	3.94E-03	9.02E-03
322633.1	3870916.1	Resident	4.77E-02	7.70E-03	3.98E-03	9.10E-03
322621.2	3870964.7	Resident	4.80E-02	7.75E-03	4.00E-03	9.15E-03
322586.6	3871110.6	Resident	4.86E-02	7.85E-03	4.05E-03	9.27E-03
322575.1	3871159.3	Resident	4.87E-02	7.85E-03	4.05E-03	9.27E-03
322563.5	3871207.9	Resident	4.84E-02	7.81E-03	4.03E-03	9.22E-03
322551.9	3871256.6	Resident	4.86E-02	7.83E-03	4.05E-03	9.25E-03
322540.4	3871305.2	Resident	4.85E-02	7.82E-03	4.04E-03	9.23E-03
322528.9	3871353.9	Resident	4.85E-02	7.82E-03	4.04E-03	9.24E-03
322517.2	3871402.5	Resident	4.89E-02	7.88E-03	4.08E-03	9.31E-03
322505.5	3871451.1	Resident	4.88E-02	7.87E-03	4.07E-03	9.29E-03
323356.4	3871230.8	Resident	2.59E-02	4.20E-03	2.17E-03	4.96E-03
323367.9	3871182.1	Resident	2.59E-02	4.21E-03	2.17E-03	4.96E-03
323379.3	3871133.5	Resident	2.60E-02	4.22E-03	2.18E-03	4.98E-03
323391.1	3871084.9	Resident	2.61E-02	4.23E-03	2.18E-03	4.99E-03
323403.0	3871036.3	Resident	2.60E-02	4.22E-03	2.18E-03	4.98E-03
323414.7	3870987.7	Resident	2.60E-02	4.23E-03	2.18E-03	4.98E-03
323426.3	3870939.0	Resident	2.60E-02	4.22E-03	2.17E-03	4.97E-03
323437.8	3870890.4	Resident	2.61E-02	4.23E-03	2.18E-03	4.99E-03
323449.4	3870841.7	Resident	2.62E-02	4.26E-03	2.19E-03	5.02E-03
323461.0	3870793.1	Resident	2.63E-02	4.27E-03	2.20E-03	5.04E-03
323472.5	3870744.4	Resident	2.65E-02	4.31E-03	2.22E-03	5.08E-03
323484.0	3870695.8	Resident	2.67E-02	4.33E-03	2.23E-03	5.11E-03
323495.5	3870647.1	Resident	2.69E-02	4.38E-03	2.25E-03	5.16E-03
323507.0	3870598.5	Resident	2.71E-02	4.40E-03	2.27E-03	5.19E-03
323518.6	3870549.8	Resident	2.72E-02	4.42E-03	2.27E-03	5.21E-03
323530.2	3870501.2	Resident	2.71E-02	4.42E-03	2.27E-03	5.20E-03
323541.9	3870452.6	Resident	2.71E-02	4.42E-03	2.27E-03	5.20E-03
323553.6	3870404.0	Resident	2.72E-02	4.43E-03	2.28E-03	5.22E-03

Table D.2. Chronic Noncancer Hazard Index Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2]	Chronic Noncancer Hazard Index Estimates			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[3]	Future Plus Project 2040
323565.3	3870355.3	Resident	2.72E-02	4.42E-03	2.27E-03	5.21E-03
323762.6	3869528.5	Resident	2.92E-02	4.82E-03	2.45E-03	5.66E-03
323774.5	3869479.9	Resident	2.93E-02	4.83E-03	2.45E-03	5.67E-03
323786.6	3869431.4	Resident	2.92E-02	4.82E-03	2.44E-03	5.65E-03
323798.7	3869382.9	Resident	2.91E-02	4.82E-03	2.44E-03	5.66E-03
323810.8	3869334.4	Resident	2.92E-02	4.83E-03	2.44E-03	5.66E-03
323822.3	3869285.7	Resident	2.93E-02	4.86E-03	2.46E-03	5.69E-03
323845.4	3869188.4	Resident	2.97E-02	4.93E-03	2.49E-03	5.78E-03
323856.8	3869139.7	Resident	2.98E-02	4.96E-03	2.50E-03	5.81E-03
323868.2	3869091.0	Resident	2.99E-02	4.99E-03	2.51E-03	5.84E-03
323879.6	3869042.4	Resident	2.97E-02	4.96E-03	2.49E-03	5.80E-03
323891.2	3868993.7	Resident	2.93E-02	4.90E-03	2.45E-03	5.73E-03
323902.8	3868945.1	Resident	2.87E-02	4.82E-03	2.40E-03	5.62E-03
323914.2	3868896.4	Resident	2.42E-02	4.13E-03	2.03E-03	4.80E-03
323925.7	3868847.7	Resident	2.58E-02	4.38E-03	2.15E-03	5.09E-03
323937.0	3868799.0	Resident	2.64E-02	4.50E-03	2.20E-03	5.22E-03
323948.4	3868750.3	Resident	2.71E-02	4.63E-03	2.26E-03	5.38E-03
323959.9	3868701.7	Resident	2.77E-02	4.74E-03	2.31E-03	5.50E-03
323972.0	3868653.2	Resident	2.80E-02	4.82E-03	2.34E-03	5.58E-03
323984.1	3868604.7	Resident	2.83E-02	4.88E-03	2.36E-03	5.64E-03
323996.2	3868556.1	Resident	2.84E-02	4.92E-03	2.36E-03	5.68E-03
324008.6	3868507.7	Resident	2.83E-02	4.94E-03	2.35E-03	5.69E-03
324020.7	3868459.2	Resident	2.74E-02	4.82E-03	2.27E-03	5.53E-03
324034.1	3868411.0	Resident	2.67E-02	4.74E-03	2.21E-03	5.42E-03
324050.2	3868363.7	Resident	2.57E-02	4.62E-03	2.13E-03	5.27E-03
324067.9	3868316.9	Resident	2.37E-02	4.33E-03	2.00E-03	4.94E-03
324089.2	3868271.7	Resident	2.22E-02	4.11E-03	1.90E-03	4.69E-03
323267.7	3868011.4	Resident	4.04E-02	8.25E-03	3.82E-03	9.44E-03
323251.4	3868110.0	Resident	4.00E-02	8.05E-03	3.70E-03	9.19E-03
323241.0	3868158.9	Resident	3.95E-02	7.89E-03	3.62E-03	9.00E-03
323230.0	3868207.7	Resident	3.87E-02	7.66E-03	3.50E-03	8.73E-03
323219.0	3868256.4	Resident	3.69E-02	7.24E-03	3.30E-03	8.24E-03
323207.4	3868305.1	Resident	3.53E-02	6.88E-03	3.12E-03	7.82E-03
323195.8	3868353.7	Resident	3.43E-02	6.60E-03	2.98E-03	7.49E-03
323184.1	3868402.3	Resident	3.41E-02	6.49E-03	2.92E-03	7.36E-03
323172.0	3868450.8	Resident	3.50E-02	6.55E-03	2.93E-03	7.41E-03
323159.8	3868499.3	Resident	3.41E-02	6.32E-03	2.82E-03	7.15E-03
323148.5	3868548.1	Resident	3.39E-02	6.21E-03	2.77E-03	7.02E-03
323137.5	3868596.8	Resident	3.42E-02	6.18E-03	2.76E-03	6.99E-03
323126.3	3868645.6	Resident	3.40E-02	6.08E-03	2.72E-03	6.88E-03
323115.1	3868694.3	Resident	3.33E-02	5.91E-03	2.66E-03	6.71E-03
323103.8	3868743.0	Resident	3.32E-02	5.85E-03	2.66E-03	6.65E-03
323092.2	3868791.7	Resident	3.29E-02	5.75E-03	2.64E-03	6.56E-03
323080.3	3868840.2	Resident	3.26E-02	5.66E-03	2.63E-03	6.47E-03
323068.4	3868888.8	Resident	3.29E-02	5.68E-03	2.67E-03	6.52E-03
323056.7	3868937.4	Resident	3.33E-02	5.71E-03	2.71E-03	6.57E-03
323045.0	3868986.0	Resident	3.34E-02	5.69E-03	2.73E-03	6.57E-03
323020.9	3869083.0	Resident	3.37E-02	5.70E-03	2.78E-03	6.61E-03
323008.7	3869131.6	Resident	3.21E-02	5.42E-03	2.65E-03	6.29E-03
322997.5	3869180.3	Resident	3.26E-02	5.47E-03	2.70E-03	6.37E-03
322986.2	3869229.0	Resident	3.30E-02	5.54E-03	2.74E-03	6.45E-03
322974.7	3869277.7	Resident	3.42E-02	5.70E-03	2.84E-03	6.66E-03
322963.3	3869326.3	Resident	3.54E-02	5.89E-03	2.95E-03	6.89E-03
322951.7	3869375.0	Resident	3.68E-02	6.10E-03	3.07E-03	7.15E-03
322940.2	3869423.6	Resident	3.74E-02	6.18E-03	3.12E-03	7.24E-03
322928.3	3869472.2	Resident	3.77E-02	6.22E-03	3.15E-03	7.30E-03
322916.4	3869520.8	Resident	3.76E-02	6.20E-03	3.14E-03	7.28E-03
322904.5	3869569.3	Resident	3.73E-02	6.13E-03	3.11E-03	7.20E-03

