Appendix A

Construction Emissions

California High Speed Rail

Fresno to Bakersfield Construction Analysis

Construction emissions accounted for emissions from construction equipment on site, employee trips to the construction site, dirt handling on the site and the delivery of construction materials (hauling by both trucks and rail) to the sites.

The following appendix presents:

- The summary of on-site construction elements (on-site equipment and dirt handling) by activity and calendar year.
- Pollutant by pollutant summary broken down to activity level and calendar year.
- Overall construction schedule
- Detailed construction phase equipment modeling, based on specific pieces of equipment, including time frame, hours of operation, load factors. Exhaust emission burdens were determined by multiplying the CARB emission factors which are given in terms of grams/hours of operation based on start time, multiplied by the number of hours of operation and the number of pieces of equipment. Emission burdens from each piece of equipment are added together based on schedule to determine total emission burden for each piece of equipment, phase of activity and full activity. In addition to exhaust emissions, dirt handling emissions were also calculated for each phase. These emissions were calculated based on AP42 dirt handling factors with area specific parameters, including hours of activity, type of activity and type of material being moved. Emissions from dirt handling were also added together based on schedule to determine total emission burdens for each activity.
- Truck hauling emissions based on predicted travel distances for material. Emission burdens were calculated by estimating the number of trucks multiplied by the typical roundtrip distance multiplied by a heavy duty truck emission factor derived from EMFAC2011.
- Hauling emissions by train calculated by tons of material to be transported multiplied by CARB and American Association of Railroads emission factors.
- Dirt handling emission factors
- Estimate of demolition amounts
- ARB Offroad load factors and emission factors by equipment and year
- EMFAC2011 emission factors for workers, delivery vehicles and heavy truck loading vehicles

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
SUMMARY OF EMISSIONS

Equipment, workers and dirt moving

	ROG	Nox	CO	SO2	PM10	PM2.5	CO2
Year							
2014	5.66	74.47	46.36	0.14	32.86	4.85	6788.66
2015	26.05	334.40	233.84	0.66	58.49	22.43	30620.26
2016	24.52	315.38	218.92	0.62	54.84	21.50	28868.35
2017	3.61	49.34	26.24	0.09	12.51	8.88	4690.41
2018	2.19	27.20	18.67	0.05	12.75	8.06	2740.07
2019	0.42	4.17	4.07	0.01	8.63	6.93	522.31
2020	0.25	1.95	2.50	0.01	2.95	0.14	284.13
2021	0.18	1.73	1.87	0.00	1.72	0.11	245.01
2022	0.09	0.53	1.13	0.00	0.13	0.05	116.95
2023	0.03	0.19	0.39	0.00	0.08	0.02	39.76
2024	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2025	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2026	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2027	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2028	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Hauling

	Unmitigated Tons per Year [1]						
Equipment Description	**ROG**	**NO_x**	**CO**	**SO2**	**PM10**	PM2.5	**CO_2**
HHDT 2014	5.02	169.54	30.69	0.39	6.16	4.38	37,093.54
HHDT 2015	4.46	146.80	28.60	0.41	5.49	3.71	38,205.80
HHDT 2016	1.57	48.57	10.48	0.16	1.99	1.30	14,909.18
HHDT 2017	0.57	16.33	3.87	0.06	0.72	0.46	5,680.60
HHDT 2018	1.62	41.46	11.05	0.18	2.06	1.30	16,021.58
HHDT 2019							
HHDT 2020							
HHDT 2021							
HHDT 2022							
HHDT 2023							
HHDT 2024							
HHDT 2025							
HHDT 2026							
HHDT 2027							
HHDT 2028							

MOW Hauling

	Unmitigated Tons per Year [1]						
Equipment Description	**ROG**	**NO_x**	**CO**	**SO2**	**PM10**	PM2.5	**CO_2**
HHDT 2014	-	-	-	-	-	-	-
HHDT 2015	-	-	-	-	-	-	-
HHDT 2016	-	-	-	-	-	-	-
HHDT 2017	-	-	-	-	-	-	-
HHDT 2018	0.06	1.61	0.43	0.01	0.08	0.05	622.08
HDDT 2019							
HDDT 2020							
HDDT 2021	0.62	10.05	4.29	0.07	0.79	0.50	6,029.31
HHDT 2022							
HHDT 2023							
HHDT 2024							
HHDT 2025							
HHDT 2026							
HHDT 2027							
HHDT 2028							

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
SUMMARY OF EMISSIONS

Rail

Equipment Description	Unmitigated Tons per Year (1)						
	ROG	NO_x	CO	SO2	PM10	PM2.5	CO_2
Rail from Bay Area, Sacramento 2014	6.18	136.79	26.98	0.10	3.65	3.54	10,352.50
Rail from Bay Area, Sacramento 2015	6.18	136.79	26.98	0.10	3.65	3.54	10,352.50
Rail from Bay Area, Sacramento 2016	6.18	136.79	26.98	0.10	3.65	3.54	10,352.50
Rail from Bay Area, Sacramento 2017	4.33	95.76	18.88	0.07	2.55	2.48	7,247.18
Rail from Bay Area, Sacramento 2018	0.03	0.63	0.12	0.00	0.02	0.02	47.51
Rail from Bay Area, Sacramento 2019							
Rail from Bay Area, Sacramento 2020							
Rail from Bay Area, Sacramento 2021	3.07	67.97	13.40	0.05	1.81	1.76	5,143.86
Rail from Bay Area, Sacramento 2022							
Rail from Bay Area, Sacramento 2023							
Rail from Bay Area, Sacramento 2024							
Rail from Bay Area, Sacramento 2025							
Rail from Bay Area, Sacramento 2026							
Rail from Bay Area, Sacramento 2027							
Rail from Bay Area, Sacramento 2028							

Year	ROG Tons	Nox Tons	CO Tons	SO2 Tons	PM10 Tons	PM2.5 Tons	CO2 Tons
2014	16.86	380.80	104.03	0.63	42.66	12.77	54234.69
2015	36.69	617.99	289.42	1.17	67.63	29.68	79178.56
2016	32.27	500.73	256.37	0.88	60.47	26.34	54130.03
2017	8.51	161.43	48.99	0.22	15.79	11.81	17618.18
2018	3.89	70.89	30.27	0.24	14.90	9.43	19431.24
2019	0.42	4.17	4.07	0.01	8.63	6.93	522.31
2020	0.25	1.95	2.50	0.01	2.95	0.14	284.13
2021	3.87	79.74	19.56	0.12	4.33	2.36	11418.18
2022	0.09	0.53	1.13	0.00	0.13	0.05	116.95
2023	0.03	0.19	0.39	0.00	0.08	0.02	39.76
2024	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2025	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2026	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2027	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2028	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total for Project	102.89	1818.41	756.73	3.28	217.57	99.52	236974.03

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
CO EMISSION SUMMARY

Year	Mobilization	Demolition	Land Clearing	Earth Moving	Road Crossing	Track at Grade	Track Elevated	Elevated Structures	Demobilization	Fresno Station	Bakersfield Station	HMF Phase 1 & 3	HMF Track Phase 3	MOWF	MOWF Track	PPSS	SPSS	TPSS	Concrete Batch Plants	Kings-Tulare Station	Total
2014	6.32	1.59	18.70	4.35	10.48	0.00	0.00	4.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.36
2015	0.00	0.00	0.00	52.25	125.71	0.00	0.00	55.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	233.84
2016	0.00	0.00	0.00	47.90	115.23	0.34	0.97	52.40	1.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.00	0.00	218.92
2017	0.00	0.00	0.00	0.00	0.00	2.38	3.39	2.92	2.64	0.76	0.00	1.40	0.00	1.74	0.25	2.23	3.22	5.33	0.00	0.00	26.24
2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60	0.72	2.19	1.59	0.31	0.25	5.86	2.68	3.46	0.00	0.00	18.67
2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.27	1.54	0.00	0.00	0.00	0.00	0.73	0.00	0.54	0.00	0.00	4.07
2020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	1.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.86	2.50
2021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.45	1.87
2022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.13	1.13
2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.39
2024	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2025	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2026	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2027	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2028	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum Yearly Value (tons/year)	**6.32**	**1.59**	**18.70**	**52.25**	**125.71**	**2.38**	**3.39**	**55.88**	**2.64**	**1.60**	**1.54**	**2.19**	**1.59**	**1.74**	**0.25**	**5.86**	**3.22**	**5.33**	**0.00**	**1.45**	**233.84**
Year	**2014**	**2014**	**2014**	**2015**	**2015**	**2017**	**2017**	**2015**	**2017**	**2018**	**2019**	**2018**	**2018**	**2017**	**2017**	**2018**	**2017**	**2017**	**2014**	**2021**	**2015**

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
NOX SUMMARY

Year	Mobilization	Demolition	Land Clearing	Earth Moving	Road Crossing	Track at Grade	Track Elevated	Elevated Structures	Demobilization	Fresno Station	Bakersfield Station	HMF Phase 1 & 3	HMF Track Phase 3	MOWF	MOWF Track	PPSS	SPSS	TPSS	Concrete Batch Plants	Kings-Tulare Station	Total
2014	10.34	0.99	34.82	7.08	11.66	0.00	0.00	9.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	74.47
2015	0.00	0.00	0.00	84.97	139.91	0.00	0.00	109.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	334.40
2016	0.00	0.00	0.00	77.89	128.25	1.07	2.18	102.69	2.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74	0.00	0.00	315.38
2017	0.00	0.00	0.00	0.00	0.00	7.47	8.57	5.71	3.98	1.13	0.00	1.96	0.00	2.75	0.33	3.08	5.30	9.05	0.00	0.00	49.34
2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.90	1.02	3.08	2.14	0.44	0.33	8.08	4.42	5.79	0.00	0.00	27.20
2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61	1.75	0.00	0.00	0.00	0.00	0.93	0.00	0.87	0.00	0.00	4.17
2020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.15	1.95
2021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.52	1.73
2022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53	0.53
2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.19
2024	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2025	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2026	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2027	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2028	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum Yearly Value (tons/year)	**10.34**	**0.99**	**34.82**	**84.97**	**139.91**	**7.47**	**8.57**	**109.52**	**3.98**	**1.90**	**1.75**	**3.08**	**2.14**	**2.75**	**0.33**	**8.08**	**5.30**	**9.05**	**0.00**	**1.52**	**436.47**
Year	**2014**	**2014**	**2014**	**2015**	**2015**	**2017**	**2017**	**2015**	**2017**	**2018**	**2019**	**2018**	**2018**	**2017**	**2017**	**2018**	**2017**	**2017**	**2014**	**2021**	

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
PM10 SUMMARY

Year	Mobilization	Demolition	Land Clearing	Earth Moving	Road Crossing	Track at Grade	Track Elevated	Elevated Structures	Demobilization	Fresno Station	Bakersfield Station	HMF Phase 1 & 3	HMF Track Phase 3	MOWF	MOWF Track	PPSS	SPSS	TPSS	Concrete Batch Plants	Kings-Tulare Station	Total
2014	2.36	12.61	13.54	2.65	1.18	0.00	0.00	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.86
2015	0.00	0.00	0.00	31.81	14.10	0.00	0.00	5.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.68	0.00	58.49
2016	0.00	0.00	0.00	29.16	12.93	0.04	0.10	5.53	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	6.68	0.00	54.84
2017	0.00	0.00	0.00	0.00	0.00	0.30	0.38	0.31	0.51	2.31	0.00	0.18	0.00	0.15	0.03	0.21	0.54	0.92	6.68	0.00	12.51
2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.66	2.30	0.28	0.16	0.03	0.03	0.55	0.45	0.59	6.68	0.00	12.75
2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	1.65	0.00	0.00	0.00	0.00	0.07	0.00	0.09	6.68	0.00	8.63
2020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.68	2.95
2021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.64	1.72
2022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.13
2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.08
2024	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2025	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2026	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2027	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2028	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum Yearly Value (tons/year)	**2.36**	**12.61**	**13.54**	**31.81**	**14.10**	**0.30**	**0.38**	**5.90**	**0.51**	**2.31**	**2.30**	**0.28**	**0.16**	**0.15**	**0.03**	**0.55**	**0.54**	**0.92**	**6.68**	**2.68**	**98.13**
Year	**2014**	**2014**	**2014**	**2015**	**2015**	**2017**	**2017**	**2015**	**2017**	**2017**	**2018**	**2018**	**2018**	**2017**	**2017**	**2018**	**2017**	**2017**	**2015**	**2020**	

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
PM2.5 SUMMARY

Year	Mobilization	Demolition	Land Clearing	Earth Moving	Road Crossing	Track at Grade	Track Elevated	Elevated Structures	Demobilization	Fresno Station	Bakersfield Station	HMF Phase 1 & 3	HMF Track Phase 3	MOWF	MOWF Track	PPSS	SPSS	TPSS	Concrete Batch Plants	Kings-Tulare Station	Total
2014	0.65	1.35	1.52	0.32	0.62	0.00	0.00	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.85
2015	0.00	0.00	0.00	3.87	7.49	0.00	0.00	4.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.68	0.00	22.43
2016	0.00	0.00	0.00	3.55	6.86	0.04	0.08	4.12	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	6.68	0.00	21.50
2017	0.00	0.00	0.00	0.00	0.00	0.26	0.32	0.23	0.21	0.06	0.00	0.10	0.00	0.14	0.02	0.16	0.26	0.44	6.68	0.00	8.88
2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.06	0.16	0.11	0.02	0.02	0.41	0.21	0.28	6.68	0.00	8.06
2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.10	0.00	0.00	0.00	0.00	0.05	0.00	0.04	6.68	0.00	6.93
2020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.14
2021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.11
2022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05
2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02
2024	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2025	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2026	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2027	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2028	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum Yearly Value (tons/year)	**0.65**	**1.35**	**1.52**	**3.87**	**7.49**	**0.26**	**0.32**	**4.39**	**0.21**	**0.11**	**0.10**	**0.16**	**0.11**	**0.14**	**0.02**	**0.41**	**0.26**	**0.44**	**6.68**	**0.09**	**28.57**
Year	**2014**	**2014**	**2014**	**2015**	**2015**	**2017**	**2017**	**2015**	**2017**	**2018**	**2019**	**2018**	**2018**	**2017**	**2017**	**2018**	**2017**	**2017**	**2015**	**2021**	

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
VOC SUMMARY

Year	Mobilization	Demolition	Land Clearing	Earth Moving	Road Crossing	Track at Grade	Track Elevated	Elevated Structures	Demobilization	Fresno Station	Bakersfield Station	HMF Phase 1 & 3	HMF Track Phase 3	MOWF	MOWF Track	PPSS	SPSS	TPSS	Concrete Batch Plants	Kings-Tulare Station	Total
2014	0.85	0.22	2.38	0.53	1.02	0.00	0.00	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.66
2015	0.00	0.00	0.00	6.41	12.29	0.00	0.00	7.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.05
2016	0.00	0.00	0.00	5.88	11.27	0.07	0.14	6.89	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	24.52
2017	0.00	0.00	0.00	0.00	0.00	0.46	0.55	0.38	0.35	0.09	0.00	0.16	0.00	0.23	0.03	0.24	0.42	0.70	0.00	0.00	3.61
2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.08	0.26	0.17	0.04	0.03	0.64	0.35	0.45	0.00	0.00	2.19
2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.16	0.00	0.00	0.00	0.00	0.07	0.00	0.07	0.00	0.00	0.42
2020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.25
2021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.18
2022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09
2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03
2024	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2025	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2026	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2027	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2028	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum Yearly Value (tons/year)	**0.85**	**0.22**	**2.38**	**6.41**	**12.29**	**0.46**	**0.55**	**7.35**	**0.35**	**0.17**	**0.16**	**0.26**	**0.17**	**0.23**	**0.03**	**0.64**	**0.42**	**0.70**	**0.00**	**0.14**	**33.78**
Year	**2014**	**2014**	**2014**	**2015**	**2015**	**2017**	**2017**	**2015**	**2017**	**2018**	**2019**	**2018**	**2018**	**2017**	**2017**	**2018**	**2017**	**2017**	**2014**	**2021**	

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
CO2 SUMMARY

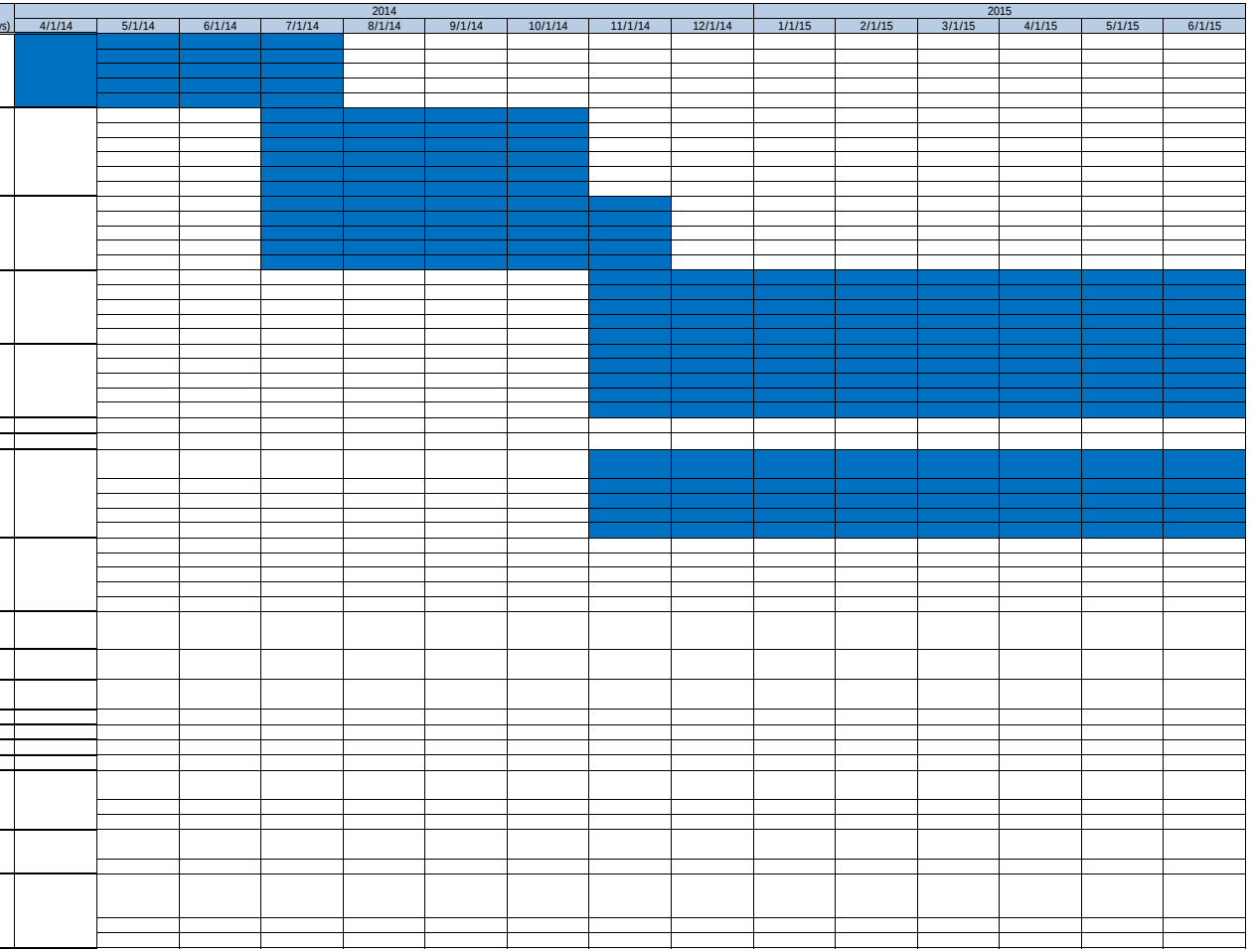
Year	Mobilization	Demolition	Land Clearing	Earth Moving	Road Crossing	Track at Grade	Track Elevated	Elevated Structures	Demobilization	Fresno Station	Bakersfield Station	HMF Phase 1 & 3	HMF Track Phase 3	MOWF	MOWF Track	PPSS	SPSS	TPSS	Concrete Batch Plants	Kings-Tulare Station	Total
2014	814.60	616.24	2761.08	592.26	1283.28	0.00	0.00	721.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6788.66
2015	0.00	0.00	0.00	7107.12	15399.32	0.00	0.00	8113.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30620.26
2016	0.00	0.00	0.00	6514.86	14116.04	112.41	237.35	7610.55	206.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	70.44	0.00	0.00	28868.35
2017	0.00	0.00	0.00	0.00	0.00	786.90	895.54	424.51	335.84	100.54	0.00	178.74	0.00	234.65	36.60	310.38	523.83	862.87	0.00	0.00	4690.41
2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	209.75	99.60	280.88	254.39	41.16	36.60	817.36	436.52	563.81	0.00	0.00	2740.07
2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	122.82	207.81	0.00	0.00	0.00	0.00	103.49	0.00	88.18	0.00	0.00	522.31
2020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.71	120.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	121.61	284.13
2021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	203.97	245.01
2022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	116.95	116.95
2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.76	39.76
2024	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2025	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2026	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2027	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2028	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum Yearly Value (tons/year)	**814.60**	**616.24**	**2761.08**	**7107.12**	**15399.32**	**786.90**	**895.54**	**8113.82**	**335.84**	**209.75**	**207.81**	**280.88**	**254.39**	**234.65**	**36.60**	**817.36**	**523.83**	**862.87**	**0.00**	**203.97**	**40462.55**
Year	**2014**	**2014**	**2014**	**2015**	**2015**	**2017**	**2017**	**2015**	**2017**	**2018**	**2019**	**2018**	**2018**	**2017**	**2017**	**2018**	**2017**	**2017**	**2014**	**2021**	