Table D.2. Chronic Noncancer Hazard Index Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2]	Chronic Noncancer Hazard Index Estimates			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[3]	Future Plus Project 2040
322892.7	3869617.9	Resident	3.66E-02	6.02E-03	3.05E-03	7.07E-03
322881.0	3869666.5	Resident	3.60E-02	5.91E-03	3.01E-03	6.95E-03
322869.2	3869715.1	Resident	3.60E-02	5.92E-03	3.01E-03	6.96E-03
322636.9	3870687.8	Resident	4.35E-02	7.03E-03	3.63E-03	8.30E-03
322625.3	3870736.5	Resident	4.28E-02	6.93E-03	3.57E-03	8.18E-03
322613.6	3870785.1	Resident	4.23E-02	6.85E-03	3.53E-03	8.08E-03
322601.9	3870833.7	Resident	4.25E-02	6.87E-03	3.54E-03	8.11E-03
322590.0	3870882.3	Resident	4.30E-02	6.95E-03	3.58E-03	8.20E-03
322578.0	3870930.8	Resident	4.35E-02	7.03E-03	3.63E-03	8.31E-03
322566.3	3870979.4	Resident	4.39E-02	7.09E-03	3.66E-03	8.37E-03
322543.3	3871076.8	Resident	4.47E-02	7.22E-03	3.73E-03	8.53E-03
322531.7	3871125.4	Resident	4.48E-02	7.23E-03	3.73E-03	8.53E-03
322520.2	3871174.0	Resident	4.45E-02	7.18E-03	3.71E-03	8.48E-03
322508.6	3871222.7	Resident	4.41E-02	7.12E-03	3.68E-03	8.41E-03
322497.0	3871271.3	Resident	4.39E-02	7.08E-03	3.66E-03	8.36E-03
322485.6	3871320.0	Resident	4.38E-02	7.06E-03	3.65E-03	8.34E-03
322474.0	3871368.6	Resident	4.41E-02	7.12E-03	3.68E-03	8.41E-03
322462.2	3871417.3	Resident	4.40E-02	7.10E-03	3.67E-03	8.38E-03
322450.5	3871465.9	Resident	4.43E-02	7.14E-03	3.69E-03	8.43E-03
323412.7	3871209.6	Resident	2.37E-02	3.85E-03	1.98E-03	4.54E-03
323424.2	3871160.9	Resident	2.37E-02	3.85E-03	1.98E-03	4.54E-03
323435.8	3871112.3	Resident	2.38E-02	3.86E-03	1.99E-03	4.56E-03
323447.7	3871063.7	Resident	2.38E-02	3.86E-03	1.99E-03	4.56E-03
323459.6	3871015.2	Resident	2.38E-02	3.86E-03	1.99E-03	4.55E-03
323471.2	3870966.5	Resident	2.38E-02	3.87E-03	1.99E-03	4.56E-03
323482.7	3870917.9	Resident	2.39E-02	3.88E-03	2.00E-03	4.58E-03
323494.3	3870869.2	Resident	2.39E-02	3.89E-03	2.00E-03	4.59E-03
323505.8	3870820.6	Resident	2.40E-02	3.91E-03	2.01E-03	4.61E-03
323517.4	3870771.9	Resident	2.42E-02	3.94E-03	2.02E-03	4.64E-03
323528.9	3870723.3	Resident	2.43E-02	3.96E-03	2.03E-03	4.66E-03
323540.3	3870674.6	Resident	2.45E-02	3.99E-03	2.05E-03	4.70E-03
323551.9	3870625.9	Resident	2.46E-02	4.01E-03	2.06E-03	4.72E-03
323563.5	3870577.3	Resident	2.47E-02	4.02E-03	2.07E-03	4.74E-03
323575.1	3870528.7	Resident	2.47E-02	4.03E-03	2.07E-03	4.74E-03
323586.8	3870480.0	Resident	2.49E-02	4.06E-03	2.09E-03	4.79E-03
323598.5	3870431.4	Resident	2.50E-02	4.08E-03	2.09E-03	4.80E-03
323610.1	3870382.8	Resident	2.49E-02	4.07E-03	2.09E-03	4.80E-03
323773.1	3869702.0	Resident	2.63E-02	4.33E-03	2.21E-03	5.09E-03
323784.8	3869653.4	Resident	2.64E-02	4.35E-03	2.22E-03	5.11E-03
323796.2	3869604.7	Resident	2.65E-02	4.37E-03	2.22E-03	5.13E-03
323807.5	3869556.0	Resident	2.65E-02	4.38E-03	2.23E-03	5.15E-03
323819.2	3869507.4	Resident	2.66E-02	4.39E-03	2.23E-03	5.16E-03
323831.3	3869458.9	Resident	2.65E-02	4.39E-03	2.23E-03	5.15E-03
323843.4	3869410.3	Resident	2.65E-02	4.39E-03	2.22E-03	5.15E-03
323855.5	3869361.8	Resident	2.65E-02	4.39E-03	2.22E-03	5.15E-03
323867.2	3869313.2	Resident	2.66E-02	4.42E-03	2.23E-03	5.18E-03
323878.7	3869264.6	Resident	2.69E-02	4.48E-03	2.26E-03	5.25E-03
323890.3	3869215.9	Resident	2.71E-02	4.52E-03	2.28E-03	5.29E-03
323901.7	3869167.2	Resident	2.72E-02	4.54E-03	2.28E-03	5.31E-03
323913.1	3869118.5	Resident	2.72E-02	4.54E-03	2.28E-03	5.31E-03
323924.5	3869069.8	Resident	2.70E-02	4.52E-03	2.27E-03	5.29E-03
323936.1	3869021.2	Resident	2.66E-02	4.47E-03	2.23E-03	5.22E-03
323947.7	3868972.6	Resident	2.62E-02	4.41E-03	2.20E-03	5.15E-03
323959.2	3868923.9	Resident	2.58E-02	4.36E-03	2.16E-03	5.09E-03
323970.6	3868875.2	Resident	2.27E-02	3.88E-03	1.90E-03	4.51E-03
323982.0	3868826.5	Resident	2.37E-02	4.06E-03	1.99E-03	4.72E-03
323993.3	3868777.8	Resident	2.41E-02	4.13E-03	2.02E-03	4.79E-03
324004.7	3868729.1	Resident	2.48E-02	4.26E-03	2.07E-03	4.94E-03

Table D.2. Chronic Noncancer Hazard Index Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2]	Chronic Noncancer Hazard Index Estimates			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[3]	Future Plus Project 2040
324016.7	3868680.6	Resident	2.51E-02	4.33E-03	2.10E-03	5.02E-03
324028.8	3868632.1	Resident	2.58E-02	4.46E-03	2.16E-03	5.16E-03
324040.9	3868583.6	Resident	2.60E-02	4.51E-03	2.18E-03	5.21E-03
324053.2	3868535.1	Resident	2.60E-02	4.52E-03	2.17E-03	5.22E-03
324065.4	3868486.6	Resident	2.49E-02	4.37E-03	2.07E-03	5.03E-03
324077.9	3868438.2	Resident	2.43E-02	4.31E-03	2.02E-03	4.94E-03
324155.0	3868254.1	Resident	2.02E-02	3.76E-03	1.74E-03	4.29E-03
323224.6	3867927.2	Resident	3.71E-02	7.67E-03	3.56E-03	8.79E-03
323215.2	3868026.7	Resident	3.61E-02	7.40E-03	3.43E-03	8.46E-03
323207.1	3868076.0	Resident	3.62E-02	7.35E-03	3.40E-03	8.41E-03
323197.4	3868125.1	Resident	3.59E-02	7.25E-03	3.34E-03	8.27E-03
323186.4	3868173.8	Resident	3.50E-02	7.02E-03	3.23E-03	8.01E-03
323175.4	3868222.6	Resident	3.37E-02	6.70E-03	3.07E-03	7.64E-03
323164.0	3868271.3	Resident	3.24E-02	6.40E-03	2.93E-03	7.29E-03
323152.5	3868320.0	Resident	3.15E-02	6.16E-03	2.81E-03	7.01E-03
323140.9	3868368.6	Resident	3.11E-02	6.00E-03	2.72E-03	6.82E-03
323128.9	3868417.1	Resident	3.11E-02	5.93E-03	2.67E-03	6.73E-03
323116.7	3868465.6	Resident	3.04E-02	5.74E-03	2.58E-03	6.51E-03
323104.9	3868514.2	Resident	3.01E-02	5.62E-03	2.52E-03	6.37E-03
323093.9	3868563.0	Resident	3.00E-02	5.54E-03	2.48E-03	6.27E-03
323082.8	3868611.8	Resident	2.99E-02	5.45E-03	2.44E-03	6.17E-03
323071.6	3868660.5	Resident	2.94E-02	5.32E-03	2.39E-03	6.03E-03
323060.3	3868709.2	Resident	2.84E-02	5.11E-03	2.31E-03	5.79E-03
323049.0	3868757.9	Resident	2.79E-02	4.98E-03	2.26E-03	5.66E-03
323037.1	3868806.5	Resident	2.81E-02	4.97E-03	2.28E-03	5.66E-03
323025.1	3868855.0	Resident	2.84E-02	4.98E-03	2.31E-03	5.69E-03
323013.4	3868903.6	Resident	2.87E-02	5.00E-03	2.34E-03	5.73E-03
323001.7	3868952.2	Resident	2.88E-02	4.99E-03	2.35E-03	5.73E-03
322977.7	3869049.3	Resident	2.91E-02	4.98E-03	2.39E-03	5.75E-03
322965.6	3869097.8	Resident	2.88E-02	4.91E-03	2.37E-03	5.68E-03
322954.0	3869146.5	Resident	2.86E-02	4.86E-03	2.36E-03	5.63E-03
322942.8	3869195.2	Resident	2.88E-02	4.87E-03	2.38E-03	5.66E-03
322931.3	3869243.9	Resident	2.91E-02	4.91E-03	2.42E-03	5.71E-03
322919.9	3869292.6	Resident	3.05E-02	5.12E-03	2.54E-03	5.97E-03
322908.4	3869341.2	Resident	3.17E-02	5.29E-03	2.64E-03	6.18E-03
322896.8	3869389.9	Resident	3.24E-02	5.40E-03	2.70E-03	6.32E-03
322885.1	3869438.5	Resident	3.29E-02	5.47E-03	2.75E-03	6.41E-03
322873.2	3869487.0	Resident	3.34E-02	5.53E-03	2.79E-03	6.48E-03
322861.3	3869535.6	Resident	3.34E-02	5.53E-03	2.79E-03	6.48E-03
322849.4	3869584.2	Resident	3.30E-02	5.46E-03	2.76E-03	6.41E-03
322837.7	3869632.8	Resident	3.26E-02	5.39E-03	2.73E-03	6.32E-03
322825.9	3869681.4	Resident	3.25E-02	5.36E-03	2.72E-03	6.29E-03
322814.2	3869730.0	Resident	3.34E-02	5.49E-03	2.79E-03	6.45E-03
322605.1	3870605.4	Resident	4.01E-02	6.51E-03	3.35E-03	7.68E-03
322593.6	3870654.1	Resident	4.01E-02	6.50E-03	3.35E-03	7.67E-03
322582.0	3870702.7	Resident	3.92E-02	6.35E-03	3.27E-03	7.50E-03
322570.3	3870751.3	Resident	3.87E-02	6.27E-03	3.23E-03	7.40E-03
322558.6	3870799.9	Resident	3.85E-02	6.24E-03	3.22E-03	7.36E-03
322546.8	3870848.5	Resident	3.89E-02	6.30E-03	3.25E-03	7.44E-03
322534.8	3870897.1	Resident	3.93E-02	6.36E-03	3.28E-03	7.51E-03
322522.9	3870945.6	Resident	3.97E-02	6.42E-03	3.31E-03	7.58E-03
322511.4	3870994.3	Resident	4.06E-02	6.56E-03	3.38E-03	7.75E-03
322499.9	3871043.0	Resident	4.16E-02	6.72E-03	3.47E-03	7.94E-03
322488.4	3871091.6	Resident	4.13E-02	6.67E-03	3.44E-03	7.88E-03
322476.8	3871140.3	Resident	4.10E-02	6.62E-03	3.42E-03	7.81E-03
322465.2	3871188.9	Resident	4.07E-02	6.57E-03	3.39E-03	7.76E-03
322453.7	3871237.6	Resident	4.03E-02	6.51E-03	3.36E-03	7.68E-03
322442.2	3871286.2	Resident	4.00E-02	6.46E-03	3.34E-03	7.63E-03

Table D.2. Chronic Noncancer Hazard Index Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2]	Chronic Noncancer Hazard Index Estimates			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[3]	Future Plus Project 2040
322430.7	3871334.9	Resident	4.03E-02	6.51E-03	3.36E-03	7.68E-03
322418.9	3871383.5	Resident	4.02E-02	6.49E-03	3.35E-03	7.67E-03
322407.2	3871432.1	Resident	4.02E-02	6.49E-03	3.35E-03	7.67E-03
322395.5	3871480.7	Resident	4.01E-02	6.47E-03	3.34E-03	7.64E-03
323469.1	3871188.4	Resident	2.18E-02	3.55E-03	1.83E-03	4.18E-03
323480.6	3871139.8	Resident	2.18E-02	3.55E-03	1.83E-03	4.19E-03
323492.5	3871091.2	Resident	2.19E-02	3.56E-03	1.83E-03	4.20E-03
323504.4	3871042.6	Resident	2.19E-02	3.56E-03	1.83E-03	4.20E-03
323516.0	3870994.0	Resident	2.19E-02	3.57E-03	1.84E-03	4.21E-03
323527.6	3870945.3	Resident	2.20E-02	3.58E-03	1.84E-03	4.22E-03
323539.1	3870896.7	Resident	2.21E-02	3.59E-03	1.85E-03	4.24E-03
323550.7	3870848.1	Resident	2.22E-02	3.61E-03	1.86E-03	4.26E-03
323562.3	3870799.4	Resident	2.23E-02	3.63E-03	1.87E-03	4.28E-03
323573.7	3870750.7	Resident	2.24E-02	3.65E-03	1.87E-03	4.30E-03
323585.2	3870702.1	Resident	2.24E-02	3.66E-03	1.88E-03	4.31E-03
323596.8	3870653.4	Resident	2.26E-02	3.68E-03	1.89E-03	4.34E-03
323608.3	3870604.8	Resident	2.27E-02	3.70E-03	1.90E-03	4.36E-03
323619.9	3870556.1	Resident	2.28E-02	3.72E-03	1.91E-03	4.38E-03
323631.6	3870507.5	Resident	2.30E-02	3.75E-03	1.92E-03	4.42E-03
323643.3	3870458.9	Resident	2.32E-02	3.78E-03	1.94E-03	4.46E-03
323655.0	3870410.3	Resident	2.30E-02	3.76E-03	1.93E-03	4.43E-03
323666.6	3870361.6	Resident	2.30E-02	3.76E-03	1.93E-03	4.43E-03
323829.6	3869680.9	Resident	2.42E-02	4.00E-03	2.03E-03	4.69E-03
323841.1	3869632.2	Resident	2.43E-02	4.01E-03	2.04E-03	4.71E-03
323852.5	3869583.5	Resident	2.43E-02	4.03E-03	2.04E-03	4.73E-03
323863.9	3869534.8	Resident	2.44E-02	4.05E-03	2.05E-03	4.75E-03
323876.0	3869486.3	Resident	2.44E-02	4.05E-03	2.05E-03	4.76E-03
323888.1	3869437.8	Resident	2.44E-02	4.05E-03	2.05E-03	4.75E-03
323900.2	3869389.3	Resident	2.43E-02	4.04E-03	2.04E-03	4.73E-03
323912.1	3869340.7	Resident	2.43E-02	4.05E-03	2.05E-03	4.75E-03
323923.6	3869292.0	Resident	2.46E-02	4.10E-03	2.07E-03	4.80E-03
323946.7	3869194.7	Resident	2.49E-02	4.16E-03	2.09E-03	4.87E-03
323958.0	3869146.0	Resident	2.49E-02	4.17E-03	2.09E-03	4.88E-03
323969.4	3869097.3	Resident	2.48E-02	4.16E-03	2.08E-03	4.87E-03
323980.9	3869048.7	Resident	2.45E-02	4.12E-03	2.06E-03	4.81E-03
323992.5	3869000.0	Resident	2.41E-02	4.07E-03	2.03E-03	4.75E-03
324004.1	3868951.4	Resident	2.38E-02	4.03E-03	2.00E-03	4.70E-03
324015.5	3868902.7	Resident	2.31E-02	3.92E-03	1.94E-03	4.57E-03
324026.9	3868854.0	Resident	2.10E-02	3.61E-03	1.77E-03	4.19E-03
324038.3	3868805.3	Resident	2.20E-02	3.77E-03	1.84E-03	4.38E-03
324049.6	3868756.6	Resident	2.29E-02	3.93E-03	1.92E-03	4.56E-03
324061.4	3868708.0	Resident	2.36E-02	4.06E-03	1.98E-03	4.71E-03
324073.5	3868659.5	Resident	2.41E-02	4.16E-03	2.02E-03	4.82E-03
323173.0	3867842.9	Resident	3.41E-02	7.11E-03	3.31E-03	8.15E-03
323174.5	3867892.9	Resident	3.34E-02	6.95E-03	3.24E-03	7.97E-03
323162.6	3868042.2	Resident	3.30E-02	6.75E-03	3.13E-03	7.73E-03
323153.2	3868091.3	Resident	3.31E-02	6.72E-03	3.11E-03	7.69E-03
323142.7	3868140.2	Resident	3.17E-02	6.41E-03	2.96E-03	7.32E-03
323131.7	3868189.0	Resident	3.02E-02	6.08E-03	2.81E-03	6.95E-03
323120.6	3868237.7	Resident	2.94E-02	5.88E-03	2.71E-03	6.72E-03
323109.1	3868286.4	Resident	2.88E-02	5.71E-03	2.62E-03	6.51E-03
323097.5	3868335.0	Resident	2.82E-02	5.54E-03	2.53E-03	6.31E-03
323085.7	3868383.6	Resident	2.77E-02	5.38E-03	2.45E-03	6.12E-03
323073.5	3868432.1	Resident	2.70E-02	5.21E-03	2.36E-03	5.92E-03
323061.4	3868480.6	Resident	2.66E-02	5.07E-03	2.29E-03	5.75E-03
323050.2	3868529.4	Resident	2.64E-02	4.99E-03	2.25E-03	5.66E-03
323039.2	3868578.1	Resident	2.65E-02	4.93E-03	2.22E-03	5.59E-03
323028.0	3868626.9	Resident	2.68E-02	4.93E-03	2.22E-03	5.59E-03