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
SO2 SUMMARY

Year	Mobilization	Demolition	Land Clearing	Earth Moving	Road Crossing	Track at Grade	Track Elevated	Elevated Structures	Demobilization	Fresno Station	Bakersfield Station	HMF Phase 1 & 3	HMF Track Phase 3	MOWF	MOWF Track	PPSS	SPSS	TPSS	Concrete Batch Plants	Kings-Tulare Station	Total
2014	0.02	0.01	0.05	0.01	0.02	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14
2015	0.00	0.00	0.00	0.15	0.30	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.66
2016	0.00	0.00	0.00	0.14	0.27	0.00	0.00	0.20	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62
2017	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.00	0.00	0.09
2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.01	0.01	0.00	0.00	0.05
2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
2020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
2021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2024	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2025	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2026	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2027	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2028	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum Yearly Value (tons/year)	**0.02**	**0.01**	**0.05**	**0.15**	**0.30**	**0.01**	**0.01**	**0.22**	**0.01**	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.02**	**0.01**	**0.02**	**0.00**	**0.00**	**0.85**
Year	**2014**	**2014**	**2014**	**2015**	**2015**	**2017**	**2017**	**2015**	**2017**	**2018**	**2019**	**2018**	**2018**	**2017**	**2017**	**2018**	**2017**	**2017**	**2014**	**2021**	

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION SCHEDULE
2-12-14

Activity	Start date	End Date	Duration (days)
Mobilization	4/5/2014	7/4/2014	65
Site 1	4/5/2014	7/4/2014	65
Site 2	4/5/2014	7/4/2014	65
Site 3	4/5/2014	7/4/2014	65
Site 4	4/5/2014	7/4/2014	65
Demolition	**7/4/2014**	**10/22/2014**	79
2013	7/4/2014	10/22/2014	79
2014	7/4/2014	10/22/2014	79
2015	7/4/2014	10/22/2014	79
2016	7/4/2014	10/22/2014	79
2017	7/4/2014	10/22/2014	79
Land Clearing	7/4/2014	11/7/2014	91
Site 1	7/4/2014	11/10/2014	92
Site 2	7/4/2014	11/6/2014	90
Site 3	7/4/2014	11/7/2014	91
Site 4	7/4/2014	11/7/2014	91
Earth Moving	**11/7/2014**	**11/4/2016**	**521**
Site 1	11/7/2014	11/7/2016	**522**
Site 2	11/5/2014	11/3/2016	**522**
Site 3	11/6/2014	11/4/2016	**522**
Site 4	11/6/2014	11/4/2016	**522**
Road Crossings	**11/7/2014**		
Site 1	11/7/2014	11/7/2016	**522**
Site 2	11/5/2014	11/3/2016	**522**
Site 3	11/6/2014	11/4/2016	**522**
Site 4	11/6/2014	11/4/2016	**522**
Track at Grade	**11/21/2016**	**7/31/2017**	**181**
Retained Fill	**11/21/2016**	**6/6/2017**	**142**
Elevated Strectures	**11/7/2014**	**1/25/2017**	
Site 1	11/7/2014	10/28/2016	**516**
Site 2	11/5/2014	10/26/2016	**516**
Site 3	11/6/2014	1/25/2017	**580**
Site 4	11/6/2014	1/25/2017	**580**
Demobilization	**11/1/2016**	**4/25/2017**	**126**
Site 1	11/1/2016	1/31/2017	**66**
Site 2	11/1/2016	1/31/2017	**66**
Site 3	1/24/2017	4/25/2017	**66**
Site 4	1/24/2017	4/25/2017	**66**
Fresno Station	**6/15/2017**	**4/30/2020**	**751**
Bakersfield Station	**6/15/2018**	**4/30/2021**	**751**
Kings Tulare Station	**6/1/2020**	**4/19/2023**	**753**
HMF Phase 1 & 3	**5/20/2017**	**11/16/2018**	**390**
HMF Track Phase 3	**6/16/2018**	**11/16/2018**	**110**
MOWF	**5/20/2017**	**1/30/2018**	**182**
MOWF Track	**11/16/2017**	**1/18/2018**	**46**
Systems: Paralleling Station	**11/1/2017**	**5/16/2019**	**402**
Sites 1-15	11/1/2017	5/16/2018	**141**
Sites 16 & 17	11/1/2018	5/16/2019	**141**
Systems: Switching Station	**6/19/2017**	**5/14/2018**	**236**
Sites 1-5	6/19/2017	5/14/2018	**236**
Systems: Traction Power Supply Station	**11/14/2016**	**5/9/2019**	**649**
Sites 1-4	11/14/2016	5/14/2018	**391**
Site 5	11/8/2017	5/9/2019	**392**

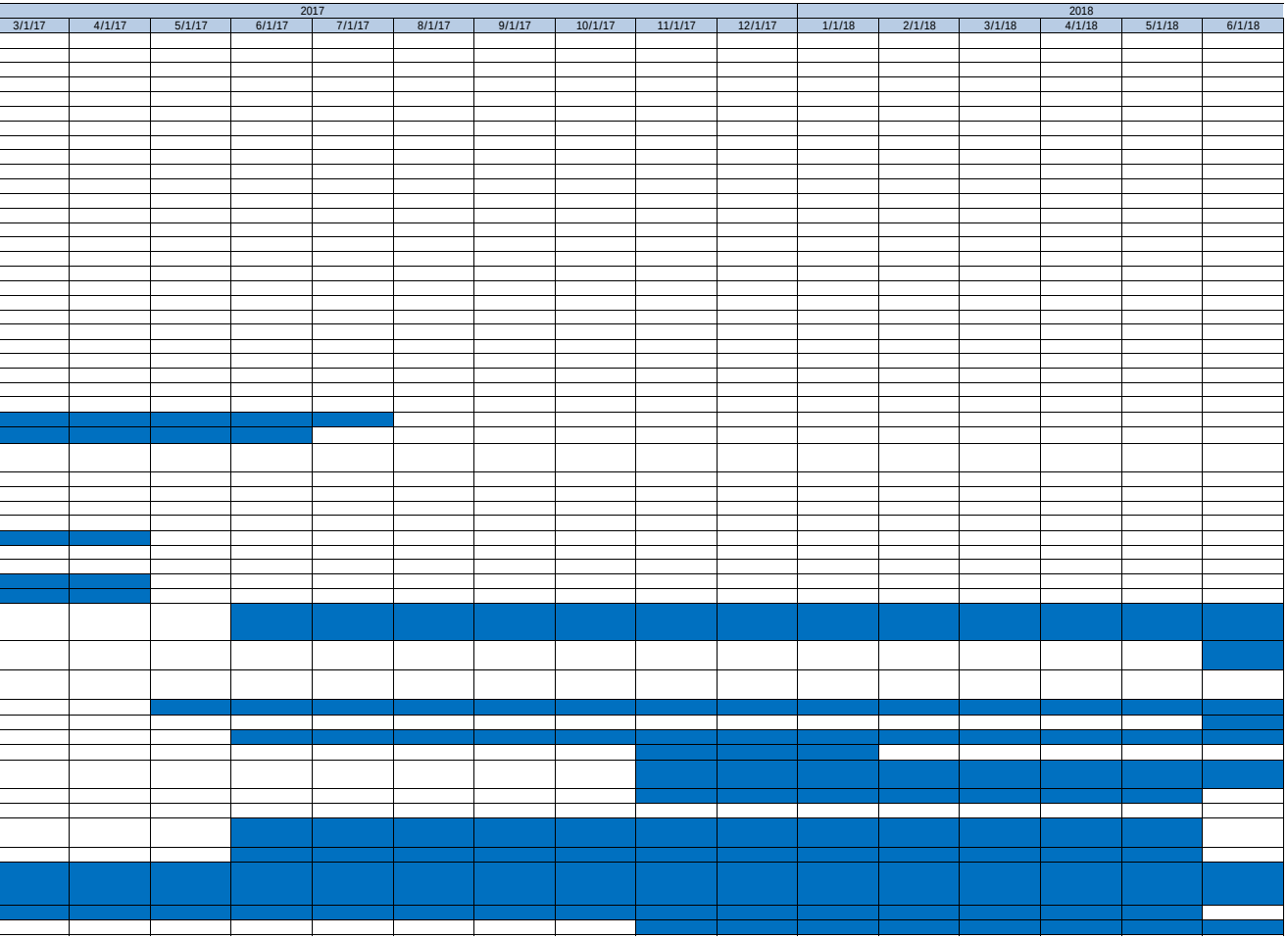


CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION SCHEDULE
2-12-14

Activity	Start date	End Date	Duration (days)
Mobilization	4/5/2014	7/4/2014	65
Site 1	4/5/2014	7/4/2014	65
Site 2	4/5/2014	7/4/2014	65
Site 3	4/5/2014	7/4/2014	65
Site 4	4/5/2014	7/4/2014	65
Demolition	**7/4/2014**	**10/22/2014**	79
2013	7/4/2014	10/22/2014	79
2014	7/4/2014	10/22/2014	79
2015	7/4/2014	10/22/2014	79
2016	7/4/2014	10/22/2014	79
2017	7/4/2014	10/22/2014	79
Land Clearing	7/4/2014	11/7/2014	91
Site 1	7/4/2014	11/10/2014	92
Site 2	7/4/2014	11/6/2014	90
Site 3	7/4/2014	11/7/2014	91
Site 4	7/4/2014	11/7/2014	91
Earth Moving	**11/7/2014**	**11/4/2016**	**521**
Site 1	11/7/2014	11/7/2016	**522**
Site 2	11/5/2014	11/3/2016	**522**
Site 3	11/6/2014	11/4/2016	**522**
Site 4	11/6/2014	11/4/2016	**522**
Road Crossings	**11/7/2014**		
Site 1	11/7/2014	11/7/2016	**522**
Site 2	11/5/2014	11/3/2016	**522**
Site 3	11/6/2014	11/4/2016	**522**
Site 4	11/6/2014	11/4/2016	**522**
Track at Grade	**11/21/2016**	**7/31/2017**	**181**
Retained Fill	**11/21/2016**	**6/6/2017**	**142**
Elevated Strectures	**11/7/2014**	**1/25/2017**	
Site 1	11/7/2014	10/28/2016	**516**
Site 2	11/5/2014	10/26/2016	**516**
Site 3	11/6/2014	1/25/2017	**580**
Site 4	11/6/2014	1/25/2017	**580**
Demobilization	**11/1/2016**	**4/25/2017**	**126**
Site 1	11/1/2016	1/31/2017	**66**
Site 2	11/1/2016	1/31/2017	**66**
Site 3	1/24/2017	4/25/2017	**66**
Site 4	1/24/2017	4/25/2017	**66**
Fresno Station	**6/15/2017**	**4/30/2020**	**751**
Bakersfield Station	**6/15/2018**	**4/30/2021**	**751**
Kings Tulare Station	**6/1/2020**	**4/19/2023**	**753**
HMF Phase 1 & 3	**5/20/2017**	**11/16/2018**	**390**
HMF Track Phase 3	**6/16/2018**	**11/16/2018**	**110**
MOWF	**5/20/2017**	**1/30/2018**	**182**
MOWF Track	**11/16/2017**	**1/18/2018**	**46**
Systems: Paralleling Station	**11/1/2017**	**5/16/2019**	**402**
Sites 1-15	11/1/2017	5/16/2018	**141**
Sites 16 & 17	11/1/2018	5/16/2019	**141**
Systems: Switching Station	**6/19/2017**	**5/14/2018**	**236**
Sites 1-5	6/19/2017	5/14/2018	**236**
Systems: Traction Power Supply Station	**11/14/2016**	**5/9/2019**	**649**
Sites 1-4	11/14/2016	5/14/2018	**391**
Site 5	11/8/2017	5/9/2019	**392**

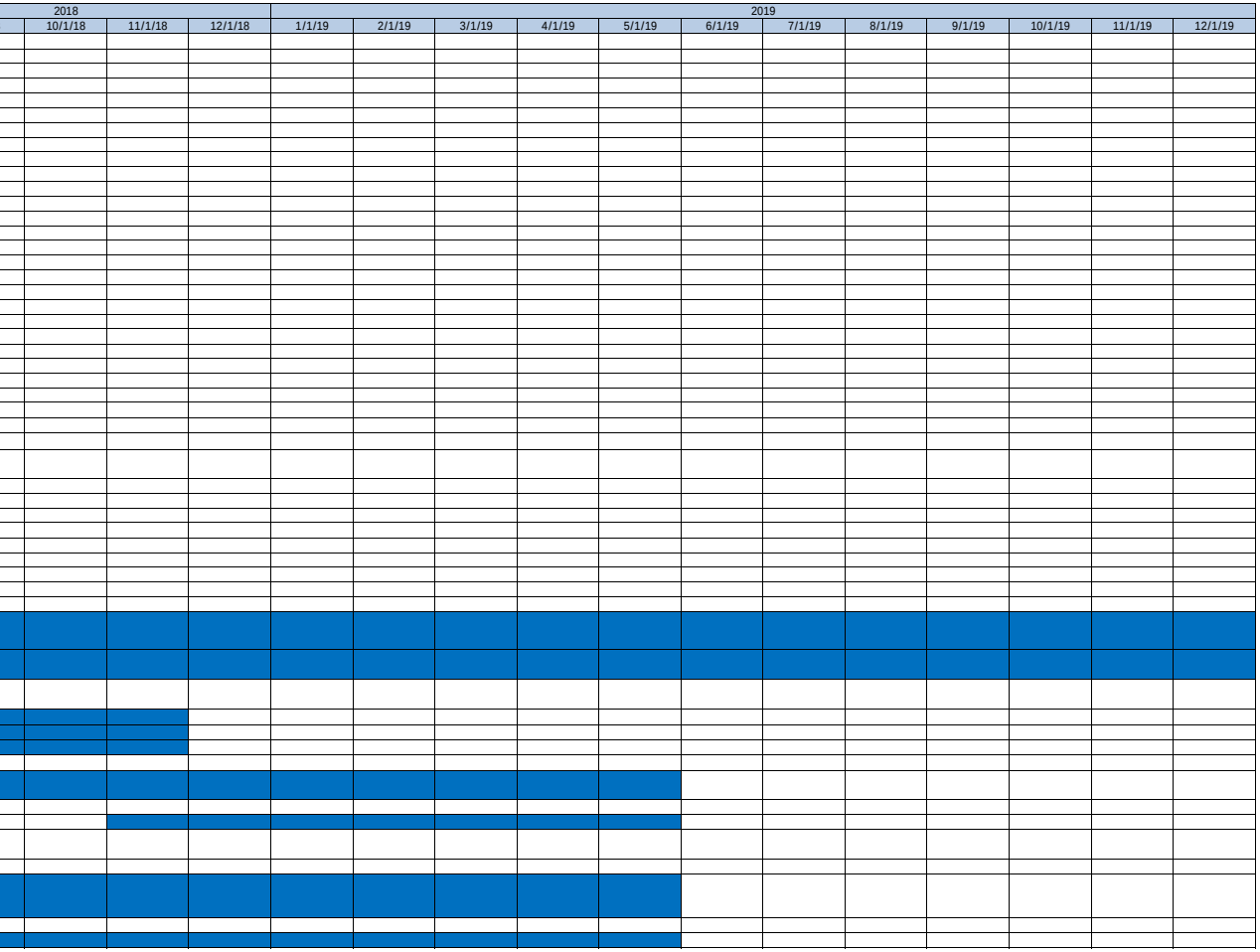
CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION SCHEDULE
2-12-14

Activity	Start date	End Date	Duration (days)
Mobilization	4/5/2014	7/4/2014	65
Site 1	4/5/2014	7/4/2014	65
Site 2	4/5/2014	7/4/2014	65
Site 3	4/5/2014	7/4/2014	65
Site 4	4/5/2014	7/4/2014	65
Demolition	**7/4/2014**	**10/22/2014**	79
2013	7/4/2014	10/22/2014	79
2014	7/4/2014	10/22/2014	79
2015	7/4/2014	10/22/2014	79
2016	7/4/2014	10/22/2014	79
2017	7/4/2014	10/22/2014	79
Land Clearing	7/4/2014	11/7/2014	91
Site 1	7/4/2014	11/10/2014	92
Site 2	7/4/2014	11/6/2014	90
Site 3	7/4/2014	11/7/2014	91
Site 4	7/4/2014	11/7/2014	91
Earth Moving	**11/7/2014**	**11/4/2016**	**521**
Site 1	11/7/2014	11/7/2016	**522**
Site 2	11/5/2014	11/3/2016	**522**
Site 3	11/6/2014	11/4/2016	**522**
Site 4	11/6/2014	11/4/2016	**522**
Road Crossings	**11/7/2014**		
Site 1	11/7/2014	11/7/2016	**522**
Site 2	11/5/2014	11/3/2016	**522**
Site 3	11/6/2014	11/4/2016	**522**
Site 4	11/6/2014	11/4/2016	**522**
Track at Grade	**11/21/2016**	**7/31/2017**	**181**
Retained Fill	**11/21/2016**	**6/6/2017**	**142**
Elevated Strectures	**11/7/2014**	**1/25/2017**	
Site 1	11/7/2014	10/28/2016	**516**
Site 2	11/5/2014	10/26/2016	**516**
Site 3	11/6/2014	1/25/2017	**580**
Site 4	11/6/2014	1/25/2017	**580**
Demobilization	**11/1/2016**	**4/25/2017**	**126**
Site 1	11/1/2016	1/31/2017	**66**
Site 2	11/1/2016	1/31/2017	**66**
Site 3	1/24/2017	4/25/2017	**66**
Site 4	1/24/2017	4/25/2017	**66**
Fresno Station	**6/15/2017**	**4/30/2020**	**751**
Bakersfield Station	**6/15/2018**	**4/30/2021**	**751**
Kings Tulare Station	**6/1/2020**	**4/19/2023**	**753**
HMF Phase 1 & 3	**5/20/2017**	**11/16/2018**	**390**
HMF Track Phase 3	**6/16/2018**	**11/16/2018**	**110**
MOWF	**5/20/2017**	**1/30/2018**	**182**
MOWF Track	**11/16/2017**	**1/18/2018**	**46**
Systems: Paralleling Station	**11/1/2017**	**5/16/2019**	**402**
Sites 1-15	11/1/2017	5/16/2018	**141**
Sites 16 & 17	11/1/2018	5/16/2019	**141**
Systems: Switching Station	**6/19/2017**	**5/14/2018**	**236**
Sites 1-5	6/19/2017	5/14/2018	**236**
Systems: Traction Power Supply Station	**11/14/2016**	**5/9/2019**	**649**
Sites 1-4	11/14/2016	5/14/2018	**391**
Site 5	11/8/2017	5/9/2019	**392**