Table D.2. Chronic Noncancer Hazard Index Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2]	Chronic Noncancer Hazard Index Estimates			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[3]	Future Plus Project 2040
323016.8	3868675.6	Resident	2.53E-02	4.63E-03	2.09E-03	5.25E-03
323005.5	3868724.3	Resident	2.41E-02	4.39E-03	1.99E-03	4.98E-03
322993.9	3868772.9	Resident	2.42E-02	4.36E-03	1.99E-03	4.96E-03
322981.9	3868821.5	Resident	2.46E-02	4.40E-03	2.02E-03	5.01E-03
322970.0	3868870.1	Resident	2.50E-02	4.43E-03	2.04E-03	5.06E-03
322958.4	3868918.7	Resident	2.51E-02	4.41E-03	2.05E-03	5.05E-03
322934.6	3869015.8	Resident	2.56E-02	4.44E-03	2.10E-03	5.10E-03
322922.5	3869064.3	Resident	2.57E-02	4.43E-03	2.11E-03	5.10E-03
322910.4	3869112.8	Resident	2.59E-02	4.45E-03	2.14E-03	5.14E-03
322899.2	3869161.6	Resident	2.59E-02	4.42E-03	2.14E-03	5.12E-03
322887.9	3869210.3	Resident	2.62E-02	4.46E-03	2.17E-03	5.17E-03
322876.4	3869259.0	Resident	2.71E-02	4.59E-03	2.25E-03	5.34E-03
322864.9	3869307.6	Resident	2.84E-02	4.78E-03	2.36E-03	5.57E-03
322853.4	3869356.3	Resident	2.87E-02	4.82E-03	2.39E-03	5.62E-03
322841.8	3869404.9	Resident	2.92E-02	4.88E-03	2.43E-03	5.70E-03
322830.0	3869453.5	Resident	2.97E-02	4.96E-03	2.48E-03	5.80E-03
322818.0	3869502.1	Resident	3.01E-02	5.01E-03	2.52E-03	5.87E-03
322806.2	3869550.6	Resident	3.00E-02	4.98E-03	2.51E-03	5.84E-03
322794.3	3869599.2	Resident	2.97E-02	4.93E-03	2.49E-03	5.78E-03
322782.6	3869647.8	Resident	2.98E-02	4.94E-03	2.50E-03	5.80E-03
322770.9	3869696.4	Resident	3.03E-02	5.01E-03	2.54E-03	5.88E-03
322573.2	3870523.2	Resident	3.62E-02	5.88E-03	3.02E-03	6.93E-03
322561.7	3870571.8	Resident	3.67E-02	5.95E-03	3.06E-03	7.02E-03
322550.2	3870620.5	Resident	3.71E-02	6.03E-03	3.10E-03	7.11E-03
322538.6	3870669.1	Resident	3.60E-02	5.84E-03	3.00E-03	6.88E-03
322527.0	3870717.8	Resident	3.53E-02	5.73E-03	2.95E-03	6.76E-03
322515.3	3870766.4	Resident	3.52E-02	5.72E-03	2.94E-03	6.75E-03
322503.5	3870815.0	Resident	3.54E-02	5.75E-03	2.96E-03	6.78E-03
322491.6	3870863.6	Resident	3.57E-02	5.78E-03	2.98E-03	6.82E-03
322479.7	3870912.1	Resident	3.61E-02	5.85E-03	3.01E-03	6.90E-03
322468.0	3870960.7	Resident	3.69E-02	5.98E-03	3.08E-03	7.06E-03
322456.5	3871009.4	Resident	3.78E-02	6.12E-03	3.15E-03	7.22E-03
322445.0	3871058.0	Resident	3.80E-02	6.14E-03	3.17E-03	7.25E-03
322433.4	3871106.7	Resident	3.78E-02	6.11E-03	3.15E-03	7.22E-03
322421.8	3871155.3	Resident	3.76E-02	6.08E-03	3.13E-03	7.17E-03
322410.2	3871204.0	Resident	3.72E-02	6.01E-03	3.10E-03	7.10E-03
322398.7	3871252.6	Resident	3.70E-02	5.98E-03	3.08E-03	7.06E-03
322387.3	3871301.3	Resident	3.70E-02	5.99E-03	3.09E-03	7.07E-03
322375.6	3871349.9	Resident	3.70E-02	5.98E-03	3.08E-03	7.06E-03
322363.9	3871398.5	Resident	3.70E-02	5.97E-03	3.08E-03	7.05E-03
322352.1	3871447.2	Resident	3.67E-02	5.94E-03	3.07E-03	7.01E-03
322340.5	3871495.8	Resident	3.65E-02	5.90E-03	3.05E-03	6.97E-03
323593.9	3871097.5	Resident	1.91E-02	3.11E-03	1.60E-03	3.67E-03
323617.3	3871000.3	Resident	1.92E-02	3.13E-03	1.61E-03	3.69E-03
323640.4	3870903.0	Resident	1.94E-02	3.16E-03	1.62E-03	3.72E-03
323663.5	3870805.7	Resident	1.94E-02	3.17E-03	1.63E-03	3.74E-03
323686.5	3870708.4	Resident	1.95E-02	3.19E-03	1.63E-03	3.75E-03
323709.6	3870611.1	Resident	1.96E-02	3.22E-03	1.65E-03	3.79E-03
323732.9	3870513.8	Resident	1.97E-02	3.24E-03	1.66E-03	3.81E-03
323779.6	3870319.3	Resident	2.00E-02	3.28E-03	1.68E-03	3.86E-03
323802.5	3870222.0	Resident	2.00E-02	3.30E-03	1.68E-03	3.88E-03
323825.7	3870124.7	Resident	2.01E-02	3.31E-03	1.69E-03	3.90E-03
323942.3	3869638.5	Resident	2.09E-02	3.47E-03	1.76E-03	4.07E-03
323965.3	3869541.2	Resident	2.11E-02	3.52E-03	1.78E-03	4.12E-03
323989.5	3869444.1	Resident	2.12E-02	3.54E-03	1.79E-03	4.15E-03
324013.4	3869347.0	Resident	2.07E-02	3.46E-03	1.74E-03	4.06E-03
324036.4	3869249.7	Resident	2.10E-02	3.52E-03	1.77E-03	4.12E-03
324059.2	3869152.3	Resident	2.12E-02	3.57E-03	1.78E-03	4.17E-03