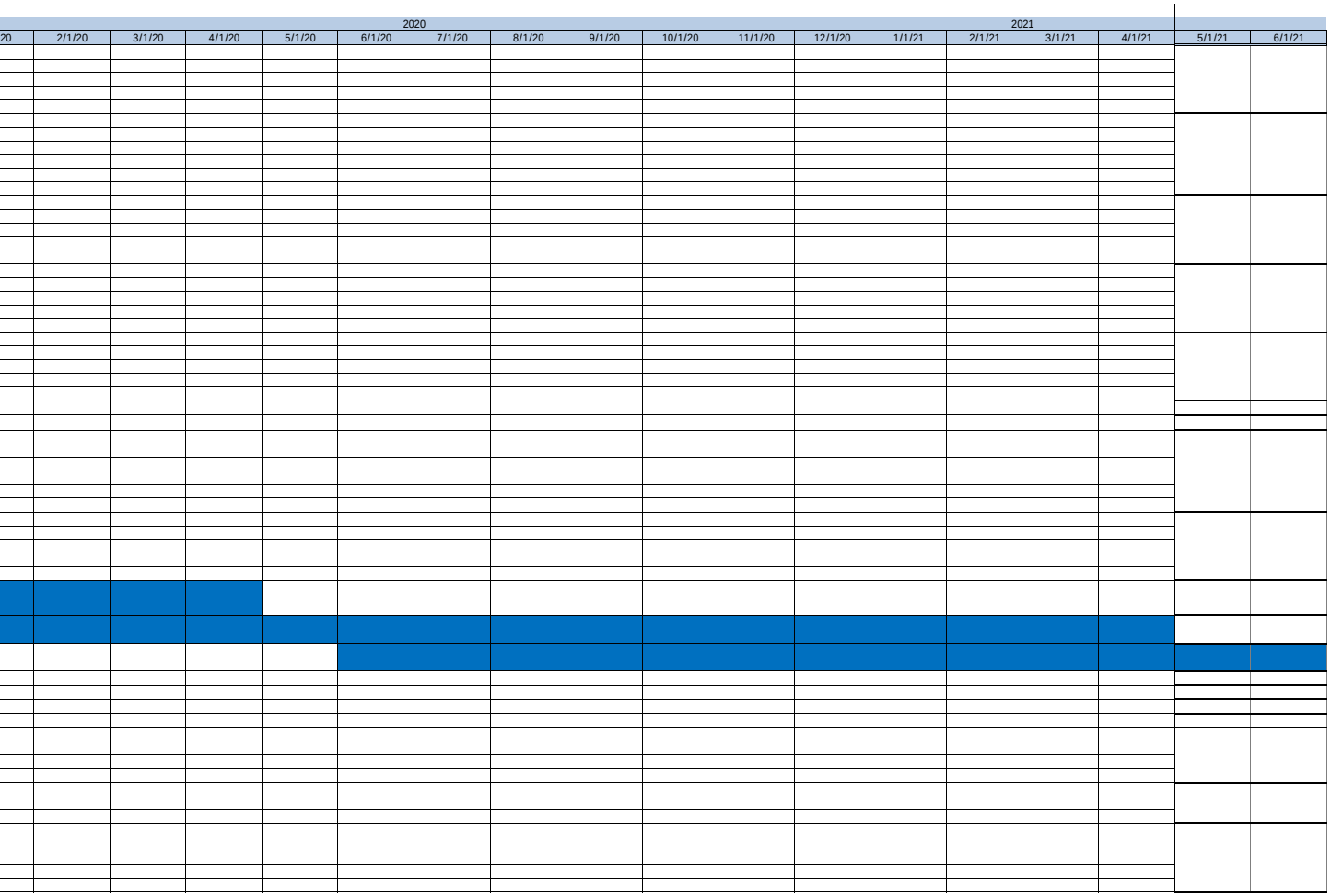
CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION SCHEDULE
2-12-14

Activity	Start date	End Date	Duration (days)
Mobilization	4/5/2014	7/4/2014	65
Site 1	4/5/2014	7/4/2014	65
Site 2	4/5/2014	7/4/2014	65
Site 3	4/5/2014	7/4/2014	65
Site 4	4/5/2014	7/4/2014	65
Demolition	**7/4/2014**	**10/22/2014**	79
2013	7/4/2014	10/22/2014	79
2014	7/4/2014	10/22/2014	79
2015	7/4/2014	10/22/2014	79
2016	7/4/2014	10/22/2014	79
2017	7/4/2014	10/22/2014	79
Land Clearing	7/4/2014	11/7/2014	91
Site 1	7/4/2014	11/10/2014	92
Site 2	7/4/2014	11/6/2014	90
Site 3	7/4/2014	11/7/2014	91
Site 4	7/4/2014	11/7/2014	91
Earth Moving	**11/7/2014**	**11/4/2016**	**521**
Site 1	11/7/2014	11/7/2016	**522**
Site 2	11/5/2014	11/3/2016	**522**
Site 3	11/6/2014	11/4/2016	**522**
Site 4	11/6/2014	11/4/2016	**522**
Road Crossings	**11/7/2014**		
Site 1	11/7/2014	11/7/2016	**522**
Site 2	11/5/2014	11/3/2016	**522**
Site 3	11/6/2014	11/4/2016	**522**
Site 4	11/6/2014	11/4/2016	**522**
Track at Grade	**11/21/2016**	**7/31/2017**	**181**
Retained Fill	**11/21/2016**	**6/6/2017**	**142**
Elevated Strectures	**11/7/2014**	**1/25/2017**	
Site 1	11/7/2014	10/28/2016	**516**
Site 2	11/5/2014	10/26/2016	**516**
Site 3	11/6/2014	1/25/2017	**580**
Site 4	11/6/2014	1/25/2017	**580**
Demobilization	**11/1/2016**	**4/25/2017**	**126**
Site 1	11/1/2016	1/31/2017	**66**
Site 2	11/1/2016	1/31/2017	**66**
Site 3	1/24/2017	4/25/2017	**66**
Site 4	1/24/2017	4/25/2017	**66**
Fresno Station	**6/15/2017**	**4/30/2020**	**751**
Bakersfield Station	**6/15/2018**	**4/30/2021**	**751**
Kings Tulare Station	**6/1/2020**	**4/19/2023**	**753**
HMF Phase 1 & 3	**5/20/2017**	**11/16/2018**	**390**
HMF Track Phase 3	**6/16/2018**	**11/16/2018**	**110**
MOWF	**5/20/2017**	**1/30/2018**	**182**
MOWF Track	**11/16/2017**	**1/18/2018**	**46**
Systems: Paralleling Station	**11/1/2017**	**5/16/2019**	**402**
Sites 1-15	11/1/2017	5/16/2018	**141**
Sites 16 & 17	11/1/2018	5/16/2019	**141**
Systems: Switching Station	**6/19/2017**	**5/14/2018**	**236**
Sites 1-5	6/19/2017	5/14/2018	**236**
Systems: Traction Power Supply Station	**11/14/2016**	**5/9/2019**	**649**
Sites 1-4	11/14/2016	5/14/2018	**391**
Site 5	11/8/2017	5/9/2019	**392**



CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION SCHEDULE
2-12-14

Activity	Start date	End Date	Duration (days)
Mobilization	4/5/2014	7/4/2014	65
Site 1	4/5/2014	7/4/2014	65
Site 2	4/5/2014	7/4/2014	65
Site 3	4/5/2014	7/4/2014	65
Site 4	4/5/2014	7/4/2014	65
Demolition	**7/4/2014**	**10/22/2014**	79
2013	7/4/2014	10/22/2014	79
2014	7/4/2014	10/22/2014	79
2015	7/4/2014	10/22/2014	79
2016	7/4/2014	10/22/2014	79
2017	7/4/2014	10/22/2014	79
Land Clearing	7/4/2014	11/7/2014	91
Site 1	7/4/2014	11/10/2014	92
Site 2	7/4/2014	11/6/2014	90
Site 3	7/4/2014	11/7/2014	91
Site 4	7/4/2014	11/7/2014	91
Earth Moving	**11/7/2014**	**11/4/2016**	**521**
Site 1	11/7/2014	11/7/2016	**522**
Site 2	11/5/2014	11/3/2016	**522**
Site 3	11/6/2014	11/4/2016	**522**
Site 4	11/6/2014	11/4/2016	**522**
Road Crossings	**11/7/2014**		
Site 1	11/7/2014	11/7/2016	**522**
Site 2	11/5/2014	11/3/2016	**522**
Site 3	11/6/2014	11/4/2016	**522**
Site 4	11/6/2014	11/4/2016	**522**
Track at Grade	**11/21/2016**	**7/31/2017**	**181**
Retained Fill	**11/21/2016**	**6/6/2017**	**142**
Elevated Strectures	**11/7/2014**	**1/25/2017**	
Site 1	11/7/2014	10/28/2016	**516**
Site 2	11/5/2014	10/26/2016	**516**
Site 3	11/6/2014	1/25/2017	**580**
Site 4	11/6/2014	1/25/2017	**580**
Demobilization	**11/1/2016**	**4/25/2017**	**126**
Site 1	11/1/2016	1/31/2017	**66**
Site 2	11/1/2016	1/31/2017	**66**
Site 3	1/24/2017	4/25/2017	**66**
Site 4	1/24/2017	4/25/2017	**66**
Fresno Station	**6/15/2017**	**4/30/2020**	**751**
Bakersfield Station	**6/15/2018**	**4/30/2021**	**751**
Kings Tulare Station	**6/1/2020**	**4/19/2023**	**753**
HMF Phase 1 & 3	**5/20/2017**	**11/16/2018**	**390**
HMF Track Phase 3	**6/16/2018**	**11/16/2018**	**110**
MOWF	**5/20/2017**	**1/30/2018**	**182**
MOWF Track	**11/16/2017**	**1/18/2018**	**46**
Systems: Paralleling Station	**11/1/2017**	**5/16/2019**	**402**
Sites 1-15	11/1/2017	5/16/2018	**141**
Sites 16 & 17	11/1/2018	5/16/2019	**141**
Systems: Switching Station	**6/19/2017**	**5/14/2018**	**236**
Sites 1-5	6/19/2017	5/14/2018	**236**
Systems: Traction Power Supply Station	**11/14/2016**	**5/9/2019**	**649**
Sites 1-4	11/14/2016	5/14/2018	**391**
Site 5	11/8/2017	5/9/2019	**392**

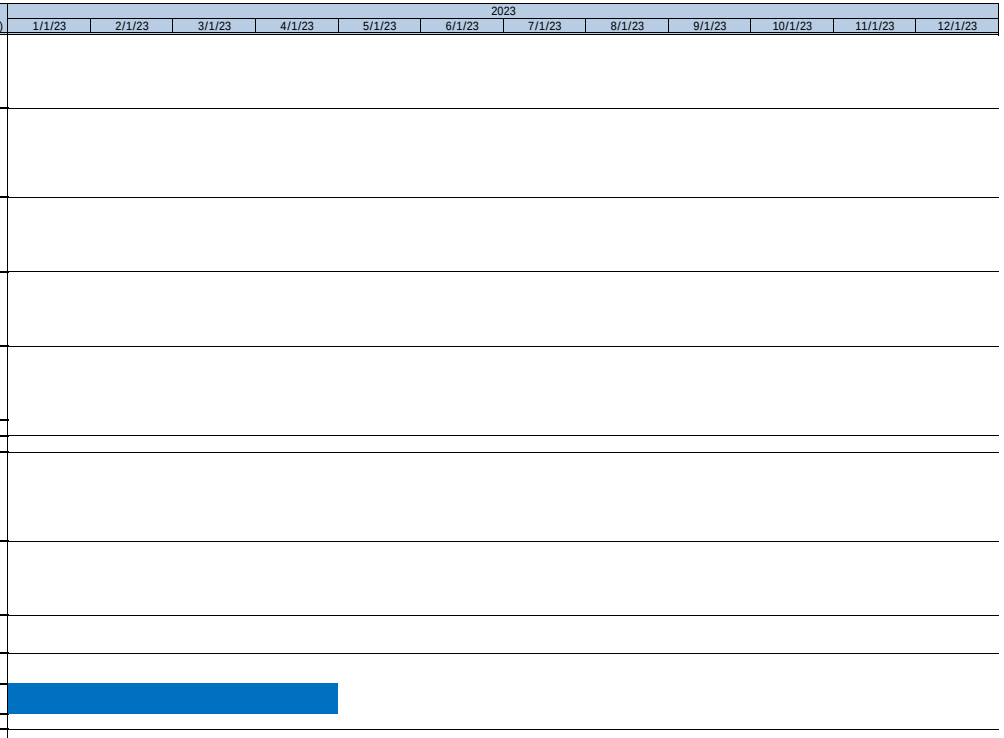


CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION SCHEDULE
2-12-14

Activity	Start date	End Date	Duration (days)	7/1/21	8/1/21	9/1/21	10/1/21	11/1/21	12/1/21	2022 1/1/22	2/1/22	3/1/22	4/1/22	5/1/22	6/1/22	7/1/22	8/1/22	9/1/22	10/1/22	11/1/22	12/1/22
Mobilization	4/5/2014	7/4/2014	65																		
Site 1	4/5/2014	7/4/2014	65																		
Site 2	4/5/2014	7/4/2014	65																		
Site 3	4/5/2014	7/4/2014	65																		
Site 4	4/5/2014	7/4/2014	65																		
Demolition	**7/4/2014**	**10/22/2014**	79																		
2013	7/4/2014	10/22/2014	79																		
2014	7/4/2014	10/22/2014	79																		
2015	7/4/2014	10/22/2014	79																		
2016	7/4/2014	10/22/2014	79																		
2017	7/4/2014	10/22/2014	79																		
Land Clearing	7/4/2014	11/7/2014	91																		
Site 1	7/4/2014	11/10/2014	92																		
Site 2	7/4/2014	11/6/2014	90																		
Site 3	7/4/2014	11/7/2014	91																		
Site 4	7/4/2014	11/7/2014	91																		
Earth Moving	**11/7/2014**	**11/4/2016**	**521**																		
Site 1	11/7/2014	11/7/2016	**522**																		
Site 2	11/5/2014	11/3/2016	**522**																		
Site 3	11/6/2014	11/4/2016	**522**																		
Site 4	11/6/2014	11/4/2016	**522**																		
Road Crossings	**11/7/2014**																				
Site 1	11/7/2014	11/7/2016	**522**																		
Site 2	11/5/2014	11/3/2016	**522**																		
Site 3	11/6/2014	11/4/2016	**522**																		
Site 4	11/6/2014	11/4/2016	**522**																		
Track at Grade	**11/21/2016**	**7/31/2017**	**181**																		
Retained Fill	**11/21/2016**	**6/6/2017**	**142**																		
Elevated Strectures	**11/7/2014**	**1/25/2017**																			
Site 1	11/7/2014	10/28/2016	**516**																		
Site 2	11/5/2014	10/26/2016	**516**																		
Site 3	11/6/2014	1/25/2017	**580**																		
Site 4	11/6/2014	1/25/2017	**580**																		
Demobilization	**11/1/2016**	**4/25/2017**	**126**																		
Site 1	11/1/2016	1/31/2017	**66**																		
Site 2	11/1/2016	1/31/2017	**66**																		
Site 3	1/24/2017	4/25/2017	**66**																		
Site 4	1/24/2017	4/25/2017	**66**																		
Fresno Station	**6/15/2017**	**4/30/2020**	**751**																		
Bakersfield Station	**6/15/2018**	**4/30/2021**	**751**																		
Kings Tulare Station	**6/1/2020**	**4/19/2023**	**753**																		
HMF Phase 1 & 3	**5/20/2017**	**11/16/2018**	**390**																		
HMF Track Phase 3	**6/16/2018**	**11/16/2018**	**110**																		
MOWF	**5/20/2017**	**1/30/2018**	**182**																		
MOWF Track	**11/16/2017**	**1/18/2018**	**46**																		
Systems: Paralleling Station	**11/1/2017**	**5/16/2019**	**402**																		
Sites 1-15	11/1/2017	5/16/2018	**141**																		
Sites 16 & 17	11/1/2018	5/16/2019	**141**																		
Systems: Switching Station	**6/19/2017**	**5/14/2018**	**236**																		
Sites 1-5	6/19/2017	5/14/2018	**236**																		
Systems: Traction Power Supply Station	**11/14/2016**	**5/9/2019**	**649**																		
Sites 1-4	11/14/2016	5/14/2018	**391**																		
Site 5	11/8/2017	5/9/2019	**392**																		

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION SCHEDULE
2-12-14

Activity	Start date	End Date	Duration (days)
Mobilization	4/5/2014	7/4/2014	65
Site 1	4/5/2014	7/4/2014	65
Site 2	4/5/2014	7/4/2014	65
Site 3	4/5/2014	7/4/2014	65
Site 4	4/5/2014	7/4/2014	65
Demolition	**7/4/2014**	**10/22/2014**	79
2013	7/4/2014	10/22/2014	79
2014	7/4/2014	10/22/2014	79
2015	7/4/2014	10/22/2014	79
2016	7/4/2014	10/22/2014	79
2017	7/4/2014	10/22/2014	79
Land Clearing	7/4/2014	11/7/2014	91
Site 1	7/4/2014	11/10/2014	92
Site 2	7/4/2014	11/6/2014	90
Site 3	7/4/2014	11/7/2014	91
Site 4	7/4/2014	11/7/2014	91
Earth Moving	**11/7/2014**	**11/4/2016**	**521**
Site 1	11/7/2014	11/7/2016	**522**
Site 2	11/5/2014	11/3/2016	**522**
Site 3	11/6/2014	11/4/2016	**522**
Site 4	11/6/2014	11/4/2016	**522**
Road Crossings	**11/7/2014**		
Site 1	11/7/2014	11/7/2016	**522**
Site 2	11/5/2014	11/3/2016	**522**
Site 3	11/6/2014	11/4/2016	**522**
Site 4	11/6/2014	11/4/2016	**522**
Track at Grade	**11/21/2016**	**7/31/2017**	**181**
Retained Fill	**11/21/2016**	**6/6/2017**	**142**
Elevated Strectures	**11/7/2014**	**1/25/2017**	
Site 1	11/7/2014	10/28/2016	**516**
Site 2	11/5/2014	10/26/2016	**516**
Site 3	11/6/2014	1/25/2017	**580**
Site 4	11/6/2014	1/25/2017	**580**
Demobilization	**11/1/2016**	**4/25/2017**	**126**
Site 1	11/1/2016	1/31/2017	**66**
Site 2	11/1/2016	1/31/2017	**66**
Site 3	1/24/2017	4/25/2017	**66**
Site 4	1/24/2017	4/25/2017	**66**
Fresno Station	**6/15/2017**	**4/30/2020**	**751**
Bakersfield Station	**6/15/2018**	**4/30/2021**	**751**
Kings Tulare Station	**6/1/2020**	**4/19/2023**	**753**
HMF Phase 1 & 3	**5/20/2017**	**11/16/2018**	**390**
HMF Track Phase 3	**6/16/2018**	**11/16/2018**	**110**
MOWF	**5/20/2017**	**1/30/2018**	**182**
MOWF Track	**11/16/2017**	**1/18/2018**	**46**
Systems: Paralleling Station	**11/1/2017**	**5/16/2019**	**402**
Sites 1-15	11/1/2017	5/16/2018	**141**
Sites 16 & 17	11/1/2018	5/16/2019	**141**
Systems: Switching Station	**6/19/2017**	**5/14/2018**	**236**
Sites 1-5	6/19/2017	5/14/2018	**236**
Systems: Traction Power Supply Station	**11/14/2016**	**5/9/2019**	**649**
Sites 1-4	11/14/2016	5/14/2018	**391**
Site 5	11/8/2017	5/9/2019	**392**



CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS -
MOBILIZATION

Construction Equipment	Actual Equipment Rated HP [2] hp/hr	Type of Fuel	Number of Units	Average Daily Load Factor	Average Daily Utilization Rate	Average Work Hours per Day (hours)	Total Utilized Equipment Operating Hours per Day	Operating Hours per Day (all equipment)	Start Date	End Date	Construction Activity Months of Activity	Construction Activity Days of Activity	Diesel Pollutant Emission Factors [3] CO g/hour	NOx g/hour	PM10 g/hour	$PM_{2.5}$ g/hour	VOC g/hour	CO_2 (lbs/hour)	SO_2 g/hour
Mobilization - Site 1																			
Off-Highway Trucks-0175	175	Diesel	3	0.44	0.35	8	3	8	4/5/2014	7/4/2014	4	65	343.00	318.10	17.83	17.30	25.83	69.28	0.64
Off-Highway Trucks-0250	210	Diesel	1	0.44	0.35	8	3	3	4/5/2014	7/4/2014	4	65	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Off-Highway Trucks-0500	500	Diesel	10	0.44	0.30	8	2	24	4/5/2014	7/4/2014	4	65	278.05	685.12	26.59	25.79	47.60	164.52	1.21
Off-Highway Trucks-0500	300	Diesel	4	0.44	0.35	8	3	11	4/5/2014	7/4/2014	4	65	278.05	685.12	26.59	25.79	47.60	164.52	1.21
Off-Highway Trucks-0250	210	Diesel	4	0.44	0.35	8	3	11	4/5/2014	7/4/2014	4	65	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Other General Industrial Equipment-0050	10	Diesel	5	0.34	1.00	8	8	40	4/5/2014	7/4/2014	4	65	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Off-Highway Trucks-0250	200	Diesel	4	0.44	0.25	8	2	8	4/5/2014	7/4/2014	4	65	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Off-Highway Trucks-0500	330	Diesel	4	0.44	0.25	8	2	8	4/5/2014	7/4/2014	4	65	278.05	685.12	26.59	25.79	47.60	164.52	1.21
Tractors/Loaders/Backhoes-0120	87	Diesel	2	0.37	0.25	8	2	4	4/5/2014	7/4/2014	4	65	158.72	170.88	13.45	13.05	14.77	35.39	0.27
Excavators-0500	300	Diesel	1	0.38	0.20	8	2	2	4/5/2014	7/4/2014	4	65	231.25	431.53	14.13	13.71	24.92	143.60	1.04
Construction Equipment Total			***38***																
Mobilization - Site 1 (Continued)																			
Crawler Tractors-0175	125	Diesel	2	0.43	0.20	8	2	3	4/5/2014	7/4/2014	4	65	335.94	445.81	24.32	23.59	33.77	73.54	0.62
None-0	0	Diesel	0	0.00	1.00	8	8	0	4/5/2014	7/4/2014	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	4/5/2014	7/4/2014	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	4/5/2014	7/4/2014	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	4/5/2014	7/4/2014	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	4/5/2014	7/4/2014	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	4/5/2014	7/4/2014	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	4/5/2014	7/4/2014	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	4/5/2014	7/4/2014	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***2***																
Mobilization - Site 2																			
Off-Highway Trucks-0175	175	Diesel	3	0.44	0.35	8	3	8	4/5/2014	7/4/2014	4	65	343.00	318.10	17.83	17.30	25.83	69.28	0.64
Off-Highway Trucks-0250	210	Diesel	1	0.44	0.35	8	3	3	4/5/2014	7/4/2014	4	65	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Off-Highway Trucks-0500	500	Diesel	10	0.44	0.30	8	2	24	4/5/2014	7/4/2014	4	65	278.05	685.12	26.59	25.79	47.60	164.52	1.21
Off-Highway Trucks-0500	300	Diesel	4	0.44	0.35	8	3	11	4/5/2014	7/4/2014	4	65	278.05	685.12	26.59	25.79	47.60	164.52	1.21
Off-Highway Trucks-0250	210	Diesel	4	0.44	0.35	8	3	11	4/5/2014	7/4/2014	4	65	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Other General Industrial Equipment-0050	10	Diesel	5	0.34	1.00	8	8	40	4/5/2014	7/4/2014	4	65	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Off-Highway Trucks-0250	200	Diesel	4	0.44	0.25	8	2	8	4/5/2014	7/4/2014	4	65	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Off-Highway Trucks-0500	330	Diesel	4	0.44	0.25	8	2	8	4/5/2014	7/4/2014	4	65	278.05	685.12	26.59	25.79	47.60	164.52	1.21
Tractors/Loaders/Backhoes-0120	87	Diesel	2	0.37	0.25	8	2	4	4/5/2014	7/4/2014	4	65	158.72	170.88	13.45	13.05	14.77	35.39	0.27
Excavators-0500	300	Diesel	1	0.38	0.20	8	2	2	4/5/2014	7/4/2014	4	65	231.25	431.53	14.13	13.71	24.92	143.60	1.04
Construction Equipment Total			***38***																
Mobilization - Site 2 (Continued)																			
Crawler Tractors-0175	125	Diesel	2	0.43	0.20	8	2	3	4/5/2014	7/4/2014	4	65	335.94	445.81	24.32	23.59	33.77	73.54	0.62
None-0	0	Diesel	0	0.00	1.00	8	8	0	4/5/2014	7/4/2014	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	4/5/2014	7/4/2014	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	4/5/2014	7/4/2014	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	4/5/2014	7/4/2014	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	4/5/2014	7/4/2014	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	4/5/2014	7/4/2014	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	4/5/2014	7/4/2014	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	4/5/2014	7/4/2014	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***2***																

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS -
MOBILIZATION

Construction Equipment	Actual Equipment Rated HP [2] hp/hr	Type of Fuel	Number of Units	Average Daily Load Factor	Average Daily Utilization Rate	Average Work Hours per Day (hours)	Total Utilized Equipment Operating Hours per Day	Operating Hours per Day (all equipment)	Start Date	End Date	Construction Activity Months of Activity	Construction Activity Days of Activity	Diesel Pollutant Emission Factors [3] CO g/hour	NOx g/hour	PM10 g/hour	$PM_{2.5}$ g/hour	VOC g/hour	CO_2 (lbs/hour)	SO_2 g/hour
Mobilization - Site 3																			
Off-Highway Trucks-0175	175	Diesel	3	0.44	0.35	8	3	8	4/5/2014	7/4/2014	4	65	343.00	318.10	17.83	17.30	25.83	69.28	0.64
Off-Highway Trucks-0250	210	Diesel	1	0.44	0.35	8	3	3	4/5/2014	7/4/2014	4	65	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Off-Highway Trucks-0500	500	Diesel	10	0.44	0.30	8	2	24	4/5/2014	7/4/2014	4	65	278.05	685.12	26.59	25.79	47.60	164.52	1.21
Off-Highway Trucks-0500	300	Diesel	4	0.44	0.35	8	3	11	4/5/2014	7/4/2014	4	65	278.05	685.12	26.59	25.79	47.60	164.52	1.21
Off-Highway Trucks-0250	210	Diesel	4	0.44	0.35	8	3	11	4/5/2014	7/4/2014	4	65	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Other General Industrial Equipment-0050	10	Diesel	5	0.34	1.00	8	8	40	4/5/2014	7/4/2014	4	65	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Off-Highway Trucks-0250	200	Diesel	4	0.44	0.25	8	2	8	4/5/2014	7/4/2014	4	65	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Off-Highway Trucks-0500	330	Diesel	4	0.44	0.25	8	2	8	4/5/2014	7/4/2014	4	65	278.05	685.12	26.59	25.79	47.60	164.52	1.21
Tractors/Loaders/Backhoes-0120	87	Diesel	2	0.37	0.25	8	2	4	4/5/2014	7/4/2014	4	65	158.72	170.88	13.45	13.05	14.77	35.39	0.27
Excavators-0500	300	Diesel	1	0.38	0.20	8	2	2	4/5/2014	7/4/2014	4	65	231.25	431.53	14.13	13.71	24.92	143.60	1.04
Construction Equipment Total			***38***																
Mobilization - Site 3 (Continued)																			
Crawler Tractors-0175	125	Diesel	2	0.43	0.20	8	2	3	4/5/2014	7/4/2014	4	65	335.94	445.81	24.32	23.59	33.77	73.54	0.62
None-0	0	Diesel	0	0.00	1.00	8	8	0	4/5/2014	7/4/2014	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	4/5/2014	7/4/2014	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	4/5/2014	7/4/2014	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	4/5/2014	7/4/2014	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	4/5/2014	7/4/2014	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	4/5/2014	7/4/2014	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	4/5/2014	7/4/2014	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	4/5/2014	7/4/2014	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***2***																
Mobilization - Site 4																			
Off-Highway Trucks-0175	175	Diesel	3	0.44	0.35	8	3	8	4/5/2014	7/4/2014	4	65	343.00	318.10	17.83	17.30	25.83	69.28	0.64
Off-Highway Trucks-0250	210	Diesel	1	0.44	0.35	8	3	3	4/5/2014	7/4/2014	4	65	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Off-Highway Trucks-0500	500	Diesel	10	0.44	0.30	8	2	24	4/5/2014	7/4/2014	4	65	278.05	685.12	26.59	25.79	47.60	164.52	1.21
Off-Highway Trucks-0500	300	Diesel	4	0.44	0.35	8	3	11	4/5/2014	7/4/2014	4	65	278.05	685.12	26.59	25.79	47.60	164.52	1.21
Off-Highway Trucks-0250	210	Diesel	4	0.44	0.35	8	3	11	4/5/2014	7/4/2014	4	65	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Other General Industrial Equipment-0050	10	Diesel	5	0.34	1.00	8	8	40	4/5/2014	7/4/2014	4	65	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Off-Highway Trucks-0250	200	Diesel	4	0.44	0.25	8	2	8	4/5/2014	7/4/2014	4	65	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Off-Highway Trucks-0500	330	Diesel	4	0.44	0.25	8	2	8	4/5/2014	7/4/2014	4	65	278.05	685.12	26.59	25.79	47.60	164.52	1.21
Tractors/Loaders/Backhoes-0120	87	Diesel	2	0.37	0.25	8	2	4	4/5/2014	7/4/2014	4	65	158.72	170.88	13.45	13.05	14.77	35.39	0.27
Excavators-0500	300	Diesel	1	0.38	0.20	8	2	2	4/5/2014	7/4/2014	4	65	231.25	431.53	14.13	13.71	24.92	143.60	1.04
Construction Equipment Total			***38***																
Mobilization - Site 4 (Continued)																			
Crawler Tractors-0175	125	Diesel	2	0.43	0.20	8	2	3	4/5/2014	7/4/2014	4	65	335.94	445.81	24.32	23.59	33.77	73.54	0.62
None-0	0	Diesel	0	0.00	1.00	8	8	0	4/5/2014	7/4/2014	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	4/5/2014	7/4/2014	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	4/5/2014	7/4/2014	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	4/5/2014	7/4/2014	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	4/5/2014	7/4/2014	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	4/5/2014	7/4/2014	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	4/5/2014	7/4/2014	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	4/5/2014	7/4/2014	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***2***																

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
MOBILIZATION

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration		Pollutant Emission Factors [3]						
						Months of Activity	Days of Activity	CO	NOx	PM10	PM2.5	HC	CO_2	SO_2
Mobilization - Site 1														
Demolition - enter area / volume to be demolished	Square Feet to demolish	0		Apr-14	Jul-14	4	65			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Apr-14	Jul-14	4	65			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	40	Apr-14	Jul-14	4	65	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	30	1	Apr-14	Jul-14	4	65			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	40	Apr-14	Jul-14	4	65	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading-Dust	ton of mat. removed	0		Apr-14	Jul-14	4	65			0.0000	0.0000			
Worker Trips	Number of Vehicles	48	40	Apr-14	Jul-14	4	65	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Mobilization - Site 1 (Continued)														
Demolition - enter area / volume to be demolished	Square Feet to demolish	0		Apr-14	Jul-14	4	65			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Apr-14	Jul-14	4	65			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	40	Apr-14	Jul-14	4	65	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Apr-14	Jul-14	4	65			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	40	Apr-14	Jul-14	4	65	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Apr-14	Jul-14	4	65			0.0000	0.0000			
Worker Trips	Number of Vehicles	3	40	Apr-14	Jul-14	4	65	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Mobilization - Site 2														
Demolition - enter area / volume to be demolished	Square Feet to demolish	0		Apr-14	Jul-14	4	65			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Apr-14	Jul-14	4	65			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	40	Apr-14	Jul-14	4	65	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	30	1	Apr-14	Jul-14	4	65			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	40	Apr-14	Jul-14	4	65	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Apr-14	Jul-14	4	65			0.0000	0.0000			
Worker Trips	Number of Vehicles	48	40	Apr-14	Jul-14	4	65	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Mobilization - Site 2 (Continued)														
Demolition - enter area / volume to be demolished	Square Feet to demolish	0		Apr-14	Jul-14	4	65			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Apr-14	Jul-14	4	65			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	40	Apr-14	Jul-14	4	65	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Apr-14	Jul-14	4	65			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	40	Apr-14	Jul-14	4	65	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Apr-14	Jul-14	4	65			0.0000	0.0000			
Worker Trips	Number of Vehicles	3	40	Apr-14	Jul-14	4	65	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Mobilization - Site 3														
Demolition - enter area / volume to be demolished	Square Feet to demolish	0		Apr-14	Jul-14	4	65			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Apr-14	Jul-14	4	65			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	40	Apr-14	Jul-14	4	65	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	30	1	Apr-14	Jul-14	4	65			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	40	Apr-14	Jul-14	4	65	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Apr-14	Jul-14	4	65			0.0000	0.0000			
Worker Trips	Number of Vehicles	48	40	Apr-14	Jul-14	4	65	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
MOBILIZATION

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration		Pollutant Emission Factors [3]						
						Months of Activity	Days of Activity	CO	NOx	PM10	PM2.5	HC	CO_2	SO_2
Mobilization - Site 3 (Continued)														
Demolition - enter area / volume to be demolished	Square Feet to demolish	0		Apr-14	Jul-14	4	65			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Apr-14	Jul-14	4	65			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	40	Apr-14	Jul-14	4	65	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Apr-14	Jul-14	4	65			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	40	Apr-14	Jul-14	4	65	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Apr-14	Jul-14	4	65			0.0000	0.0000			
Worker Trips	Number of Vehicles	3	40	Apr-14	Jul-14	4	65	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Mobilization - Site 4														
Demolition - enter area / volume to be demolished	Square Feet to demolish	0		Apr-14	Jul-14	4	65			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Apr-14	Jul-14	4	65			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	40	Apr-14	Jul-14	4	65	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	30	1	Apr-14	Jul-14	4	65			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	40	Apr-14	Jul-14	4	65	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Apr-14	Jul-14	4	65			0.0000	0.0000			
Worker Trips	Number of Vehicles	48	40	Apr-14	Jul-14	4	65	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Mobilization - Site 4 (Continued)														
Demolition - enter area / volume to be demolished	Square Feet to demolish	0		Apr-14	Jul-14	4	65			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Apr-14	Jul-14	4	65			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	40	Apr-14	Jul-14	4	65	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Apr-14	Jul-14	4	65			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	40	Apr-14	Jul-14	4	65	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Apr-14	Jul-14	4	65			0.0000	0.0000			
Worker Trips	Number of Vehicles	3	40	Apr-14	Jul-14	4	65	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
DEMOLITION

Construction Equipment	Actual Equipment Rated HP (2) hp/hr	Type of Fuel	Number of Units	Average Daily Load Factor	Average Daily Utilization Rate	Average Work Hours per Day (hours)	Total Utilized Equipment Operating Hours per Day	Operating Hours per Day (all equipment)	Start Date	End Date	Construction Activity Months of Activity	Construction Activity Days of Activity	Diesel Pollutant Emission Factors CO g/hour	NOx g/hour	PM10 g/hour	$PM_{2.5}$ g/hour	VOC g/hour	CO_2 (lbs/hour)	SO_2 g/hour
Demolition - Site 1																			
Other General Industrial Equipment-0050	10	Diesel	1	0.34	1.00	8	8	8	7/4/2014	10/22/2014	4	78	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Rough Terrain Forklifts-0500	357	Diesel	1	0.40	0.13	8	1	1	7/4/2014	10/22/2014	4	78	249.34	698.01	21.34	20.70	35.44	170.81	1.14
Tractors/Loaders/Backhoes-0120	108	Diesel	2	0.37	0.75	8	6	12	7/4/2014	10/22/2014	4	78	158.72	170.88	13.45	13.05	14.77	35.39	0.27
None-0	300	Diesel	0	0.00	0.35	8	3	0	7/4/2014	10/22/2014	4	78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	210	Diesel	0	0.00	0.35	8	3	0	7/4/2014	10/22/2014	4	78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	10	Diesel	0	0.00	1.00	8	8	0	7/4/2014	10/22/2014	4	78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	200	Diesel	0	0.00	0.25	8	2	0	7/4/2014	10/22/2014	4	78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	330	Diesel	0	0.00	0.25	8	2	0	7/4/2014	10/22/2014	4	78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	87	Diesel	0	0.00	0.25	8	2	0	7/4/2014	10/22/2014	4	78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	300	Diesel	0	0.00	0.20	8	2	0	7/4/2014	10/22/2014	4	78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***4***																
Demolition - Site 2																			
Other General Industrial Equipment-0050	10	Diesel	1	0.34	1.00	8	8	8	7/4/2014	10/22/2014	4	78	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Rough Terrain Forklifts-0500	357	Diesel	1	0.40	0.13	8	1	1	7/4/2014	10/22/2014	4	78	249.34	698.01	21.34	20.70	35.44	170.81	1.14
Tractors/Loaders/Backhoes-0120	108	Diesel	2	0.37	0.75	8	6	12	7/4/2014	10/22/2014	4	78	158.72	170.88	13.45	13.05	14.77	35.39	0.27
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	10/22/2014	4	78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	10/22/2014	4	78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	10/22/2014	4	78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	10/22/2014	4	78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	10/22/2014	4	78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	10/22/2014	4	78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	10/22/2014	4	78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***4***																
Demolition - Site 3																			
Other General Industrial Equipment-0050	10	Diesel	1	0.34	1.00	8	8	8	7/4/2014	10/22/2014	4	78	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Rough Terrain Forklifts-0500	357	Diesel	1	0.40	0.13	8	1	1	7/4/2014	10/22/2014	4	78	249.34	698.01	21.34	20.70	35.44	170.81	1.14
Tractors/Loaders/Backhoes-0120	108	Diesel	2	0.37	0.75	8	6	12	7/4/2014	10/22/2014	4	78	158.72	170.88	13.45	13.05	14.77	35.39	0.27
None-0	0	Diesel	0	0.00	0.35	10	4	0	7/4/2014	10/22/2014	4	78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	0.35	10	4	0	7/4/2014	10/22/2014	4	78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	10	10	0	7/4/2014	10/22/2014	4	78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	0.25	10	3	0	7/4/2014	10/22/2014	4	78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	0.25	10	3	0	7/4/2014	10/22/2014	4	78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	0.25	10	3	0	7/4/2014	10/22/2014	4	78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	0.20	10	2	0	7/4/2014	10/22/2014	4	78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***4***																
Demolition - Site 4																			
Other General Industrial Equipment-0050	10	Diesel	1	0.34	1.00	8	8	8	7/4/2014	10/22/2014	4	78	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Rough Terrain Forklifts-0500	357	Diesel	1	0.40	0.13	8	1	1	7/4/2014	10/22/2014	4	78	249.34	698.01	21.34	20.70	35.44	170.81	1.14
Tractors/Loaders/Backhoes-0120	108	Diesel	2	0.37	0.75	8	6	12	7/4/2014	10/22/2014	4	78	158.72	170.88	13.45	13.05	14.77	35.39	0.27
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	10/22/2014	4	78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	10/22/2014	4	78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	10/22/2014	4	78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	10/22/2014	4	78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	10/22/2014	4	78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	10/22/2014	4	78	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***4***																