Table D.2. Chronic Noncancer Hazard Index Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2]	Chronic Noncancer Hazard Index Estimates			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[3]	Future Plus Project 2040
324353.8	3868202.1	Resident	1.53E-02	2.88E-03	1.35E-03	3.30E-03
323062.5	3867678.1	Resident	2.85E-02	5.98E-03	2.79E-03	6.86E-03
323070.1	3867777.7	Resident	2.88E-02	6.01E-03	2.80E-03	6.90E-03
323070.4	3867977.5	Resident	2.80E-02	5.79E-03	2.70E-03	6.64E-03
323032.6	3868173.8	Resident	2.46E-02	5.02E-03	2.33E-03	5.74E-03
323009.9	3868271.2	Resident	2.40E-02	4.83E-03	2.23E-03	5.52E-03
322986.4	3868368.4	Resident	2.22E-02	4.42E-03	2.04E-03	5.04E-03
322962.2	3868465.4	Resident	2.13E-02	4.16E-03	1.91E-03	4.74E-03
322940.1	3868562.9	Resident	2.09E-02	4.01E-03	1.83E-03	4.56E-03
322917.6	3868660.4	Resident	2.00E-02	3.76E-03	1.71E-03	4.28E-03
322894.6	3868757.7	Resident	1.99E-02	3.68E-03	1.68E-03	4.18E-03
322870.8	3868854.8	Resident	1.97E-02	3.58E-03	1.64E-03	4.08E-03
322847.5	3868952.1	Resident	2.02E-02	3.62E-03	1.68E-03	4.13E-03
322823.2	3869049.1	Resident	2.12E-02	3.73E-03	1.75E-03	4.28E-03
322800.1	3869146.4	Resident	2.18E-02	3.78E-03	1.80E-03	4.35E-03
322777.2	3869243.7	Resident	2.28E-02	3.91E-03	1.89E-03	4.53E-03
322754.2	3869341.1	Resident	2.30E-02	3.92E-03	1.92E-03	4.55E-03
322730.7	3869438.3	Resident	2.46E-02	4.14E-03	2.05E-03	4.83E-03
322706.9	3869535.4	Resident	2.48E-02	4.16E-03	2.07E-03	4.86E-03
322683.4	3869632.6	Resident	2.55E-02	4.25E-03	2.13E-03	4.97E-03
322497.2	3870410.7	Resident	2.92E-02	4.77E-03	2.44E-03	5.61E-03
322474.1	3870508.0	Resident	3.04E-02	4.96E-03	2.54E-03	5.85E-03
322451.0	3870605.3	Resident	3.07E-02	5.00E-03	2.57E-03	5.89E-03
322427.8	3870702.5	Resident	3.03E-02	4.93E-03	2.53E-03	5.81E-03
322404.3	3870799.8	Resident	2.96E-02	4.81E-03	2.47E-03	5.67E-03
322380.4	3870896.9	Resident	3.04E-02	4.95E-03	2.54E-03	5.83E-03
322334.2	3871091.5	Resident	3.22E-02	5.22E-03	2.69E-03	6.16E-03
322311.1	3871188.8	Resident	3.23E-02	5.24E-03	2.70E-03	6.18E-03
322288.1	3871286.1	Resident	3.23E-02	5.23E-03	2.69E-03	6.17E-03
322264.7	3871383.3	Resident	3.20E-02	5.18E-03	2.67E-03	6.12E-03
322241.4	3871480.6	Resident	3.20E-02	5.18E-03	2.67E-03	6.11E-03
322218.1	3871577.8	Resident	3.23E-02	5.22E-03	2.70E-03	6.17E-03
323707.1	3871055.3	Resident	1.70E-02	2.79E-03	1.43E-03	3.29E-03
323730.2	3870958.0	Resident	1.71E-02	2.80E-03	1.44E-03	3.30E-03
323776.3	3870763.3	Resident	1.71E-02	2.81E-03	1.44E-03	3.31E-03
323799.4	3870666.0	Resident	1.72E-02	2.83E-03	1.45E-03	3.33E-03
323822.6	3870568.8	Resident	1.73E-02	2.85E-03	1.46E-03	3.35E-03
323845.9	3870471.5	Resident	1.75E-02	2.87E-03	1.47E-03	3.38E-03
323869.3	3870374.3	Resident	1.76E-02	2.89E-03	1.48E-03	3.40E-03
323892.4	3870277.0	Resident	1.76E-02	2.90E-03	1.48E-03	3.41E-03
323915.3	3870179.6	Resident	1.76E-02	2.92E-03	1.49E-03	3.43E-03
324032.2	3869693.5	Resident	1.84E-02	3.06E-03	1.55E-03	3.59E-03
324054.9	3869596.1	Resident	1.85E-02	3.08E-03	1.56E-03	3.61E-03
324078.9	3869499.0	Resident	1.85E-02	3.10E-03	1.56E-03	3.64E-03
324103.1	3869402.0	Resident	1.81E-02	3.05E-03	1.53E-03	3.56E-03
324126.2	3869304.7	Resident	1.79E-02	3.03E-03	1.51E-03	3.54E-03
324149.1	3869207.3	Resident	1.84E-02	3.11E-03	1.55E-03	3.64E-03
324438.6	3868255.4	Resident	1.41E-02	2.63E-03	1.23E-03	3.02E-03
324486.2	3868167.4	Resident	1.32E-02	2.49E-03	1.17E-03	2.85E-03
322964.1	3867713.5	Resident	2.40E-02	5.05E-03	2.36E-03	5.80E-03
322974.5	3867913.1	Resident	2.40E-02	5.00E-03	2.33E-03	5.73E-03
322964.7	3868012.6	Resident	2.44E-02	5.05E-03	2.35E-03	5.79E-03
322944.4	3868110.5	Resident	2.26E-02	4.65E-03	2.17E-03	5.33E-03
322899.0	3868305.3	Resident	1.95E-02	3.96E-03	1.84E-03	4.53E-03
322874.8	3868402.3	Resident	1.80E-02	3.61E-03	1.67E-03	4.13E-03
322851.9	3868499.6	Resident	1.70E-02	3.37E-03	1.56E-03	3.85E-03
322829.6	3868597.1	Resident	1.64E-02	3.21E-03	1.48E-03	3.66E-03
322807.0	3868694.6	Resident	1.65E-02	3.15E-03	1.45E-03	3.59E-03