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
DEMOLITION

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration		Pollutant Emission Factors						
						Months of Activity	Days of Activity	CO	NOx	PM10	PM2.5	HC	CO_2	SO_2
Demolition - Site 1														
Demolition - enter area / volume to be demolished	Square Feet to demolish	704,665		Jul-14	Oct-14	4	78			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	12	Aggregate	Jul-14	Oct-14	4	78			0.1515	0.1210			
Trucks - Delivery	Number of Daily Vehicles	0	15	Jul-14	Oct-14	4	78	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Total Number of Vehicles	3,259	1	Jul-14	Oct-14	4	78			0.6217	0.0622			
Truck Loading	Total Number of Vehicles	3,259	15	Jul-14	Oct-14	4	78	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading-Demoliton Dust	square footage demolished	704,665		Jul-14	Oct-14	4	78			0.0009	0.0001			
Worker Trips	Number of Daily Vehicles	5	40	Jul-14	Oct-14	4	78	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Demolition - Site 2														
Demolition - enter area / volume to be demolished	Square Feet to demolish	3,170,994		Jul-14	Oct-14	4	78			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	12	Aggregate	Jul-14	Oct-14	4	78			0.1515	0.1210			
Trucks - Delivery	Number of Daily Vehicles	0	15	Jul-14	Oct-14	4	78	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Total Number of Vehicles	14,666	1	Jul-14	Oct-14	4	78			0.6217	0.0622			
Truck Loading	Total Number of Vehicles	14,666	15	Jul-14	Oct-14	4	78	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading-Demoliton Dust	square footage demolished	3,170,994		Jul-14	Oct-14	4	78			0.0009	0.0001			
Worker Trips	Number of Daily Vehicles	5	40	Jul-14	Oct-14	4	78	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Demolition - Site 3														
Demolition - enter area / volume to be demolished	Square Feet to demolish	2,113,996		Jul-14	Oct-14	4	78			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	12	Aggregate	Jul-14	Oct-14	4	78			0.1515	0.1210			
Trucks - Delivery	Number of Daily Vehicles	0	15	Jul-14	Oct-14	4	78	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Total Number of Vehicles	9,777	1	Jul-14	Oct-14	4	78			0.6217	0.0622			
Truck Loading	Total Number of Vehicles	9,777	15	Jul-14	Oct-14	4	78	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	2,113,996		Jul-14	Oct-14	4	78			0.0009	0.0001			
Worker Trips	Number of Daily Vehicles	5	40	Jul-14	Oct-14	4	78	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Demolition - Site 4														
Demolition - enter area / volume to be demolished	Square Feet to demolish	704,665		Jul-14	Oct-14	4	78			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	12	Aggregate	Jul-14	Oct-14	4	78			0.1515	0.1210			
Trucks - Delivery	Number of Daily Vehicles	0	15	Jul-14	Oct-14	4	78	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Total Number of Vehicles	3,259	1	Jul-14	Oct-14	4	78			0.6217	0.0622			
Truck Loading	Total Number of Vehicles	3,259	15	Jul-14	Oct-14	4	78	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	704,665		Jul-14	Oct-14	4	78			0.0000	0.0000			
Worker Trips	Number of Daily Vehicles	5	40	Jul-14	Oct-14	4	78	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Demolition														
Demolition - enter area / volume to be demolished	Square Feet to demolish	352,333		Jul-14	Oct-14	4	78			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Jul-14	Oct-14	4	78			0.1515	0.1210			
Trucks - Delivery	Number of Daily Vehicles	0	15	Jul-14	Oct-14	4	78	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Total Number of Vehicles	1,630	1	Jul-14	Oct-14	4	78			0.6217	0.0622			
Truck Loading	Total Number of Vehicles	1,630	15	Jul-14	Oct-14	4	78	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	352,333		Jul-14	Oct-14	4	78			0.0000	0.0000			
Worker Trips	Number of Daily Vehicles	0	40	Jul-14	Oct-14	4	78	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
LAND CLEARING

Construction Equipment	Actual Equipment Rated HP (2) hp/hr	Type of Fuel	Number of Units	Average Daily Load Factor	Average Daily Utilization Rate	Average Work Hours per Day (hours)	Total Utilized Equipment Operating Hours per Day	Operating Hours per Day (all equipment)	Start Date	End Date	Construction Activity Months of Activity	Construction Activity Days of Activity	Diesel Pollutant Emission Factors CO g/hour	NOx g/hour	PM10 g/hour	$PM_{2.5}$ g/hour	VOC g/hour	CO_2 (lbs/hour)	SO_2 g/hour
Land Clearing - Site 1																			
Tractors/Loaders/Backhoes-0120	87	Diesel	2	0.37	0.60	10	6	12	7/4/2014	11/10/2014	5	91	158.72	170.88	13.45	13.05	14.77	35.39	0.27
Tractors/Loaders/Backhoes-0120	97	Diesel	2	0.37	0.65	10	7	13	7/4/2014	11/10/2014	5	91	158.72	170.88	13.45	13.05	14.77	35.39	0.27
Crawler Tractors-0500	310-410	Diesel	4	0.43	0.65	10	7	26	7/4/2014	11/10/2014	5	91	402.95	833.66	32.39	31.42	50.73	169.08	1.15
Excavators-0500	300-450	Diesel	4	0.38	0.45	10	5	18	7/4/2014	11/10/2014	5	91	231.25	431.53	14.13	13.71	24.92	143.60	1.04
Rubber Tired Loaders-0175	197	Diesel	2	0.36	0.50	10	5	10	7/4/2014	11/10/2014	5	91	283.74	342.73	19.23	18.65	27.37	62.16	0.54
Rubber Tired Dozers-0500	262	Diesel	2	0.40	0.50	10	5	10	7/4/2014	11/10/2014	5	91	603.69	1137.86	53.11	51.52	82.54	163.19	1.18
Off-Highway Trucks-0175	175	Diesel	4	0.44	0.35	10	4	14	7/4/2014	11/10/2014	5	91	343.00	318.10	17.83	17.30	25.83	69.28	0.64
Off-Highway Trucks-0250	210	Diesel	2	0.44	0.35	10	4	7	7/4/2014	11/10/2014	5	91	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Off-Highway Trucks-0250	210	Diesel	2	0.44	0.60	10	6	12	7/4/2014	11/10/2014	5	91	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Off-Highway Trucks-0500	300	Diesel	4	0.44	0.65	10	7	26	7/4/2014	11/10/2014	5	91	278.05	685.12	26.59	25.79	47.60	164.52	1.21
Construction Equipment Total			***28***																
Land Clearing - Site 1 (Continued)																			
Scrapers-0500	335	Diesel	3	0.48	0.85	10	9	26	7/4/2014	11/10/2014	5	91	514.97	1175.29	47.76	46.33	74.92	211.43	1.43
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	11/10/2014	5	91	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	11/10/2014	5	91	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	11/10/2014	5	91	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	11/10/2014	5	91	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	11/10/2014	5	91	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	11/10/2014	5	91	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	11/10/2014	5	91	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	11/10/2014	5	91	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***3***																
Land Clearing - Site 2																			
Tractors/Loaders/Backhoes-0120	87	Diesel	2	0.37	0.60	10	6	12	7/4/2014	11/6/2014	5	89	158.72	170.88	13.45	13.05	14.77	35.39	0.27
Tractors/Loaders/Backhoes-0120	97	Diesel	2	0.37	0.65	10	7	13	7/4/2014	11/6/2014	5	89	158.72	170.88	13.45	13.05	14.77	35.39	0.27
Crawler Tractors-0500	310-410	Diesel	4	0.43	0.65	10	7	26	7/4/2014	11/6/2014	5	89	402.95	833.66	32.39	31.42	50.73	169.08	1.15
Excavators-0500	300-450	Diesel	4	0.38	0.45	10	5	18	7/4/2014	11/6/2014	5	89	231.25	431.53	14.13	13.71	24.92	143.60	1.04
Rubber Tired Loaders-0175	197	Diesel	2	0.36	0.50	10	5	10	7/4/2014	11/6/2014	5	89	283.74	342.73	19.23	18.65	27.37	62.16	0.54
Rubber Tired Dozers-0500	262	Diesel	2	0.40	0.50	10	5	10	7/4/2014	11/6/2014	5	89	603.69	1137.86	53.11	51.52	82.54	163.19	1.18
Off-Highway Trucks-0175	175	Diesel	4	0.44	0.35	10	4	14	7/4/2014	11/6/2014	5	89	343.00	318.10	17.83	17.30	25.83	69.28	0.64
Off-Highway Trucks-0250	210	Diesel	2	0.44	0.35	10	4	7	7/4/2014	11/6/2014	5	89	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Off-Highway Trucks-0250	210	Diesel	2	0.44	0.60	10	6	12	7/4/2014	11/6/2014	5	89	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Off-Highway Trucks-0500	300	Diesel	4	0.44	0.65	10	7	26	7/4/2014	11/6/2014	5	89	278.05	685.12	26.59	25.79	47.60	164.52	1.21
Construction Equipment Total			***28***																
Land Clearing - Site 2 (Continued)																			
Scrapers-0500	335	Diesel	3	0.48	0.85	10	9	26	7/4/2014	11/6/2014	5	89	514.97	1175.29	47.76	46.33	74.92	211.43	1.43
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	11/6/2014	5	89	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	11/6/2014	5	89	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	11/6/2014	5	89	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	11/6/2014	5	89	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	11/6/2014	5	89	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	11/6/2014	5	89	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	11/6/2014	5	89	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	11/6/2014	5	89	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***3***																

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
LAND CLEARING

Construction Equipment	Actual Equipment Rated HP (2) hp/hr	Type of Fuel	Number of Units	Average Daily Load Factor	Average Daily Utilization Rate	Average Work Hours per Day (hours)	Total Utilized Equipment Operating Hours per Day	Operating Hours per Day (all equipment)	Start Date	End Date	Construction Activity Months of Activity	Construction Activity Days of Activity	Diesel Pollutant Emission Factors CO g/hour	NOx g/hour	PM10 g/hour	$PM_{2.5}$ g/hour	VOC g/hour	CO_2 (lbs/hour)	SO_2 g/hour
Land Clearing - Site 3																			
Tractors/Loaders/Backhoes-0120	87	Diesel	2	0.37	0.60	10	6	12	7/4/2014	11/7/2014	5	90	158.72	170.88	13.45	13.05	14.77	35.39	0.27
Tractors/Loaders/Backhoes-0120	97	Diesel	2	0.37	0.65	10	7	13	7/4/2014	11/7/2014	5	90	158.72	170.88	13.45	13.05	14.77	35.39	0.27
Crawler Tractors-0500	310-410	Diesel	4	0.43	0.65	10	7	26	7/4/2014	11/7/2014	5	90	402.95	833.66	32.39	31.42	50.73	169.08	1.15
Excavators-0500	300-450	Diesel	4	0.38	0.45	10	5	18	7/4/2014	11/7/2014	5	90	231.25	431.53	14.13	13.71	24.92	143.60	1.04
Rubber Tired Loaders-0175	197	Diesel	2	0.36	0.50	10	5	10	7/4/2014	11/7/2014	5	90	283.74	342.73	19.23	18.65	27.37	62.16	0.54
Rubber Tired Dozers-0500	262	Diesel	2	0.40	0.50	10	5	10	7/4/2014	11/7/2014	5	90	603.69	1137.86	53.11	51.52	82.54	163.19	1.18
Off-Highway Trucks-0175	175	Diesel	4	0.44	0.35	10	4	14	7/4/2014	11/7/2014	5	90	343.00	318.10	17.83	17.30	25.83	69.28	0.64
Off-Highway Trucks-0250	210	Diesel	2	0.44	0.35	10	4	7	7/4/2014	11/7/2014	5	90	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Off-Highway Trucks-0250	210	Diesel	2	0.44	0.60	10	6	12	7/4/2014	11/7/2014	5	90	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Off-Highway Trucks-0500	300	Diesel	4	0.44	0.65	10	7	26	7/4/2014	11/7/2014	5	90	278.05	685.12	26.59	25.79	47.60	164.52	1.21
Construction Equipment Total			***28***																
Land Clearing - Site 3 (Continued)																			
Scrapers-0500	335	Diesel	3	0.48	0.85	10	9	26	7/4/2014	11/7/2014	5	90	514.97	1175.29	47.76	46.33	74.92	211.43	1.43
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	11/7/2014	5	90	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	11/7/2014	5	90	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	11/7/2014	5	90	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	11/7/2014	5	90	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	11/7/2014	5	90	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	11/7/2014	5	90	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	11/7/2014	5	90	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	11/7/2014	5	90	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***3***																
Land Clearing - Site 4																			
Tractors/Loaders/Backhoes-0120	87	Diesel	2	0.37	0.60	10	6	12	7/4/2014	11/7/2014	5	90	158.72	170.88	13.45	13.05	14.77	35.39	0.27
Tractors/Loaders/Backhoes-0120	97	Diesel	2	0.37	0.65	10	7	13	7/4/2014	11/7/2014	5	90	158.72	170.88	13.45	13.05	14.77	35.39	0.27
Crawler Tractors-0500	310-410	Diesel	4	0.43	0.65	10	7	26	7/4/2014	11/7/2014	5	90	402.95	833.66	32.39	31.42	50.73	169.08	1.15
Excavators-0500	300-450	Diesel	4	0.38	0.45	10	5	18	7/4/2014	11/7/2014	5	90	231.25	431.53	14.13	13.71	24.92	143.60	1.04
Rubber Tired Loaders-0175	197	Diesel	2	0.36	0.50	10	5	10	7/4/2014	11/7/2014	5	90	283.74	342.73	19.23	18.65	27.37	62.16	0.54
Rubber Tired Dozers-0500	262	Diesel	2	0.40	0.50	10	5	10	7/4/2014	11/7/2014	5	90	603.69	1137.86	53.11	51.52	82.54	163.19	1.18
Off-Highway Trucks-0175	175	Diesel	4	0.44	0.35	10	4	14	7/4/2014	11/7/2014	5	90	343.00	318.10	17.83	17.30	25.83	69.28	0.64
Off-Highway Trucks-0250	210	Diesel	2	0.44	0.35	10	4	7	7/4/2014	11/7/2014	5	90	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Off-Highway Trucks-0250	210	Diesel	2	0.44	0.60	10	6	12	7/4/2014	11/7/2014	5	90	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Off-Highway Trucks-0500	300	Diesel	4	0.44	0.65	10	7	26	7/4/2014	11/7/2014	5	90	278.05	685.12	26.59	25.79	47.60	164.52	1.21
Construction Equipment Total			***28***																
Land Clearing - Site 4 (Continued)																			
Scrapers-0500	335	Diesel	3	0.48	0.85	10	9	26	7/4/2014	11/7/2014	5	90	514.97	1175.29	47.76	46.33	74.92	211.43	1.43
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	11/7/2014	5	90	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	11/7/2014	5	90	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	11/7/2014	5	90	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	11/7/2014	5	90	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	11/7/2014	5	90	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	11/7/2014	5	90	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	11/7/2014	5	90	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	7/4/2014	11/7/2014	5	90	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***3***																

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
LAND CLEARING

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration		Pollutant Emission Factors (3)						
						Months of Activity	Days of Activity	CO	NOx	PM10	PM2.5	HC	CO_2	SO_2
Land Clearing - Site 1														
Land Clearing - enter area / volume to be demolished	Square Feet to demolish	0		Jul-14	Nov-14	5	91			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	26	Dirt	Jul-14	Nov-14	5	91			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	15	Jul-14	Nov-14	5	91	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	12	1	Jul-14	Nov-14	5	91			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Jul-14	Nov-14	5	91	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading-Dust	ton of mat. removed	0		Jul-14	Nov-14	5	91			0.0000	0.0000			
Worker Trips	Number of Vehicles	35	40	Jul-14	Nov-14	5	91	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Land Clearing - Site 1 (Continued)														
Land Clearing - enter area / volume to be demolished	Square Feet to demolish	0		Jul-14	Nov-14	5	91			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Jul-14	Nov-14	5	91			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	15	Jul-14	Nov-14	5	91	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Jul-14	Nov-14	5	91			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Jul-14	Nov-14	5	91	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Jul-14	Nov-14	5	91			0.0000	0.0000			
Worker Trips	Number of Vehicles	4	40	Jul-14	Nov-14	5	91	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Land Clearing - Site 2														
Land Clearing - enter area / volume to be demolished	Square Feet to demolish	0		Jul-14	Nov-14	5	89			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	26	Dirt	Jul-14	Nov-14	5	89			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	15	Jul-14	Nov-14	5	89	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	12	1	Jul-14	Nov-14	5	89			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Jul-14	Nov-14	5	89	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Jul-14	Nov-14	5	89			0.0000	0.0000			
Worker Trips	Number of Vehicles	35	40	Jul-14	Nov-14	5	89	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Land Clearing - Site 2 (Continued)														
Land Clearing - enter area / volume to be demolished	Square Feet to demolish	0		Jul-14	Nov-14	5	89			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Jul-14	Nov-14	5	89			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	15	Jul-14	Nov-14	5	89	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Jul-14	Nov-14	5	89			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Jul-14	Nov-14	5	89	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Jul-14	Nov-14	5	89			0.0000	0.0000			
Worker Trips	Number of Vehicles	4	40	Jul-14	Nov-14	5	89	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
LAND CLEARING

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration		Pollutant Emission Factors (3)						
						Months of Activity	Days of Activity	CO	NOx	PM10	PM2.5	HC	CO_2	SO_2
Land Clearing - Site 3														
Land Clearing - enter area / volume to be demolished	Square Feet to demolish	0		Jul-14	Nov-14	5	90			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	26	Dirt	Jul-14	Nov-14	5	90			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	15	Jul-14	Nov-14	5	90	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	12	1	Jul-14	Nov-14	5	90			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Jul-14	Nov-14	5	90	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Jul-14	Nov-14	5	90			0.0000	0.0000			
Worker Trips	Number of Vehicles	35	40	Jul-14	Nov-14	5	90	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Land Clearing - Site 3 (Continued)														
Land Clearing - enter area / volume to be demolished	Square Feet to demolish	0		Jul-14	Nov-14	5	90			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Jul-14	Nov-14	5	90			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	15	Jul-14	Nov-14	5	90	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Jul-14	Nov-14	5	90			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Jul-14	Nov-14	5	90	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Jul-14	Nov-14	5	90			0.0000	0.0000			
Worker Trips	Number of Vehicles	4	40	Jul-14	Nov-14	5	90	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Land Clearing - Site 4														
Land Clearing - enter area / volume to be demolished	Square Feet to demolish	0		Jul-14	Nov-14	5	90			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	26	Dirt	Jul-14	Nov-14	5	90			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	15	Jul-14	Nov-14	5	90	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	12	1	Jul-14	Nov-14	5	90			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Jul-14	Nov-14	5	90	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Jul-14	Nov-14	5	90			0.0000	0.0000			
Worker Trips	Number of Vehicles	35	40	Jul-14	Nov-14	5	90	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Land Clearing - Site 4 (Continued)														
Land Clearing - enter area / volume to be demolished	Square Feet to demolish	0		Jul-14	Nov-14	5	90			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Jul-14	Nov-14	5	90			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	15	Jul-14	Nov-14	5	90	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Jul-14	Nov-14	5	90			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Jul-14	Nov-14	5	90	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Jul-14	Nov-14	5	90			0.0000	0.0000			
Worker Trips	Number of Vehicles	4	40	Jul-14	Nov-14	5	90	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
EARTH MOVING

Construction Equipment	Actual Equipment Rated HP (2) hp/hr	Type of Fuel	Number of Units	Average Daily Load Factor	Average Daily Utilization Rate	Average Work Hours per Day (hours)	Total Utilized Equipment Operating Hours per Day	Operating Hours per Day (all equipment)	Start Date	End Date	Construction Activity Months of Activity	Construction Activity Days of Activity	Diesel Pollutant Emission Factors CO g/hour	NOx g/hour	PM10 g/hour	$PM_{2.5}$ g/hour	VOC g/hour	CO_2 (lbs/hour)	SO_2 g/hour
Earth Moving - Site 1																			
Tractors/Loaders/Backhoes-0120	97	Diesel	1	0.37	0.85	10	9	9	11/7/2014	11/7/2016	25	521	158.72	170.88	13.45	13.05	14.77	35.39	0.27
Crawler Tractors-0500	410	Diesel	1	0.43	0.85	10	9	9	11/7/2014	11/7/2016	25	521	402.95	833.66	32.39	31.42	50.73	169.08	1.15
Excavators-0500	450	Diesel	1	0.38	0.85	10	9	9	11/7/2014	11/7/2016	25	521	231.25	431.53	14.13	13.71	24.92	143.60	1.04
Rubber Tired Loaders-0500	349	Diesel	1	0.36	0.85	10	9	9	11/7/2014	11/7/2016	25	521	275.88	616.81	23.47	22.77	41.41	131.80	1.05
Graders-0250	158	Diesel	1	0.41	0.85	10	9	9	11/7/2014	11/7/2016	25	521	189.36	479.73	15.50	15.03	26.93	96.90	0.88
Graders-0500	260	Diesel	1	0.41	0.85	10	9	9	11/7/2014	11/7/2016	25	521	271.65	447.30	17.22	16.70	31.27	137.69	1.02
Rollers-0175	156-174	Diesel	2	0.38	0.30	10	3	6	11/7/2014	11/7/2016	25	521	280.12	259.04	12.10	11.74	16.78	61.90	0.55
Other General Industrial Equipment-0050	15	Diesel	4	0.34	0.45	10	5	18	11/7/2014	11/7/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Scrapers-0500	335-400	Diesel	2	0.48	0.85	10	9	17	11/7/2014	11/7/2016	25	521	514.97	1175.29	47.76	46.33	74.92	211.43	1.43
Off-Highway Trucks-0175	175	Diesel	3	0.44	0.35	10	4	11	11/7/2014	11/7/2016	25	521	343.00	318.10	17.83	17.30	25.83	69.28	0.64
Construction Equipment Total			***17***																
Earth Moving - Site 1 (Continued)																			
Off-Highway Trucks-0250	210	Diesel	3	0.44	0.35	10	4	11	11/7/2014	11/7/2016	25	521	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Off-Highway Trucks-0175	150	Diesel	2	0.44	0.55	10	6	11	11/7/2014	11/7/2016	25	521	343.00	318.10	17.83	17.30	25.83	69.28	0.64
Off-Highway Trucks-0500	300	Diesel	2	0.44	0.70	10	7	14	11/7/2014	11/7/2016	25	521	278.05	685.12	26.59	25.79	47.60	164.52	1.21
Off-Highway Trucks-0250	210	Diesel	2	0.44	0.60	10	6	12	11/7/2014	11/7/2016	25	521	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Other General Industrial Equipment-0050	10	Diesel	6	0.34	0.50	10	5	30	11/7/2014	11/7/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
None-0	0	Diesel	0	0.00	0.25	8	2	0	11/7/2014	11/7/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	0.25	8	2	0	11/7/2014	11/7/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	0.25	8	2	0	11/7/2014	11/7/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	0.25	8	2	0	11/7/2014	11/7/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	0.25	8	2	0	11/7/2014	11/7/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***15***																
Earth Moving - Site 2																			
Tractors/Loaders/Backhoes-0120	97	Diesel	1	0.37	0.85	10	9	9	11/5/2014	11/3/2016	25	521	158.72	170.88	13.45	13.05	14.77	35.39	0.27
Crawler Tractors-0500	410	Diesel	1	0.43	0.85	10	9	9	11/5/2014	11/3/2016	25	521	402.95	833.66	32.39	31.42	50.73	169.08	1.15
Excavators-0500	450	Diesel	1	0.38	0.85	10	9	9	11/5/2014	11/3/2016	25	521	231.25	431.53	14.13	13.71	24.92	143.60	1.04
Rubber Tired Loaders-0500	349	Diesel	1	0.36	0.85	10	9	9	11/5/2014	11/3/2016	25	521	275.88	616.81	23.47	22.77	41.41	131.80	1.05
Graders-0250	158	Diesel	1	0.41	0.85	10	9	9	11/5/2014	11/3/2016	25	521	189.36	479.73	15.50	15.03	26.93	96.90	0.88
Graders-0500	260	Diesel	1	0.41	0.85	10	9	9	11/5/2014	11/3/2016	25	521	271.65	447.30	17.22	16.70	31.27	137.69	1.02
Rollers-0175	156-174	Diesel	2	0.38	0.30	10	3	6	11/5/2014	11/3/2016	25	521	280.12	259.04	12.10	11.74	16.78	61.90	0.55
Other General Industrial Equipment-0050	15	Diesel	4	0.34	0.45	10	5	18	11/5/2014	11/3/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Scrapers-0500	335-400	Diesel	2	0.48	0.85	10	9	17	11/5/2014	11/3/2016	25	521	514.97	1175.29	47.76	46.33	74.92	211.43	1.43
Off-Highway Trucks-0175	175	Diesel	3	0.44	0.35	10	4	11	11/5/2014	11/3/2016	25	521	343.00	318.10	17.83	17.30	25.83	69.28	0.64
Construction Equipment Total			***17***																
Earth Moving - Site 2 (Continued)																			
Off-Highway Trucks-0250	210	Diesel	3	0.44	0.35	10	4	11	11/5/2014	11/3/2016	25	521	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Off-Highway Trucks-0175	150	Diesel	2	0.44	0.55	10	6	11	11/5/2014	11/3/2016	25	521	343.00	318.10	17.83	17.30	25.83	69.28	0.64
Off-Highway Trucks-0500	300	Diesel	2	0.44	0.70	10	7	14	11/5/2014	11/3/2016	25	521	278.05	685.12	26.59	25.79	47.60	164.52	1.21
Off-Highway Trucks-0250	210	Diesel	2	0.44	0.60	10	6	12	11/5/2014	11/3/2016	25	521	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Other General Industrial Equipment-0050	10	Diesel	6	0.34	0.50	10	5	30	11/5/2014	11/3/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
None-0	0	Diesel	0	0.00	0.25	8	2	0	11/5/2014	11/3/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	0.25	8	2	0	11/5/2014	11/3/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	0.25	8	2	0	11/5/2014	11/3/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	0.25	8	2	0	11/5/2014	11/3/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	0.25	8	2	0	11/5/2014	11/3/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***15***																

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
EARTH MOVING

Construction Equipment	Actual Equipment Rated HP (2) hp/hr	Type of Fuel	Number of Units	Average Daily Load Factor	Average Daily Utilization Rate	Average Work Hours per Day (hours)	Total Utilized Equipment Operating Hours per Day	Operating Hours per Day (all equipment)	Start Date	End Date	Construction Activity Months of Activity	Construction Activity Days of Activity	Diesel Pollutant Emission Factors CO g/hour	NOx g/hour	PM10 g/hour	$PM_{2.5}$ g/hour	VOC g/hour	CO_2 (lbs/hour)	SO_2 g/hour
Earth Moving - Site 3																			
Tractors/Loaders/Backhoes-0120	97	Diesel	1	0.37	0.85	10	9	9	11/6/2014	11/4/2016	25	521	158.72	170.88	13.45	13.05	14.77	35.39	0.27
Crawler Tractors-0500	410	Diesel	1	0.43	0.85	10	9	9	11/6/2014	11/4/2016	25	521	402.95	833.66	32.39	31.42	50.73	169.08	1.15
Excavators-0500	450	Diesel	1	0.38	0.85	10	9	9	11/6/2014	11/4/2016	25	521	231.25	431.53	14.13	13.71	24.92	143.60	1.04
Rubber Tired Loaders-0500	349	Diesel	1	0.36	0.85	10	9	9	11/6/2014	11/4/2016	25	521	275.88	616.81	23.47	22.77	41.41	131.80	1.05
Graders-0250	158	Diesel	1	0.41	0.85	10	9	9	11/6/2014	11/4/2016	25	521	189.36	479.73	15.50	15.03	26.93	96.90	0.88
Graders-0500	260	Diesel	1	0.41	0.85	10	9	9	11/6/2014	11/4/2016	25	521	271.65	447.30	17.22	16.70	31.27	137.69	1.02
Rollers-0175	156-174	Diesel	2	0.38	0.30	10	3	6	11/6/2014	11/4/2016	25	521	280.12	259.04	12.10	11.74	16.78	61.90	0.55
Other General Industrial Equipment-0050	15	Diesel	4	0.34	0.45	10	5	18	11/6/2014	11/4/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Scrapers-0500	335-400	Diesel	2	0.48	0.85	10	9	17	11/6/2014	11/4/2016	25	521	514.97	1175.29	47.76	46.33	74.92	211.43	1.43
Off-Highway Trucks-0175	175	Diesel	3	0.44	0.35	10	4	11	11/6/2014	11/4/2016	25	521	343.00	318.10	17.83	17.30	25.83	69.28	0.64
Construction Equipment Total			***17***																
Earth Moving - Site 3 (Continued)																			
Off-Highway Trucks-0250	210	Diesel	3	0.44	0.35	10	4	11	11/6/2014	11/4/2016	25	521	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Off-Highway Trucks-0175	150	Diesel	2	0.44	0.55	10	6	11	11/6/2014	11/4/2016	25	521	343.00	318.10	17.83	17.30	25.83	69.28	0.64
Off-Highway Trucks-0500	300	Diesel	2	0.44	0.70	10	7	14	11/6/2014	11/4/2016	25	521	278.05	685.12	26.59	25.79	47.60	164.52	1.21
Off-Highway Trucks-0250	210	Diesel	2	0.44	0.60	10	6	12	11/6/2014	11/4/2016	25	521	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Other General Industrial Equipment-0050	10	Diesel	6	0.34	0.50	10	5	30	11/6/2014	11/4/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
None-0	0	Diesel	0	0.00	0.25	8	2	0	11/6/2014	11/4/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	0.25	8	2	0	11/6/2014	11/4/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	0.25	8	2	0	11/6/2014	11/4/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	0.25	8	2	0	11/6/2014	11/4/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	0.25	8	2	0	11/6/2014	11/4/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***15***																
Earth Moving - Site 4																			
Tractors/Loaders/Backhoes-0120	97	Diesel	1	0.37	0.85	10	9	9	11/6/2014	11/4/2016	25	521	158.72	170.88	13.45	13.05	14.77	35.39	0.27
Crawler Tractors-0500	410	Diesel	1	0.43	0.85	10	9	9	11/6/2014	11/4/2016	25	521	402.95	833.66	32.39	31.42	50.73	169.08	1.15
Excavators-0500	450	Diesel	1	0.38	0.85	10	9	9	11/6/2014	11/4/2016	25	521	231.25	431.53	14.13	13.71	24.92	143.60	1.04
Rubber Tired Loaders-0500	349	Diesel	1	0.36	0.85	10	9	9	11/6/2014	11/4/2016	25	521	275.88	616.81	23.47	22.77	41.41	131.80	1.05
Graders-0250	158	Diesel	1	0.41	0.85	10	9	9	11/6/2014	11/4/2016	25	521	189.36	479.73	15.50	15.03	26.93	96.90	0.88
Graders-0500	260	Diesel	1	0.41	0.85	10	9	9	11/6/2014	11/4/2016	25	521	271.65	447.30	17.22	16.70	31.27	137.69	1.02
Rollers-0175	156-174	Diesel	2	0.38	0.30	10	3	6	11/6/2014	11/4/2016	25	521	280.12	259.04	12.10	11.74	16.78	61.90	0.55
Other General Industrial Equipment-0050	15	Diesel	4	0.34	0.45	10	5	18	11/6/2014	11/4/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Scrapers-0500	335-400	Diesel	2	0.48	0.85	10	9	17	11/6/2014	11/4/2016	25	521	514.97	1175.29	47.76	46.33	74.92	211.43	1.43
Off-Highway Trucks-0175	175	Diesel	3	0.44	0.35	10	4	11	11/6/2014	11/4/2016	25	521	343.00	318.10	17.83	17.30	25.83	69.28	0.64
Construction Equipment Total			***17***																
Earth Moving - Site 4 (Continued)																			
Off-Highway Trucks-0250	210	Diesel	3	0.44	0.35	10	4	11	11/6/2014	11/4/2016	25	521	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Off-Highway Trucks-0175	150	Diesel	2	0.44	0.55	10	6	11	11/6/2014	11/4/2016	25	521	343.00	318.10	17.83	17.30	25.83	69.28	0.64
Off-Highway Trucks-0500	300	Diesel	2	0.44	0.70	10	7	14	11/6/2014	11/4/2016	25	521	278.05	685.12	26.59	25.79	47.60	164.52	1.21
Off-Highway Trucks-0250	210	Diesel	2	0.44	0.60	10	6	12	11/6/2014	11/4/2016	25	521	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Other General Industrial Equipment-0050	10	Diesel	6	0.34	0.50	10	5	30	11/6/2014	11/4/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
None-0	0	Diesel	0	0.00	0.25	8	2	0	11/6/2014	11/4/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	0.25	8	2	0	11/6/2014	11/4/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	0.25	8	2	0	11/6/2014	11/4/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	0.25	8	2	0	11/6/2014	11/4/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	0.25	8	2	0	11/6/2014	11/4/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***15***																

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
EARTH MOVING

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration		Pollutant Emission Factors						
						Months of Activity	Days of Activity	CO	NOx	PM10	PM2.5	HC	CO_2	SO_2
Earth Moving - Site 1														
Earth Moving - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	17	Dirt	Nov-14	Nov-16	25	521			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	3	1	Nov-14	Nov-16	25	521			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading-Dust	ton of mat. removed	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Worker Trips	Number of Vehicles	21	40	Nov-14	Nov-16	25	521	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Earth Moving - Site 1 (Continued)														
Earth Moving - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Nov-14	Nov-16	25	521			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	9	1	Nov-14	Nov-16	25	521			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Worker Trips	Number of Vehicles	19	40	Nov-14	Nov-16	25	521	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Earth Moving - Site 2														
Earth Moving - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	17	Dirt	Nov-14	Nov-16	25	521			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	3	1	Nov-14	Nov-16	25	521			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Worker Trips	Number of Vehicles	21	40	Nov-14	Nov-16	25	521	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Earth Moving - Site 2 (Continued)														
Earth Moving - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Nov-14	Nov-16	25	521			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	9	1	Nov-14	Nov-16	25	521			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Worker Trips	Number of Vehicles	19	40	Nov-14	Nov-16	25	521	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
EARTH MOVING

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration		Pollutant Emission Factors						
						Months of Activity	Days of Activity	CO	NOx	PM10	PM2.5	HC	CO_2	SO_2
Earth Moving - Site 3														
Earth Moving - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	17	Dirt	Nov-14	Nov-16	25	521			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	3	1	Nov-14	Nov-16	25	521			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Worker Trips	Number of Vehicles	21	40	Nov-14	Nov-16	25	521	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Earth Moving - Site 3 (Continued)														
Earth Moving - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Nov-14	Nov-16	25	521			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	9	1	Nov-14	Nov-16	25	521			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Worker Trips	Number of Vehicles	19	40	Nov-14	Nov-16	25	521	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Earth Moving - Site 4														
Earth Moving - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	17	Dirt	Nov-14	Nov-16	25	521			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	3	1	Nov-14	Nov-16	25	521			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Worker Trips	Number of Vehicles	21	40	Nov-14	Nov-16	25	521	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Earth Moving - Site 4 (Continued)														
Earth Moving - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Nov-14	Nov-16	25	521			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	9	1	Nov-14	Nov-16	25	521			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Worker Trips	Number of Vehicles	19	40	Nov-14	Nov-16	25	521	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ROAD CROSSINGS

Construction Equipment	Actual Equipment Rated HP (2) hp/hr	Type of Fuel	Number of Units	Average Daily Load Factor	Average Daily Utilization Rate	Average Work Hours per Day (hours)	Total Utilized Equipment Operating Hours per Day	Operating Hours per Day (all equipment)	Start Date	End Date	Construction Activity Months of Activity	Construction Activity Days of Activity	Diesel Pollutant Emission Factors CO g/hour	NOx g/hour	PM10 g/hour	$PM_{2.5}$ g/hour	VOC g/hour	CO_2 (lbs/hour)	SO_2 g/hour
Road Crossings - Site 1																			
Other General Industrial Equipment-0050	50	Diesel	8	0.34	0.25	8	2	16	11/7/2014	11/7/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Other General Industrial Equipment-0500	450	Diesel	4	0.34	0.25	8	2	8	11/7/2014	11/7/2016	25	521	274.76	569.63	21.82	21.17	36.84	139.34	1.18
Pavers-0250	180	Diesel	4	0.42	0.15	8	1	5	11/7/2014	11/7/2016	25	521	263.97	366.99	9.33	9.05	15.23	102.04	0.99
Other General Industrial Equipment-0120	60	Diesel	4	0.34	0.15	8	1	5	11/7/2014	11/7/2016	25	521	201.37	171.22	14.63	14.19	16.66	28.57	0.33
Sweepers/Scrubbers-0050	25	Diesel	4	0.46	0.20	8	2	6	11/7/2014	11/7/2016	25	521	150.23	93.65	9.84	9.54	23.85	20.70	0.18
Other General Industrial Equipment-0050	20	Diesel	4	0.34	0.30	8	2	10	11/7/2014	11/7/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Other Construction Equipment-0120	120	Diesel	2	0.42	0.15	8	1	2	11/7/2014	11/7/2016	25	521	237.30	225.61	17.62	17.09	20.50	38.78	0.43
Off-Highway Trucks-0250	200-250	Diesel	6	0.44	0.30	8	2	14	11/7/2014	11/7/2016	25	521	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Tractors/Loaders/Backhoes-0120	87	Diesel	4	0.37	0.40	8	3	13	11/7/2014	11/7/2016	25	521	158.72	170.88	13.45	13.05	14.77	35.39	0.27
Pavers-0050	30	Diesel	4	0.42	0.15	8	1	5	11/7/2014	11/7/2016	25	521	158.81	91.73	9.54	9.25	25.17	20.56	0.16
Construction Equipment Total			***44***																
Road Crossings - Site 1 (Continued)																			
Other Construction Equipment-0050	15	Diesel	4	0.42	0.35	8	3	11	11/7/2014	11/7/2016	25	521	116.53	87.87	7.93	7.69	16.97	20.30	0.16
Other General Industrial Equipment-0050	13	Diesel	4	0.34	0.10	8	1	3	11/7/2014	11/7/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Other Construction Equipment-0120	100	Diesel	4	0.42	0.20	8	2	6	11/7/2014	11/7/2016	25	521	237.30	225.61	17.62	17.09	20.50	38.78	0.43
Cranes-0500	420	Diesel	4	0.29	0.15	8	1	5	11/7/2014	11/7/2016	25	521	224.35	614.49	25.54	24.77	39.21	111.12	0.80
Cranes-0500	330	Diesel	4	0.29	0.25	8	2	8	11/7/2014	11/7/2016	25	521	224.35	614.49	25.54	24.77	39.21	111.12	0.80
Cranes-0500	420-470	Diesel	4	0.29	0.20	8	2	6	11/7/2014	11/7/2016	25	521	224.35	614.49	25.54	24.77	39.21	111.12	0.80
Cranes-0175	140	Diesel	2	0.29	0.20	8	2	3	11/7/2014	11/7/2016	25	521	217.81	362.56	19.60	19.01	28.08	49.17	0.41
Cranes-0120	75	Diesel	2	0.29	0.15	8	1	2	11/7/2014	11/7/2016	25	521	162.56	268.35	19.94	19.34	26.88	29.26	0.27
Crawler Tractors-0175	125	Diesel	1	0.43	0.35	8	3	3	11/7/2014	11/7/2016	25	521	335.94	445.81	24.32	23.59	33.77	73.54	0.62
Crawler Tractors-0500	310-410	Diesel	3	0.43	0.35	8	3	8	11/7/2014	11/7/2016	25	521	402.95	833.66	32.39	31.42	50.73	169.08	1.15
Construction Equipment Total			***32***																
Road Crossings - Site 1 (Continued)																			
Excavators-0500	300	Diesel	2	0.38	0.30	8	2	5	11/7/2014	11/7/2016	25	521	231.25	431.53	14.13	13.71	24.92	143.60	1.04
Excavators-0500	450	Diesel	2	0.38	0.40	8	3	6	11/7/2014	11/7/2016	25	521	231.25	431.53	14.13	13.71	24.92	143.60	1.04
Rubber Tired Loaders-0175	149	Diesel	4	0.36	0.35	8	3	11	11/7/2014	11/7/2016	25	521	283.74	342.73	19.23	18.65	27.37	62.16	0.54
Rubber Tired Loaders-0250	197	Diesel	4	0.36	0.40	8	3	13	11/7/2014	11/7/2016	25	521	161.05	411.11	14.00	13.58	25.17	85.09	0.76
Other Construction Equipment-0050	15	Diesel	2	0.42	0.40	8	3	6	11/7/2014	11/7/2016	25	521	116.53	87.87	7.93	7.69	16.97	20.30	0.16
Other Construction Equipment-0050	28	Diesel	2	0.42	0.20	8	2	3	11/7/2014	11/7/2016	25	521	116.53	87.87	7.93	7.69	16.97	20.30	0.16
Graders-0175	158	Diesel	2	0.41	0.20	8	2	3	11/7/2014	11/7/2016	25	521	332.22	529.37	29.76	28.87	42.63	70.92	0.63
Other Construction Equipment-0120	92	Diesel	2	0.42	0.25	8	2	4	11/7/2014	11/7/2016	25	521	237.30	225.61	17.62	17.09	20.50	38.78	0.43
Other Construction Equipment-0250	245	Diesel	2	0.42	0.25	8	2	4	11/7/2014	11/7/2016	25	521	248.06	527.47	19.55	18.97	30.68	104.12	0.84
Other Construction Equipment-0500	335	Diesel	2	0.42	0.25	8	2	4	11/7/2014	11/7/2016	25	521	230.24	702.85	26.44	25.65	42.41	171.55	1.13
Construction Equipment Total			***24***																
Road Crossings - Site 1 (Continued)																			
Other General Industrial Equipment-0050	4	Diesel	10	0.34	0.15	8	1	12	11/7/2014	11/7/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Rollers-0120	83	Diesel	5	0.38	0.25	8	2	10	11/7/2014	11/7/2016	25	521	182.61	210.57	15.72	15.25	18.99	37.55	0.31
Rollers-0175	156-174	Diesel	8	0.38	0.25	8	2	16	11/7/2014	11/7/2016	25	521	280.12	259.04	12.10	11.74	16.78	61.90	0.55
Other General Industrial Equipment-0050	15	Diesel	4	0.34	0.40	8	3	13	11/7/2014	11/7/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Off-Highway Trucks-0175	175	Diesel	4	0.44	0.35	8	3	11	11/7/2014	11/7/2016	25	521	343.00	318.10	17.83	17.30	25.83	69.28	0.64
Off-Highway Trucks-0250	210	Diesel	4	0.44	0.25	8	2	8	11/7/2014	11/7/2016	25	521	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Off-Highway Trucks-0175	150	Diesel	4	0.44	0.55	8	4	18	11/7/2014	11/7/2016	25	521	343.00	318.10	17.83	17.30	25.83	69.28	0.64
Off-Highway Tractors-0500	300	Diesel	4	0.44	0.70	8	6	22	11/7/2014	11/7/2016	25	521	715.25	588.22	21.10	20.47	34.71	166.95	1.63
Off-Highway Trucks-0250	210	Diesel	4	0.44	0.65	8	5	21	11/7/2014	11/7/2016	25	521	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Other General Industrial Equipment-0050	45	Diesel	6	0.34	0.25	8	2	12	11/7/2014	11/7/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Construction Equipment Total			***53***																