Table D.2. Chronic Noncancer Hazard Index Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2]	Chronic Noncancer Hazard Index Estimates			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[3]	Future Plus Project 2040
322759.8	3868888.9	Resident	1.67E-02	3.09E-03	1.42E-03	3.52E-03
322735.9	3868986.0	Resident	1.79E-02	3.23E-03	1.49E-03	3.69E-03
322712.0	3869083.1	Resident	1.83E-02	3.26E-03	1.52E-03	3.73E-03
322689.4	3869180.5	Resident	1.90E-02	3.33E-03	1.58E-03	3.84E-03
322666.4	3869277.9	Resident	1.98E-02	3.43E-03	1.65E-03	3.96E-03
322643.2	3869375.1	Resident	2.10E-02	3.59E-03	1.75E-03	4.17E-03
322619.4	3869472.3	Resident	2.10E-02	3.56E-03	1.75E-03	4.15E-03
322595.7	3869569.4	Resident	2.15E-02	3.63E-03	1.80E-03	4.24E-03
322572.3	3869666.7	Resident	2.20E-02	3.69E-03	1.84E-03	4.31E-03
322433.0	3870250.3	Resident	2.46E-02	4.05E-03	2.07E-03	4.77E-03
322409.5	3870347.5	Resident	2.64E-02	4.33E-03	2.21E-03	5.10E-03
322386.3	3870444.8	Resident	2.59E-02	4.24E-03	2.17E-03	4.99E-03
322363.2	3870542.1	Resident	2.64E-02	4.32E-03	2.21E-03	5.08E-03
322340.0	3870639.4	Resident	2.67E-02	4.36E-03	2.23E-03	5.13E-03
322316.7	3870736.6	Resident	2.63E-02	4.29E-03	2.20E-03	5.05E-03
322269.5	3870931.0	Resident	2.71E-02	4.41E-03	2.26E-03	5.20E-03
322246.5	3871028.3	Resident	2.77E-02	4.51E-03	2.32E-03	5.32E-03
322223.3	3871125.6	Resident	2.86E-02	4.65E-03	2.39E-03	5.48E-03
322200.2	3871222.9	Resident	2.88E-02	4.67E-03	2.40E-03	5.51E-03
322177.0	3871320.2	Resident	2.84E-02	4.61E-03	2.38E-03	5.44E-03
322153.6	3871417.4	Resident	2.85E-02	4.62E-03	2.38E-03	5.45E-03
322130.5	3871514.7	Resident	2.85E-02	4.62E-03	2.38E-03	5.45E-03
322106.9	3871611.9	Resident	2.82E-02	4.57E-03	2.35E-03	5.39E-03
323819.9	3871012.9	Resident	1.53E-02	2.52E-03	1.29E-03	2.96E-03
323843.0	3870915.6	Resident	1.53E-02	2.51E-03	1.28E-03	2.96E-03
323866.1	3870818.3	Resident	1.53E-02	2.52E-03	1.29E-03	2.96E-03
323889.1	3870721.0	Resident	1.53E-02	2.52E-03	1.29E-03	2.97E-03
323912.2	3870623.7	Resident	1.54E-02	2.54E-03	1.30E-03	2.98E-03
323935.6	3870526.5	Resident	1.55E-02	2.56E-03	1.30E-03	3.01E-03
323958.9	3870429.2	Resident	1.56E-02	2.58E-03	1.31E-03	3.03E-03
323982.2	3870332.0	Resident	1.57E-02	2.60E-03	1.33E-03	3.06E-03
324005.0	3870234.6	Resident	1.58E-02	2.61E-03	1.33E-03	3.07E-03
324052.0	3870040.2	Resident	1.59E-02	2.64E-03	1.34E-03	3.09E-03
324075.2	3869942.9	Resident	1.59E-02	2.65E-03	1.34E-03	3.11E-03
324098.5	3869845.7	Resident	1.59E-02	2.66E-03	1.35E-03	3.12E-03
324121.9	3869748.4	Resident	1.63E-02	2.72E-03	1.37E-03	3.18E-03
324144.8	3869651.1	Resident	1.63E-02	2.73E-03	1.38E-03	3.20E-03
324168.3	3869553.9	Resident	1.64E-02	2.75E-03	1.39E-03	3.23E-03
324431.4	3868486.0	Resident	1.43E-02	2.58E-03	1.22E-03	2.97E-03
324475.8	3868396.5	Resident	1.38E-02	2.51E-03	1.19E-03	2.89E-03
324523.5	3868308.6	Resident	1.31E-02	2.42E-03	1.13E-03	2.77E-03
324571.2	3868220.7	Resident	1.25E-02	2.34E-03	1.10E-03	2.68E-03
322861.1	3867648.7	Resident	2.09E-02	4.41E-03	2.06E-03	5.06E-03
322866.3	3867748.5	Resident	2.08E-02	4.38E-03	2.04E-03	5.03E-03
322872.9	3867848.3	Resident	2.05E-02	4.30E-03	2.01E-03	4.94E-03
322872.4	3867948.1	Resident	2.12E-02	4.41E-03	2.06E-03	5.06E-03
322856.2	3868046.8	Resident	2.01E-02	4.18E-03	1.95E-03	4.79E-03
322834.2	3868144.3	Resident	1.88E-02	3.89E-03	1.82E-03	4.46E-03
322811.3	3868241.7	Resident	1.76E-02	3.62E-03	1.69E-03	4.15E-03
322763.7	3868435.9	Resident	1.51E-02	3.05E-03	1.42E-03	3.49E-03
322741.6	3868533.5	Resident	1.43E-02	2.87E-03	1.33E-03	3.28E-03
322719.1	3868630.9	Resident	1.43E-02	2.82E-03	1.30E-03	3.22E-03
322695.9	3868728.2	Resident	1.41E-02	2.74E-03	1.26E-03	3.13E-03
322672.2	3868825.4	Resident	1.45E-02	2.75E-03	1.26E-03	3.13E-03
322648.7	3868922.5	Resident	1.49E-02	2.78E-03	1.28E-03	3.18E-03
322624.4	3869019.6	Resident	1.52E-02	2.79E-03	1.29E-03	3.19E-03
322601.6	3869116.9	Resident	1.59E-02	2.86E-03	1.33E-03	3.27E-03
322578.7	3869214.3	Resident	1.63E-02	2.90E-03	1.37E-03	3.33E-03

Table D.2. Chronic Noncancer Hazard Index Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2]	Chronic Noncancer Hazard Index Estimates			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[3]	Future Plus Project 2040
322555.6	3869311.6	Resident	1.73E-02	3.02E-03	1.44E-03	3.49E-03
322461.4	3869700.4	Resident	1.93E-02	3.26E-03	1.62E-03	3.81E-03
322438.1	3869797.6	Resident	1.97E-02	3.31E-03	1.65E-03	3.87E-03
322414.6	3869894.8	Resident	2.00E-02	3.35E-03	1.68E-03	3.92E-03
322391.6	3869992.1	Resident	2.05E-02	3.42E-03	1.72E-03	4.01E-03
322322.0	3870284.0	Resident	2.21E-02	3.65E-03	1.86E-03	4.29E-03
322298.6	3870381.2	Resident	2.30E-02	3.79E-03	1.93E-03	4.45E-03
322275.5	3870478.5	Resident	2.32E-02	3.81E-03	1.94E-03	4.48E-03
322252.4	3870575.8	Resident	2.36E-02	3.87E-03	1.98E-03	4.56E-03
322205.6	3870770.3	Resident	2.38E-02	3.90E-03	2.00E-03	4.59E-03
322181.7	3870867.4	Resident	2.36E-02	3.85E-03	1.98E-03	4.54E-03
322158.8	3870964.7	Resident	2.35E-02	3.84E-03	1.97E-03	4.52E-03
322135.6	3871062.0	Resident	2.44E-02	3.98E-03	2.05E-03	4.70E-03
322112.5	3871159.3	Resident	2.54E-02	4.14E-03	2.13E-03	4.88E-03
322089.5	3871256.6	Resident	2.54E-02	4.12E-03	2.12E-03	4.86E-03
322066.0	3871353.8	Resident	2.54E-02	4.13E-03	2.12E-03	4.87E-03
322042.8	3871451.1	Resident	2.59E-02	4.20E-03	2.16E-03	4.95E-03
322019.4	3871548.3	Resident	2.62E-02	4.26E-03	2.19E-03	5.02E-03
321995.9	3871645.5	Resident	2.64E-02	4.28E-03	2.21E-03	5.06E-03
323909.6	3871067.9	Resident	1.40E-02	2.30E-03	1.18E-03	2.71E-03
323932.7	3870970.6	Resident	1.39E-02	2.28E-03	1.17E-03	2.69E-03
323955.8	3870873.3	Resident	1.39E-02	2.29E-03	1.17E-03	2.69E-03
323978.8	3870775.9	Resident	1.39E-02	2.29E-03	1.17E-03	2.69E-03
324001.9	3870678.7	Resident	1.39E-02	2.29E-03	1.17E-03	2.69E-03
324025.2	3870581.4	Resident	1.40E-02	2.31E-03	1.18E-03	2.71E-03
324048.6	3870484.2	Resident	1.40E-02	2.32E-03	1.18E-03	2.73E-03
324071.9	3870386.9	Resident	1.41E-02	2.34E-03	1.19E-03	2.75E-03
324164.9	3869997.8	Resident	1.45E-02	2.42E-03	1.22E-03	2.83E-03
324188.2	3869900.6	Resident	1.46E-02	2.44E-03	1.23E-03	2.86E-03
324211.6	3869803.4	Resident	1.47E-02	2.46E-03	1.24E-03	2.88E-03
324443.1	3868830.5	Resident	1.38E-02	2.42E-03	1.18E-03	2.80E-03
324467.3	3868733.5	Resident	1.38E-02	2.42E-03	1.18E-03	2.80E-03
324491.7	3868636.5	Resident	1.35E-02	2.39E-03	1.16E-03	2.77E-03
324518.3	3868540.1	Resident	1.31E-02	2.36E-03	1.13E-03	2.72E-03
324560.7	3868449.8	Resident	1.24E-02	2.25E-03	1.07E-03	2.59E-03
324608.3	3868361.9	Resident	1.21E-02	2.21E-03	1.04E-03	2.54E-03
324701.9	3868185.2	Resident	1.13E-02	2.10E-03	9.89E-04	2.41E-03
324751.1	3868098.1	Resident	1.05E-02	1.99E-03	9.36E-04	2.28E-03
322758.6	3867583.6	Resident	1.78E-02	3.75E-03	1.75E-03	4.30E-03
322762.4	3867683.5	Resident	1.78E-02	3.76E-03	1.75E-03	4.31E-03
322769.2	3867783.3	Resident	1.85E-02	3.88E-03	1.81E-03	4.46E-03
322774.3	3867883.1	Resident	1.84E-02	3.85E-03	1.80E-03	4.41E-03
322766.7	3867982.6	Resident	1.75E-02	3.65E-03	1.71E-03	4.19E-03
322746.1	3868080.4	Resident	1.67E-02	3.47E-03	1.62E-03	3.98E-03
322723.7	3868177.9	Resident	1.58E-02	3.26E-03	1.53E-03	3.74E-03
322700.5	3868275.2	Resident	1.47E-02	3.03E-03	1.42E-03	3.48E-03
322676.2	3868372.2	Resident	1.39E-02	2.84E-03	1.33E-03	3.25E-03
322631.3	3868567.1	Resident	1.29E-02	2.60E-03	1.21E-03	2.97E-03
322608.6	3868664.5	Resident	1.25E-02	2.49E-03	1.15E-03	2.84E-03
322584.7	3868761.6	Resident	1.27E-02	2.47E-03	1.14E-03	2.82E-03
322561.3	3868858.8	Resident	1.27E-02	2.45E-03	1.13E-03	2.79E-03
322537.2	3868955.9	Resident	1.30E-02	2.46E-03	1.13E-03	2.81E-03
322513.7	3869053.1	Resident	1.37E-02	2.53E-03	1.17E-03	2.89E-03
322491.0	3869150.5	Resident	1.37E-02	2.49E-03	1.16E-03	2.85E-03
322350.5	3869733.8	Resident	1.71E-02	2.91E-03	1.44E-03	3.38E-03
322327.3	3869831.1	Resident	1.74E-02	2.95E-03	1.47E-03	3.44E-03
322303.7	3869928.3	Resident	1.77E-02	2.98E-03	1.49E-03	3.48E-03
322211.1	3870317.4	Resident	2.01E-02	3.32E-03	1.69E-03	3.90E-03