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ROAD CROSSINGS

Construction Equipment	Actual Equipment Rated HP [2] hp/hr	Type of Fuel	Number of Units	Average Daily Load Factor	Average Daily Utilization Rate	Average Work Hours per Day (hours)	Total Utilized Equipment Operating Hours per Day	Operating Hours per Day (all equipment)	Start Date	End Date	Construction Activity Months of Activity	Construction Activity Days of Activity	Diesel Pollutant Emission Factors CO g/hour	NOx g/hour	PM10 g/hour	$PM_{2.5}$ g/hour	VOC g/hour	CO_2 (lbs/hour)	SO_2 g/hour
Road Crossings - Site 1 (Continued)																			
Other General Industrial Equipment-0050	20	Diesel	10	0.34	0.75	8	6	60	11/7/2014	11/7/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Other General Industrial Equipment-0175	134	Diesel	5	0.34	0.65	8	5	26	11/7/2014	11/7/2016	25	521	258.91	304.30	16.54	16.04	22.90	58.46	0.49
Other General Industrial Equipment-0050	10	Diesel	4	0.34	0.15	8	1	5	11/7/2014	11/7/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Off-Highway Trucks-0500	500	Diesel	4	0.44	0.15	8	1	5	11/7/2014	11/7/2016	25	521	278.05	685.12	26.59	25.79	47.60	164.52	1.21
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/7/2014	11/7/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/7/2014	11/7/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/7/2014	11/7/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/7/2014	11/7/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/7/2014	11/7/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***23***																
Road Crossings - Site 2																			
Other General Industrial Equipment-0050	50	Diesel	8	0.34	0.25	8	2	16	11/5/2014	11/3/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Other General Industrial Equipment-0500	450	Diesel	4	0.34	0.25	8	2	8	11/5/2014	11/3/2016	25	521	274.76	569.63	21.82	21.17	36.84	139.34	1.18
Pavers-0250	180	Diesel	4	0.42	0.15	8	1	5	11/5/2014	11/3/2016	25	521	263.97	366.99	9.33	9.05	15.23	102.04	0.99
Other General Industrial Equipment-0120	60	Diesel	4	0.34	0.15	8	1	5	11/5/2014	11/3/2016	25	521	201.37	171.22	14.63	14.19	16.66	28.57	0.33
Sweepers/Scrubbers-0050	25	Diesel	4	0.46	0.20	8	2	6	11/5/2014	11/3/2016	25	521	150.23	93.65	9.84	9.54	23.85	20.70	0.18
Other General Industrial Equipment-0050	20	Diesel	4	0.34	0.30	8	2	10	11/5/2014	11/3/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Other Construction Equipment-0120	120	Diesel	2	0.42	0.15	8	1	2	11/5/2014	11/3/2016	25	521	237.30	225.61	17.62	17.09	20.50	38.78	0.43
Off-Highway Trucks-0250	200-250	Diesel	6	0.44	0.30	8	2	14	11/5/2014	11/3/2016	25	521	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Tractors/Loaders/Backhoes-0120	87	Diesel	4	0.37	0.40	8	3	13	11/5/2014	11/3/2016	25	521	158.72	170.88	13.45	13.05	14.77	35.39	0.27
Pavers-0050	30	Diesel	4	0.42	0.15	8	1	5	11/5/2014	11/3/2016	25	521	158.81	91.73	9.54	9.25	25.17	20.56	0.16
Construction Equipment Total			***44***																
Road Crossings - Site 2 (Continued)																			
Other Construction Equipment-0050	15	Diesel	4	0.42	0.35	8	3	11	11/5/2014	11/3/2016	25	521	116.53	87.87	7.93	7.69	16.97	20.30	0.16
Other General Industrial Equipment-0050	13	Diesel	4	0.34	0.10	8	1	3	11/5/2014	11/3/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Other Construction Equipment-0120	100	Diesel	4	0.42	0.20	8	2	6	11/5/2014	11/3/2016	25	521	237.30	225.61	17.62	17.09	20.50	38.78	0.43
Cranes-0500	420	Diesel	4	0.29	0.15	8	1	5	11/5/2014	11/3/2016	25	521	224.35	614.49	25.54	24.77	39.21	111.12	0.80
Cranes-0500	330	Diesel	4	0.29	0.25	8	2	8	11/5/2014	11/3/2016	25	521	224.35	614.49	25.54	24.77	39.21	111.12	0.80
Cranes-0500	420-470	Diesel	4	0.29	0.20	8	2	6	11/5/2014	11/3/2016	25	521	224.35	614.49	25.54	24.77	39.21	111.12	0.80
Cranes-0175	140	Diesel	2	0.29	0.20	8	2	3	11/5/2014	11/3/2016	25	521	217.81	362.56	19.60	19.01	28.08	49.17	0.41
Cranes-0120	75	Diesel	2	0.29	0.15	8	1	2	11/5/2014	11/3/2016	25	521	162.56	268.35	19.94	19.34	26.88	29.26	0.27
Crawler Tractors-0175	125	Diesel	1	0.43	0.35	8	3	3	11/5/2014	11/3/2016	25	521	335.94	445.81	24.32	23.59	33.77	73.54	0.62
Crawler Tractors-0500	310-410	Diesel	3	0.43	0.35	8	3	8	11/5/2014	11/3/2016	25	521	402.95	833.66	32.39	31.42	50.73	169.08	1.15
Construction Equipment Total			***32***																
Road Crossings - Site 2 (Continued)																			
Excavators-0500	300	Diesel	2	0.38	0.30	8	2	5	11/5/2014	11/3/2016	25	521	231.25	431.53	14.13	13.71	24.92	143.60	1.04
Excavators-0500	450	Diesel	2	0.38	0.40	8	3	6	11/5/2014	11/3/2016	25	521	231.25	431.53	14.13	13.71	24.92	143.60	1.04
Rubber Tired Loaders-0175	149	Diesel	4	0.36	0.35	8	3	11	11/5/2014	11/3/2016	25	521	283.74	342.73	19.23	18.65	27.37	62.16	0.54
Rubber Tired Loaders-0250	197	Diesel	4	0.36	0.40	8	3	13	11/5/2014	11/3/2016	25	521	161.05	411.11	14.00	13.58	25.17	85.09	0.76
Other Construction Equipment-0050	15	Diesel	2	0.42	0.40	8	3	6	11/5/2014	11/3/2016	25	521	116.53	87.87	7.93	7.69	16.97	20.30	0.16
Other Construction Equipment-0050	28	Diesel	2	0.42	0.20	8	2	3	11/5/2014	11/3/2016	25	521	116.53	87.87	7.93	7.69	16.97	20.30	0.16
Graders-0175	158	Diesel	2	0.41	0.20	8	2	3	11/5/2014	11/3/2016	25	521	332.22	529.37	29.76	28.87	42.63	70.92	0.63
Other Construction Equipment-0120	92	Diesel	2	0.42	0.25	8	2	4	11/5/2014	11/3/2016	25	521	237.30	225.61	17.62	17.09	20.50	38.78	0.43
Other Construction Equipment-0250	245	Diesel	2	0.42	0.25	8	2	4	11/5/2014	11/3/2016	25	521	248.06	527.47	19.55	18.97	30.68	104.12	0.84
Other Construction Equipment-0500	335	Diesel	2	0.42	0.25	8	2	4	11/5/2014	11/3/2016	25	521	230.24	702.85	26.44	25.65	42.41	171.55	1.13
Construction Equipment Total			***24***																

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ROAD CROSSINGS

Construction Equipment	Actual Equipment Rated HP (2) hp/hr	Type of Fuel	Number of Units	Average Daily Load Factor	Average Daily Utilization Rate	Average Work Hours per Day (hours)	Total Utilized Equipment Operating Hours per Day	Operating Hours per Day (all equipment)	Start Date	End Date	Construction Activity Months of Activity	Construction Activity Days of Activity	Diesel Pollutant Emission Factors CO g/hour	NOx g/hour	PM10 g/hour	$PM_{2.5}$ g/hour	VOC g/hour	CO_2 (lbs/hour)	SO_2 g/hour
Road Crossings - Site 2 (Continued)																			
Other General Industrial Equipment-0050	4	Diesel	10	0.34	0.15	8	1	12	11/5/2014	11/3/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Rollers-0120	83	Diesel	5	0.38	0.25	8	2	10	11/5/2014	11/3/2016	25	521	182.61	210.57	15.72	15.25	18.99	37.55	0.31
Rollers-0175	156-174	Diesel	8	0.38	0.25	8	2	16	11/5/2014	11/3/2016	25	521	280.12	259.04	12.10	11.74	16.78	61.90	0.55
Other General Industrial Equipment-0050	15	Diesel	4	0.34	0.40	8	3	13	11/5/2014	11/3/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Off-Highway Trucks-0175	175	Diesel	4	0.44	0.35	8	3	11	11/5/2014	11/3/2016	25	521	343.00	318.10	17.83	17.30	25.83	69.28	0.64
Off-Highway Trucks-0250	210	Diesel	4	0.44	0.25	8	2	8	11/5/2014	11/3/2016	25	521	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Off-Highway Trucks-0175	150	Diesel	4	0.44	0.55	8	4	18	11/5/2014	11/3/2016	25	521	343.00	318.10	17.83	17.30	25.83	69.28	0.64
Off-Highway Tractors-0500	300	Diesel	4	0.44	0.70	8	6	22	11/5/2014	11/3/2016	25	521	715.25	588.22	21.10	20.47	34.71	166.95	1.63
Off-Highway Trucks-0250	210	Diesel	4	0.44	0.65	8	5	21	11/5/2014	11/3/2016	25	521	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Other General Industrial Equipment-0050	45	Diesel	6	0.34	0.25	8	2	12	11/5/2014	11/3/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Construction Equipment Total			***53***																
Road Crossings - Site 2 (Continued)																			
Other General Industrial Equipment-0050	20	Diesel	10	0.34	0.75	8	6	60	11/5/2014	11/3/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Other General Industrial Equipment-0175	134	Diesel	5	0.34	0.65	8	5	26	11/5/2014	11/3/2016	25	521	258.91	304.30	16.54	16.04	22.90	58.46	0.49
Other General Industrial Equipment-0050	10	Diesel	4	0.34	0.15	8	1	5	11/5/2014	11/3/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Off-Highway Trucks-0500	500	Diesel	4	0.44	0.15	8	1	5	11/5/2014	11/3/2016	25	521	278.05	685.12	26.59	25.79	47.60	164.52	1.21
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/5/2014	11/3/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/5/2014	11/3/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/5/2014	11/3/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/5/2014	11/3/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/5/2014	11/3/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/5/2014	11/3/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***23***																
Road Crossings - Site 3																			
Other General Industrial Equipment-0050	50	Diesel	8	0.34	0.25	8	2	16	11/6/2014	11/4/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Other General Industrial Equipment-0500	450	Diesel	4	0.34	0.25	8	2	8	11/6/2014	11/4/2016	25	521	274.76	569.63	21.82	21.17	36.84	139.34	1.18
Pavers-0250	180	Diesel	4	0.42	0.15	8	1	5	11/6/2014	11/4/2016	25	521	263.97	366.99	9.33	9.05	15.23	102.04	0.99
Other General Industrial Equipment-0120	60	Diesel	4	0.34	0.15	8	1	5	11/6/2014	11/4/2016	25	521	201.37	171.22	14.63	14.19	16.66	28.57	0.33
Sweepers/Scrubbers-0050	25	Diesel	4	0.46	0.20	8	2	6	11/6/2014	11/4/2016	25	521	150.23	93.65	9.84	9.54	23.85	20.70	0.18
Other General Industrial Equipment-0050	20	Diesel	4	0.34	0.30	8	2	10	11/6/2014	11/4/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Other Construction Equipment-0120	120	Diesel	2	0.42	0.15	8	1	2	11/6/2014	11/4/2016	25	521	237.30	225.61	17.62	17.09	20.50	38.78	0.43
Off-Highway Trucks-0250	200-250	Diesel	6	0.44	0.30	8	2	14	11/6/2014	11/4/2016	25	521	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Tractors/Loaders/Backhoes-0120	87	Diesel	4	0.37	0.40	8	3	13	11/6/2014	11/4/2016	25	521	158.72	170.88	13.45	13.05	14.77	35.39	0.27
Pavers-0050	30	Diesel	4	0.42	0.15	8	1	5	11/6/2014	11/4/2016	25	521	158.81	91.73	9.54	9.25	25.17	20.56	0.16
Construction Equipment Total			***44***																
Road Crossings - Site 3 (Continued)																			
Other Construction Equipment-0050	15	Diesel	4	0.42	0.35	8	3	11	11/6/2014	11/4/2016	25	521	116.53	87.87	7.93	7.69	16.97	20.30	0.16
Other General Industrial Equipment-0050	13	Diesel	4	0.34	0.10	8	1	3	11/6/2014	11/4/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Other Construction Equipment-0120	100	Diesel	4	0.42	0.20	8	2	6	11/6/2014	11/4/2016	25	521	237.30	225.61	17.62	17.09	20.50	38.78	0.43
Cranes-0500	420	Diesel	4	0.29	0.15	8	1	5	11/6/2014	11/4/2016	25	521	224.35	614.49	25.54	24.77	39.21	111.12	0.80
Cranes-0500	330	Diesel	4	0.29	0.25	8	2	8	11/6/2014	11/4/2016	25	521	224.35	614.49	25.54	24.77	39.21	111.12	0.80
Cranes-0500	420-470	Diesel	4	0.29	0.20	8	2	6	11/6/2014	11/4/2016	25	521	224.35	614.49	25.54	24.77	39.21	111.12	0.80
Cranes-0175	140	Diesel	2	0.29	0.20	8	2	3	11/6/2014	11/4/2016	25	521	217.81	362.56	19.60	19.01	28.08	49.17	0.41
Cranes-0120	75	Diesel	2	0.29	0.15	8	1	2	11/6/2014	11/4/2016	25	521	162.56	268.35	19.94	19.34	26.88	29.26	0.27
Crawler Tractors-0175	125	Diesel	1	0.43	0.35	8	3	3	11/6/2014	11/4/2016	25	521	335.94	445.81	24.32	23.59	33.77	73.54	0.62
Crawler Tractors-0500	310-410	Diesel	3	0.43	0.35	8	3	8	11/6/2014	11/4/2016	25	521	402.95	833.66	32.39	31.42	50.73	169.08	1.15
Construction Equipment Total			***32***																