Table D.2. Chronic Noncancer Hazard Index Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2]	Chronic Noncancer Hazard Index Estimates			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[3]	Future Plus Project 2040
322187.8	3870414.7	Resident	2.09E-02	3.44E-03	1.75E-03	4.04E-03
322141.6	3870609.3	Resident	2.14E-02	3.51E-03	1.79E-03	4.13E-03
322118.2	3870706.5	Resident	2.14E-02	3.52E-03	1.80E-03	4.14E-03
322094.4	3870803.7	Resident	2.13E-02	3.49E-03	1.78E-03	4.10E-03
322071.1	3870900.9	Resident	2.09E-02	3.43E-03	1.75E-03	4.03E-03
322048.0	3870998.2	Resident	2.05E-02	3.35E-03	1.72E-03	3.95E-03
322024.9	3871095.5	Resident	2.20E-02	3.59E-03	1.84E-03	4.23E-03
322001.8	3871192.8	Resident	2.27E-02	3.70E-03	1.90E-03	4.36E-03
321978.5	3871290.1	Resident	2.28E-02	3.71E-03	1.91E-03	4.37E-03
321955.2	3871387.3	Resident	2.34E-02	3.81E-03	1.96E-03	4.50E-03
321932.0	3871484.6	Resident	2.42E-02	3.93E-03	2.02E-03	4.64E-03
324022.5	3871025.5	Resident	1.26E-02	2.08E-03	1.06E-03	2.45E-03
324045.6	3870928.2	Resident	1.26E-02	2.08E-03	1.06E-03	2.45E-03
324068.6	3870830.9	Resident	1.26E-02	2.09E-03	1.06E-03	2.45E-03
324091.7	3870733.6	Resident	1.26E-02	2.09E-03	1.07E-03	2.46E-03
324114.9	3870636.3	Resident	1.27E-02	2.10E-03	1.07E-03	2.47E-03
324138.3	3870539.1	Resident	1.27E-02	2.11E-03	1.07E-03	2.48E-03
324161.6	3870441.8	Resident	1.28E-02	2.12E-03	1.08E-03	2.49E-03
324184.7	3870344.6	Resident	1.28E-02	2.13E-03	1.08E-03	2.50E-03
324207.6	3870247.2	Resident	1.29E-02	2.15E-03	1.09E-03	2.52E-03
324231.2	3870150.0	Resident	1.30E-02	2.17E-03	1.10E-03	2.54E-03
324441.4	3869274.9	Resident	1.30E-02	2.22E-03	1.11E-03	2.59E-03
324464.2	3869177.5	Resident	1.30E-02	2.23E-03	1.10E-03	2.60E-03
324487.4	3869080.2	Resident	1.30E-02	2.24E-03	1.11E-03	2.61E-03
324510.3	3868982.9	Resident	1.28E-02	2.23E-03	1.10E-03	2.59E-03
324533.0	3868885.5	Resident	1.27E-02	2.21E-03	1.08E-03	2.57E-03
324556.7	3868788.3	Resident	1.25E-02	2.20E-03	1.07E-03	2.56E-03
324581.0	3868691.3	Resident	1.24E-02	2.19E-03	1.06E-03	2.54E-03
324605.5	3868594.4	Resident	1.22E-02	2.17E-03	1.05E-03	2.51E-03
324645.6	3868503.1	Resident	1.17E-02	2.11E-03	1.01E-03	2.43E-03
324693.2	3868415.1	Resident	1.12E-02	2.04E-03	9.68E-04	2.34E-03
324786.7	3868238.4	Resident	1.06E-02	1.97E-03	9.27E-04	2.26E-03
324836.0	3868151.4	Resident	1.00E-02	1.88E-03	8.85E-04	2.16E-03
322659.8	3867617.8	Resident	1.59E-02	3.35E-03	1.56E-03	3.84E-03
322671.4	3867817.4	Resident	1.59E-02	3.35E-03	1.56E-03	3.84E-03
322674.4	3867917.4	Resident	1.58E-02	3.31E-03	1.55E-03	3.80E-03
322658.1	3868016.0	Resident	1.51E-02	3.16E-03	1.48E-03	3.63E-03
322636.1	3868113.5	Resident	1.43E-02	2.98E-03	1.40E-03	3.42E-03
322613.1	3868210.8	Resident	1.34E-02	2.77E-03	1.30E-03	3.18E-03
322589.2	3868307.9	Resident	1.28E-02	2.64E-03	1.24E-03	3.03E-03
322565.6	3868405.1	Resident	1.21E-02	2.48E-03	1.16E-03	2.84E-03
322543.5	3868502.7	Resident	1.18E-02	2.40E-03	1.12E-03	2.75E-03
322521.0	3868600.1	Resident	1.17E-02	2.35E-03	1.10E-03	2.69E-03
322497.5	3868697.3	Resident	1.15E-02	2.29E-03	1.06E-03	2.62E-03
322473.9	3868794.5	Resident	1.11E-02	2.20E-03	1.02E-03	2.51E-03
322450.2	3868891.6	Resident	1.12E-02	2.17E-03	1.01E-03	2.48E-03
322426.0	3868988.7	Resident	1.16E-02	2.20E-03	1.02E-03	2.52E-03
322263.1	3869669.5	Resident	1.47E-02	2.54E-03	1.24E-03	2.95E-03
322239.9	3869766.8	Resident	1.53E-02	2.62E-03	1.29E-03	3.05E-03
322216.3	3869863.9	Resident	1.56E-02	2.65E-03	1.31E-03	3.09E-03
322193.4	3869961.3	Resident	1.60E-02	2.71E-03	1.35E-03	3.16E-03
322100.3	3870350.3	Resident	1.84E-02	3.06E-03	1.55E-03	3.59E-03
322077.3	3870447.7	Resident	1.91E-02	3.16E-03	1.61E-03	3.71E-03
322054.1	3870544.9	Resident	1.96E-02	3.23E-03	1.64E-03	3.80E-03
322030.8	3870642.2	Resident	1.95E-02	3.21E-03	1.64E-03	3.77E-03
322007.2	3870739.4	Resident	1.97E-02	3.24E-03	1.65E-03	3.81E-03
321983.5	3870836.5	Resident	1.96E-02	3.23E-03	1.65E-03	3.80E-03
321960.5	3870933.9	Resident	1.94E-02	3.19E-03	1.63E-03	3.75E-03

Table D.2. Chronic Noncancer Hazard Index Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2]	Chronic Noncancer Hazard Index Estimates			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[3]	Future Plus Project 2040
321937.4	3871031.2	Resident	1.98E-02	3.24E-03	1.66E-03	3.82E-03
321914.3	3871128.4	Resident	2.08E-02	3.39E-03	1.74E-03	4.00E-03
324327.6	3870822.3	Resident	1.03E-02	1.72E-03	8.72E-04	2.02E-03
324385.7	3870579.2	Resident	1.04E-02	1.74E-03	8.81E-04	2.04E-03
324443.5	3870336.0	Resident	1.07E-02	1.79E-03	9.04E-04	2.10E-03
324618.9	3869606.7	Resident	1.06E-02	1.81E-03	9.05E-04	2.11E-03
324677.4	3869363.7	Resident	1.06E-02	1.83E-03	9.07E-04	2.13E-03
324857.9	3868636.2	Resident	1.00E-02	1.79E-03	8.66E-04	2.07E-03
324976.5	3868416.2	Resident	9.45E-03	1.71E-03	8.23E-04	1.98E-03
325094.8	3868196.0	Resident	8.98E-03	1.65E-03	7.89E-04	1.90E-03
322410.8	3867650.0	Resident	1.17E-02	2.46E-03	1.15E-03	2.82E-03
322424.4	3867899.6	Resident	1.14E-02	2.40E-03	1.12E-03	2.76E-03
322372.0	3868143.8	Resident	1.03E-02	2.15E-03	1.01E-03	2.47E-03
322313.5	3868386.9	Resident	9.73E-03	2.02E-03	9.45E-04	2.31E-03
322256.5	3868630.3	Resident	9.29E-03	1.90E-03	8.88E-04	2.18E-03
322139.4	3869116.4	Resident	9.50E-03	1.83E-03	8.46E-04	2.09E-03
322022.1	3869602.5	Resident	1.10E-02	1.96E-03	9.32E-04	2.26E-03
321906.1	3870088.9	Resident	1.34E-02	2.28E-03	1.13E-03	2.67E-03
324377.5	3871689.2	Resident	8.69E-03	1.44E-03	7.35E-04	1.70E-03
324435.8	3871446.1	Resident	8.68E-03	1.44E-03	7.34E-04	1.69E-03
324609.9	3870716.5	Resident	8.83E-03	1.48E-03	7.49E-04	1.73E-03
324784.5	3869987.1	Resident	8.88E-03	1.51E-03	7.56E-04	1.76E-03
324901.8	3869501.1	Resident	8.89E-03	1.53E-03	7.60E-04	1.78E-03
325307.4	3868329.1	Resident	8.00E-03	1.45E-03	7.01E-04	1.68E-03
322163.9	3867729.1	Resident	8.86E-03	1.87E-03	8.73E-04	2.14E-03
322154.4	3867976.6	Resident	8.43E-03	1.77E-03	8.29E-04	2.03E-03
322095.8	3868219.7	Resident	8.11E-03	1.70E-03	7.95E-04	1.95E-03
322039.4	3868463.2	Resident	7.64E-03	1.59E-03	7.44E-04	1.82E-03
321980.9	3868706.3	Resident	7.52E-03	1.55E-03	7.24E-04	1.77E-03
321921.9	3868949.3	Resident	7.50E-03	1.51E-03	7.07E-04	1.73E-03
321864.3	3869192.5	Resident	7.21E-03	1.42E-03	6.62E-04	1.63E-03
324543.9	3872069.8	Resident	7.50E-03	1.25E-03	6.36E-04	1.47E-03
324602.0	3871826.7	Resident	7.53E-03	1.25E-03	6.38E-04	1.47E-03
324660.2	3871583.5	Resident	7.58E-03	1.26E-03	6.42E-04	1.48E-03
324718.4	3871340.4	Resident	7.56E-03	1.26E-03	6.41E-04	1.48E-03
324950.2	3870367.6	Resident	7.70E-03	1.30E-03	6.55E-04	1.52E-03
325008.6	3870124.5	Resident	7.66E-03	1.30E-03	6.53E-04	1.52E-03
325126.2	3869638.5	Resident	7.64E-03	1.31E-03	6.54E-04	1.53E-03
325241.1	3869151.8	Resident	7.68E-03	1.34E-03	6.63E-04	1.56E-03
325299.7	3868908.8	Resident	7.60E-03	1.34E-03	6.58E-04	1.56E-03
325520.0	3868462.1	Resident	7.31E-03	1.31E-03	6.38E-04	1.52E-03
325637.8	3868241.6	Resident	7.14E-03	1.29E-03	6.27E-04	1.49E-03
321903.7	3867557.4	Resident	7.23E-03	1.53E-03	7.13E-04	1.75E-03
321917.9	3867807.0	Resident	7.34E-03	1.55E-03	7.23E-04	1.77E-03
321879.9	3868051.9	Resident	6.98E-03	1.47E-03	6.87E-04	1.68E-03
321821.6	3868295.0	Resident	6.66E-03	1.39E-03	6.53E-04	1.60E-03
321764.2	3868538.3	Resident	6.62E-03	1.38E-03	6.45E-04	1.58E-03
321704.7	3868781.2	Resident	6.57E-03	1.36E-03	6.35E-04	1.55E-03
324826.2	3871964.0	Resident	6.63E-03	1.11E-03	5.63E-04	1.30E-03
324942.3	3871477.6	Resident	6.68E-03	1.12E-03	5.67E-04	1.31E-03
325000.7	3871234.6	Resident	6.67E-03	1.12E-03	5.67E-04	1.31E-03
325174.3	3870504.9	Resident	6.76E-03	1.14E-03	5.76E-04	1.34E-03
325232.8	3870261.8	Resident	6.72E-03	1.14E-03	5.73E-04	1.34E-03
325291.2	3870018.7	Resident	6.72E-03	1.15E-03	5.75E-04	1.34E-03
325349.8	3869775.7	Resident	6.74E-03	1.16E-03	5.78E-04	1.35E-03
325408.2	3869532.6	Resident	6.75E-03	1.17E-03	5.80E-04	1.36E-03
325523.1	3869046.0	Resident	6.79E-03	1.19E-03	5.88E-04	1.39E-03
325732.6	3868595.2	Resident	6.63E-03	1.18E-03	5.77E-04	1.37E-03

Table D.2. Chronic Noncancer Hazard Index Estimates at All Modeled Sensitive Receptors
Tejon Ranch
Lebec, California

UTM Coordinates[1] (m)		Receptor Type[2]	Chronic Noncancer Hazard Index Estimates			
X Coordinate	Y Coordinate		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040[3]	Future Plus Project 2040
325850.2	3868374.6	Resident	6.46E-03	1.16E-03	5.65E-04	1.34E-03
325967.5	3868153.8	Resident	6.31E-03	1.14E-03	5.55E-04	1.32E-03
325391.0	3871752.4	Resident	5.38E-03	9.03E-04	4.58E-04	1.06E-03
325739.4	3870293.4	Resident	5.49E-03	9.39E-04	4.70E-04	1.10E-03
325971.8	3869320.7	Resident	5.51E-03	9.62E-04	4.76E-04	1.12E-03
326392.6	3868419.7	Resident	5.24E-03	9.33E-04	4.58E-04	1.08E-03
326619.9	3867974.5	Resident	4.97E-03	8.94E-04	4.37E-04	1.04E-03
326420.7	3869595.6	Resident	4.67E-03	8.12E-04	4.03E-04	9.47E-04
326582.1	3869126.6	Resident	4.62E-03	8.10E-04	4.01E-04	9.44E-04
326817.8	3868685.6	Resident	4.51E-03	7.96E-04	3.93E-04	9.26E-04
327047.2	3868241.4	Resident	4.34E-03	7.72E-04	3.80E-04	8.98E-04
328364.6	3867354.6	Resident	2.16E-03	4.02E-04	1.93E-04	4.64E-04
326334.9	3868717.1	School	5.17E-03	9.15E-04	4.50E-04	1.06E-03
324761.8	3871620.5	School	7.16E-03	1.20E-03	6.07E-04	1.40E-03
324028.5	3870137.4	School	1.58E-02	2.62E-03	1.33E-03	3.07E-03
322532.0	3869408.8	School	1.78E-02	3.08E-03	1.49E-03	3.56E-03
322508.2	3869505.9	School	1.86E-02	3.17E-03	1.55E-03	3.69E-03
322484.8	3869603.1	School	1.85E-02	3.14E-03	1.55E-03	3.66E-03
324118.1	3870192.3	School	1.42E-02	2.36E-03	1.20E-03	2.77E-03
324141.6	3870095.1	School	1.43E-02	2.39E-03	1.21E-03	2.80E-03
322420.9	3869442.2	School	1.58E-02	2.75E-03	1.32E-03	3.17E-03
322397.3	3869539.4	School	1.61E-02	2.78E-03	1.35E-03	3.22E-03
322333.7	3869377.9	School	1.39E-02	2.47E-03	1.17E-03	2.84E-03
322309.9	3869475.0	School	1.45E-02	2.55E-03	1.22E-03	2.94E-03
322286.5	3869572.3	School	1.47E-02	2.55E-03	1.23E-03	2.95E-03
322147.2	3870155.9	School	1.69E-02	2.83E-03	1.42E-03	3.31E-03
322123.7	3870253.1	School	1.75E-02	2.92E-03	1.48E-03	3.43E-03
324792.3	3868877.0	School	1.03E-02	1.81E-03	8.87E-04	2.10E-03
325857.0	3869807.4	School	5.50E-03	9.50E-04	4.73E-04	1.11E-03

Notes:
1. The projection datum is WGS-84.
2. Receptor types are designated based on the Project's conceptual land use map seen in Figure 1.
3. Traffic data were provided for calendar year 2015. Since the project will not be built out until calendar year 2040, emission factors from for calendar year 2040 were used for these health risk estimates.

Abbreviations:
UTM - Universal Transverse Mercator
WGS - World Geodetic System

Source:
\\wcirvfps1\projects\T\Tejon Ranch\Report\Appendix D_HRA at Sensitive Receptors\Grapevine_I-5_HRA_Report_Appendix D\[HARP2_Results_Summary.xlsx]D.2_Chronic Summary