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ROAD CROSSINGS

Construction Equipment	Actual Equipment Rated HP (2) hp/hr	Type of Fuel	Number of Units	Average Daily Load Factor	Average Daily Utilization Rate	Average Work Hours per Day (hours)	Total Utilized Equipment Operating Hours per Day	Operating Hours per Day (all equipment)	Start Date	End Date	Construction Activity Months of Activity	Construction Activity Days of Activity	Diesel Pollutant Emission Factors CO g/hour	NOx g/hour	PM10 g/hour	$PM_{2.5}$ g/hour	VOC g/hour	CO_2 (lbs/hour)	SO_2 g/hour
Road Crossings - Site 3 (Continued)																			
Excavators-0500	300	Diesel	2	0.38	0.30	8	2	5	11/6/2014	11/4/2016	25	521	231.25	431.53	14.13	13.71	24.92	143.60	1.04
Excavators-0500	450	Diesel	2	0.38	0.40	8	3	6	11/6/2014	11/4/2016	25	521	231.25	431.53	14.13	13.71	24.92	143.60	1.04
Rubber Tired Loaders-0175	149	Diesel	4	0.36	0.35	8	3	11	11/6/2014	11/4/2016	25	521	283.74	342.73	19.23	18.65	27.37	62.16	0.54
Rubber Tired Loaders-0250	197	Diesel	4	0.36	0.40	8	3	13	11/6/2014	11/4/2016	25	521	161.05	411.11	14.00	13.58	25.17	85.09	0.76
Other Construction Equipment-0050	15	Diesel	2	0.42	0.40	8	3	6	11/6/2014	11/4/2016	25	521	116.53	87.87	7.93	7.69	16.97	20.30	0.16
Other Construction Equipment-0050	28	Diesel	2	0.42	0.20	8	2	3	11/6/2014	11/4/2016	25	521	116.53	87.87	7.93	7.69	16.97	20.30	0.16
Graders-0175	158	Diesel	2	0.41	0.20	8	2	3	11/6/2014	11/4/2016	25	521	332.22	529.37	29.76	28.87	42.63	70.92	0.63
Other Construction Equipment-0120	92	Diesel	2	0.42	0.25	8	2	4	11/6/2014	11/4/2016	25	521	237.30	225.61	17.62	17.09	20.50	38.78	0.43
Other Construction Equipment-0250	245	Diesel	2	0.42	0.25	8	2	4	11/6/2014	11/4/2016	25	521	248.06	527.47	19.55	18.97	30.68	104.12	0.84
Other Construction Equipment-0500	335	Diesel	2	0.42	0.25	8	2	4	11/6/2014	11/4/2016	25	521	230.24	702.85	26.44	25.65	42.41	171.55	1.13
Construction Equipment Total			***24***																
Road Crossings - Site 3 (Continued)																			
Other General Industrial Equipment-0050	4	Diesel	10	0.34	0.15	8	1	12	11/6/2014	11/4/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Rollers-0120	83	Diesel	5	0.38	0.25	8	2	10	11/6/2014	11/4/2016	25	521	182.61	210.57	15.72	15.25	18.99	37.55	0.31
Rollers-0175	156-174	Diesel	8	0.38	0.25	8	2	16	11/6/2014	11/4/2016	25	521	280.12	259.04	12.10	11.74	16.78	61.90	0.55
Other General Industrial Equipment-0050	15	Diesel	4	0.34	0.40	8	3	13	11/6/2014	11/4/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Off-Highway Trucks-0175	175	Diesel	4	0.44	0.35	8	3	11	11/6/2014	11/4/2016	25	521	343.00	318.10	17.83	17.30	25.83	69.28	0.64
Off-Highway Trucks-0250	210	Diesel	4	0.44	0.25	8	2	8	11/6/2014	11/4/2016	25	521	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Off-Highway Trucks-0175	150	Diesel	4	0.44	0.55	8	4	18	11/6/2014	11/4/2016	25	521	343.00	318.10	17.83	17.30	25.83	69.28	0.64
Off-Highway Tractors-0500	300	Diesel	4	0.44	0.70	8	6	22	11/6/2014	11/4/2016	25	521	715.25	588.22	21.10	20.47	34.71	166.95	1.63
Off-Highway Trucks-0250	210	Diesel	4	0.44	0.65	8	5	21	11/6/2014	11/4/2016	25	521	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Other General Industrial Equipment-0050	45	Diesel	6	0.34	0.25	8	2	12	11/6/2014	11/4/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Construction Equipment Total			***53***																
Road Crossings - Site 3 (Continued)																			
Other General Industrial Equipment-0050	20	Diesel	10	0.34	0.75	8	6	60	11/6/2014	11/4/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Other General Industrial Equipment-0175	134	Diesel	5	0.34	0.65	8	5	26	11/6/2014	11/4/2016	25	521	258.91	304.30	16.54	16.04	22.90	58.46	0.49
Other General Industrial Equipment-0050	10	Diesel	4	0.34	0.15	8	1	5	11/6/2014	11/4/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Off-Highway Trucks-0500	500	Diesel	4	0.44	0.15	8	1	5	11/6/2014	11/4/2016	25	521	278.05	685.12	26.59	25.79	47.60	164.52	1.21
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/6/2014	11/4/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/6/2014	11/4/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/6/2014	11/4/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/6/2014	11/4/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/6/2014	11/4/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/6/2014	11/4/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***23***																
Road Crossings - Site 4																			
Other General Industrial Equipment-0050	50	Diesel	8	0.34	0.25	8	2	16	11/6/2014	11/4/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Other General Industrial Equipment-0500	450	Diesel	4	0.34	0.25	8	2	8	11/6/2014	11/4/2016	25	521	274.76	569.63	21.82	21.17	36.84	139.34	1.18
Pavers-0250	180	Diesel	4	0.42	0.15	8	1	5	11/6/2014	11/4/2016	25	521	263.97	366.99	9.33	9.05	15.23	102.04	0.99
Other General Industrial Equipment-0120	60	Diesel	4	0.34	0.15	8	1	5	11/6/2014	11/4/2016	25	521	201.37	171.22	14.63	14.19	16.66	28.57	0.33
Sweepers/Scrubbers-0050	25	Diesel	4	0.46	0.20	8	2	6	11/6/2014	11/4/2016	25	521	150.23	93.65	9.84	9.54	23.85	20.70	0.18
Other General Industrial Equipment-0050	20	Diesel	4	0.34	0.30	8	2	10	11/6/2014	11/4/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Other Construction Equipment-0120	120	Diesel	2	0.42	0.15	8	1	2	11/6/2014	11/4/2016	25	521	237.30	225.61	17.62	17.09	20.50	38.78	0.43
Off-Highway Trucks-0250	200-250	Diesel	6	0.44	0.30	8	2	14	11/6/2014	11/4/2016	25	521	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Tractors/Loaders/Backhoes-0120	87	Diesel	4	0.37	0.40	8	3	13	11/6/2014	11/4/2016	25	521	158.72	170.88	13.45	13.05	14.77	35.39	0.27
Pavers-0050	30	Diesel	4	0.42	0.15	8	1	5	11/6/2014	11/4/2016	25	521	158.81	91.73	9.54	9.25	25.17	20.56	0.16
Construction Equipment Total			***44***																

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ROAD CROSSINGS

Construction Equipment	Actual Equipment Rated HP (2) hp/hr	Type of Fuel	Number of Units	Average Daily Load Factor	Average Daily Utilization Rate	Average Work Hours per Day (hours)	Total Utilized Equipment Operating Hours per Day	Operating Hours per Day (all equipment)	Start Date	End Date	Construction Activity Months of Activity	Construction Activity Days of Activity	Diesel Pollutant Emission Factors CO g/hour	NOx g/hour	PM10 g/hour	$PM_{2.5}$ g/hour	VOC g/hour	CO_2 (lbs/hour)	SO_2 g/hour
Road Crossings - Site 4 (Continued)																			
Other Construction Equipment-0050	15	Diesel	4	0.42	0.35	8	3	11	11/6/2014	11/4/2016	25	521	116.53	87.87	7.93	7.69	16.97	20.30	0.16
Other General Industrial Equipment-0050	13	Diesel	4	0.34	0.10	8	1	3	11/6/2014	11/4/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Other Construction Equipment-0120	100	Diesel	4	0.42	0.20	8	2	6	11/6/2014	11/4/2016	25	521	237.30	225.61	17.62	17.09	20.50	38.78	0.43
Cranes-0500	420	Diesel	4	0.29	0.15	8	1	5	11/6/2014	11/4/2016	25	521	224.35	614.49	25.54	24.77	39.21	111.12	0.80
Cranes-0500	330	Diesel	4	0.29	0.25	8	2	8	11/6/2014	11/4/2016	25	521	224.35	614.49	25.54	24.77	39.21	111.12	0.80
Cranes-0500	420-470	Diesel	4	0.29	0.20	8	2	6	11/6/2014	11/4/2016	25	521	224.35	614.49	25.54	24.77	39.21	111.12	0.80
Cranes-0175	140	Diesel	2	0.29	0.20	8	2	3	11/6/2014	11/4/2016	25	521	217.81	362.56	19.60	19.01	28.08	49.17	0.41
Cranes-0120	75	Diesel	2	0.29	0.15	8	1	2	11/6/2014	11/4/2016	25	521	162.56	268.35	19.94	19.34	26.88	29.26	0.27
Crawler Tractors-0175	125	Diesel	1	0.43	0.35	8	3	3	11/6/2014	11/4/2016	25	521	335.94	445.81	24.32	23.59	33.77	73.54	0.62
Crawler Tractors-0500	310-410	Diesel	3	0.43	0.35	8	3	8	11/6/2014	11/4/2016	25	521	402.95	833.66	32.39	31.42	50.73	169.08	1.15
Construction Equipment Total			***32***																
Road Crossings - Site 4 (Continued)																			
Excavators-0500	300	Diesel	2	0.38	0.30	8	2	5	11/6/2014	11/4/2016	25	521	231.25	431.53	14.13	13.71	24.92	143.60	1.04
Excavators-0500	450	Diesel	2	0.38	0.40	8	3	6	11/6/2014	11/4/2016	25	521	231.25	431.53	14.13	13.71	24.92	143.60	1.04
Rubber Tired Loaders-0175	149	Diesel	4	0.36	0.35	8	3	11	11/6/2014	11/4/2016	25	521	283.74	342.73	19.23	18.65	27.37	62.16	0.54
Rubber Tired Loaders-0250	197	Diesel	4	0.36	0.40	8	3	13	11/6/2014	11/4/2016	25	521	161.05	411.11	14.00	13.58	25.17	85.09	0.76
Other Construction Equipment-0050	15	Diesel	2	0.42	0.40	8	3	6	11/6/2014	11/4/2016	25	521	116.53	87.87	7.93	7.69	16.97	20.30	0.16
Other Construction Equipment-0050	28	Diesel	2	0.42	0.20	8	2	3	11/6/2014	11/4/2016	25	521	116.53	87.87	7.93	7.69	16.97	20.30	0.16
Graders-0175	158	Diesel	2	0.41	0.20	8	2	3	11/6/2014	11/4/2016	25	521	332.22	529.37	29.76	28.87	42.63	70.92	0.63
Other Construction Equipment-0120	92	Diesel	2	0.42	0.25	8	2	4	11/6/2014	11/4/2016	25	521	237.30	225.61	17.62	17.09	20.50	38.78	0.43
Other Construction Equipment-0250	245	Diesel	2	0.42	0.25	8	2	4	11/6/2014	11/4/2016	25	521	248.06	527.47	19.55	18.97	30.68	104.12	0.84
Other Construction Equipment-0500	335	Diesel	2	0.42	0.25	8	2	4	11/6/2014	11/4/2016	25	521	230.24	702.85	26.44	25.65	42.41	171.55	1.13
Construction Equipment Total			***24***																
Road Crossings - Site 4 (Continued)																			
Other General Industrial Equipment-0050	4	Diesel	10	0.34	0.15	8	1	12	11/6/2014	11/4/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Rollers-0120	83	Diesel	5	0.38	0.25	8	2	10	11/6/2014	11/4/2016	25	521	182.61	210.57	15.72	15.25	18.99	37.55	0.31
Rollers-0175	156-174	Diesel	8	0.38	0.25	8	2	16	11/6/2014	11/4/2016	25	521	280.12	259.04	12.10	11.74	16.78	61.90	0.55
Other General Industrial Equipment-0050	15	Diesel	4	0.34	0.40	8	3	13	11/6/2014	11/4/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Off-Highway Trucks-0175	175	Diesel	4	0.44	0.35	8	3	11	11/6/2014	11/4/2016	25	521	343.00	318.10	17.83	17.30	25.83	69.28	0.64
Off-Highway Trucks-0250	210	Diesel	4	0.44	0.25	8	2	10	11/6/2014	11/4/2016	25	521	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Off-Highway Trucks-0175	150	Diesel	4	0.44	0.55	8	4	18	11/6/2014	11/4/2016	25	521	343.00	318.10	17.83	17.30	25.83	69.28	0.64
Off-Highway Tractors-0500	300	Diesel	4	0.44	0.70	8	6	22	11/6/2014	11/4/2016	25	521	715.25	588.22	21.10	20.47	34.71	166.95	1.63
Off-Highway Trucks-0250	210	Diesel	4	0.44	0.65	8	5	21	11/6/2014	11/4/2016	25	521	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Other General Industrial Equipment-0050	45	Diesel	6	0.34	0.25	8	2	12	11/6/2014	11/4/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Construction Equipment Total			***53***																
Road Crossings - Site 4 (Continued)																			
Other General Industrial Equipment-0050	20	Diesel	10	0.34	0.75	8	6	60	11/6/2014	11/4/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Other General Industrial Equipment-0175	134	Diesel	5	0.34	0.65	8	5	26	11/6/2014	11/4/2016	25	521	258.91	304.30	16.54	16.04	22.90	58.46	0.49
Other General Industrial Equipment-0050	10	Diesel	4	0.34	0.15	8	1	5	11/6/2014	11/4/2016	25	521	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Off-Highway Trucks-0500	500	Diesel	4	0.44	0.15	8	1	5	11/6/2014	11/4/2016	25	521	278.05	685.12	26.59	25.79	47.60	164.52	1.21
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/6/2014	11/4/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/6/2014	11/4/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/6/2014	11/4/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/6/2014	11/4/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/6/2014	11/4/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/6/2014	11/4/2016	25	521	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***23***																

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ROAD CROSSINGS

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration		Pollutant Emission Factors						
						Months of Activity	Days of Activity	CO	NOx	PM10	PM2.5	HC	CO_2	SO_2
Road Crossings - Site 1														
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	13	Aggregate	Nov-14	Nov-16	25	521			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	2.9	0.1006	0.0468	0.0468	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	6	1	Nov-14	Nov-16	25	521			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading-Dust	ton of mat. removed	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Worker Trips	Number of Vehicles	55	40	Nov-14	Nov-16	25	521	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Road Crossings - Site 1 (Continued)														
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	11	Aggregate	Nov-14	Nov-16	25	521			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Nov-14	Nov-16	25	521			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Worker Trips	Number of Vehicles	40	40	Nov-14	Nov-16	25	521	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Road Crossings - Site 1 (Continued)														
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Nov-14	Nov-16	25	521			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Nov-14	Nov-16	25	521			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Worker Trips	Number of Vehicles	30	40	Nov-14	Nov-16	25	521	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Road Crossings - Site 1 (Continued)														
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Nov-14	Nov-16	25	521			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	20	1	Nov-14	Nov-16	25	521			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Worker Trips	Number of Vehicles	66	40	Nov-14	Nov-16	25	521	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Road Crossings - Site 1 (Continued)														
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Nov-14	Nov-16	25	521			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	4	1	Nov-14	Nov-16	25	521			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Worker Trips	Number of Vehicles	29	40	Nov-14	Nov-16	25	521	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Road Crossings - Site 2														
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	13	Aggregate	Nov-14	Nov-16	25	521			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	6	1	Nov-14	Nov-16	25	521			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ROAD CROSSINGS

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration		Pollutant Emission Factors						
						Months of Activity	Days of Activity	CO	NOx	PM10	PM2.5	HC	CO_2	SO_2
Truck Loading	lb/ton of mat. removed	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Worker Trips	Number of Vehicles	55	40	Nov-14	Nov-16	25	521	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Road Crossings - Site 2 (Continued)														
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	11	Aggregate	Nov-14	Nov-16	25	521			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Nov-14	Nov-16	25	521			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Worker Trips	Number of Vehicles	40	40	Nov-14	Nov-16	25	521	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Road Crossings - Site 2 (Continued)														
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Nov-14	Nov-16	25	521			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Nov-14	Nov-16	25	521			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Worker Trips	Number of Vehicles	30	40	Nov-14	Nov-16	25	521	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Road Crossings - Site 2 (Continued)														
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Nov-14	Nov-16	25	521			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	20	1	Nov-14	Nov-16	25	521			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Worker Trips	Number of Vehicles	66	40	Nov-14	Nov-16	25	521	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Road Crossings - Site 2 (Continued)														
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Nov-14	Nov-16	25	521			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	4	1	Nov-14	Nov-16	25	521			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Worker Trips	Number of Vehicles	29	40	Nov-14	Nov-16	25	521	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Road Crossings - Site 3														
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	13	Aggregate	Nov-14	Nov-16	25	521			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	6	1	Nov-14	Nov-16	25	521			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Worker Trips	Number of Vehicles	55	40	Nov-14	Nov-16	25	521	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Road Crossings - Site 3 (Continued)														
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	11	Aggregate	Nov-14	Nov-16	25	521			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ROAD CROSSINGS

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration		Pollutant Emission Factors						
						Months of Activity	Days of Activity	CO	NOx	PM10	PM2.5	HC	CO_2	SO_2
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Nov-14	Nov-16	25	521			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Worker Trips	Number of Vehicles	40	40	Nov-14	Nov-16	25	521	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Road Crossings - Site 3 (Continued)														
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Nov-14	Nov-16	25	521			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Nov-14	Nov-16	25	521			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Worker Trips	Number of Vehicles	30	40	Nov-14	Nov-16	25	521	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Road Crossings - Site 3 (Continued)														
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Nov-14	Nov-16	25	521			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	20	1	Nov-14	Nov-16	25	521			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Worker Trips	Number of Vehicles	66	40	Nov-14	Nov-16	25	521	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Road Crossings - Site 3 (Continued)														
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Nov-14	Nov-16	25	521			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	4	1	Nov-14	Nov-16	25	521			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Worker Trips	Number of Vehicles	29	40	Nov-14	Nov-16	25	521	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Road Crossings - Site 4														
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	13	Aggregate	Nov-14	Nov-16	25	521			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	6	1	Nov-14	Nov-16	25	521			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Worker Trips	Number of Vehicles	55	40	Nov-14	Nov-16	25	521	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Road Crossings - Site 4 (Continued)														
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	11	Aggregate	Nov-14	Nov-16	25	521			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Nov-14	Nov-16	25	521			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Worker Trips	Number of Vehicles	40	40	Nov-14	Nov-16	25	521	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Road Crossings - Site 4 (Continued)														

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ROAD CROSSINGS

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration		Pollutant Emission Factors						
						Months of Activity	Days of Activity	CO	NOx	PM10	PM2.5	HC	CO_2	SO_2
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Nov-14	Nov-16	25	521			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	24	1	Nov-14	Nov-16	25	521			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Nov-16	25	521	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Nov-14	Nov-16	25	521			0.0000	0.0000			
Worker Trips	Number of Vehicles	95	40	Nov-14	Nov-16	25	521	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
TRACK AT GRADE

Construction Equipment	Actual Equipment Rated HP [2] hp/hr	Type of Fuel	Number of Units	Average Daily Load Factor	Average Daily Utilization Rate	Average Work Hours per Day (hours)	Total Utilized Equipment Operating Hours per Day	Operating Hours per Day (all equipment)	Start Date	End Date	Construction Activity Months of Activity	Construction Activity Days of Activity	Diesel Pollutant Emission Factors [3] CO g/hour	NOx g/hour	PM10 g/hour	$PM_{2.5}$ g/hour	VOC g/hour	CO_2 (lbs/hour)	SO_2 g/hour
Lay Track at Grade																			
Other Construction Equipment-9999	3,000	Diesel	1	0.42	0.85	8	7	7	11/21/2016	7/31/2017	9	180	220.64	2519.28	70.29	68.18	120.94	524.57	1.13
Other Construction Equipment-0500	350	Diesel	1	0.42	0.85	8	7	7	11/21/2016	7/31/2017	9	180	220.64	667.24	25.40	24.64	41.99	171.46	1.13
Other Construction Equipment-0175	125	Diesel	1	0.42	0.85	8	7	7	11/21/2016	7/31/2017	9	180	265.63	396.49	21.22	20.59	29.81	72.38	0.54
Other Construction Equipment-0500	300	Diesel	1	0.42	0.85	8	7	7	11/21/2016	7/31/2017	9	180	220.64	667.24	25.40	24.64	41.99	171.46	1.13
Off-Highway Trucks-0500	479	Diesel	1	0.44	0.85	8	7	7	11/21/2016	7/31/2017	9	180	262.68	631.94	24.63	23.89	45.20	164.46	1.21
Off-Highway Trucks-0250	189	Diesel	1	0.44	0.85	8	7	7	11/21/2016	7/31/2017	9	180	165.48	439.78	19.73	19.14	33.58	91.81	0.85
Other General Industrial Equipment-0050	45	Diesel	1	0.34	0.85	8	7	7	11/21/2016	7/31/2017	9	180	111.62	65.13	6.13	5.95	14.25	15.34	0.13
Other Construction Equipment-0500	500	Diesel	1	0.42	0.85	8	7	7	11/21/2016	7/31/2017	9	180	220.64	667.24	25.40	24.64	41.99	171.46	1.13
Other Construction Equipment-0500	400	Diesel	1	0.42	0.85	8	7	7	11/21/2016	7/31/2017	9	180	220.64	667.24	25.40	24.64	41.99	171.46	1.13
Surfacing Equipment-0500	400	Diesel	1	0.30	0.85	8	7	7	11/21/2016	7/31/2017	9	180	248.67	396.33	12.98	12.59	20.88	124.45	0.98
Construction Equipment Total			***10***																

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
TRACK AT GRADE

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration		Pollutant Emission Factors						
						Months of Activity	Days of Activity	CO	NOx	PM10	PM2.5	HC	CO_2	SO_2
Lay Track at Grade														
Track at Grade - enter area / volume to be demolished	Square Feet to demolish	0		Nov-16	Jul-17	9	180			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Nov-16	Jul-17	9	180			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-16	Jul-17	9	180	2.5	0.0842	0.0467	0.0195	0.0842	464	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	1	1	Nov-16	Jul-17	9	180			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-16	Jul-17	9	180	1.2	0.2419	0.1916	0.1168	0.2419	1362	0.0136
Truck Loading-Dust	ton of mat. removed	0		Nov-16	Jul-17	9	180			0.0000	0.0000			
Worker Trips	Number of Vehicles	13	40	Nov-16	Jul-17	9	180	1.5	0.0489	0.0465	0.0194	0.0489	287	0.0040
TASK DESCRIPTION														

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ELEVATED TRACK

Construction Equipment	Actual Equipment Rated HP (2) hp/hr	Type of Fuel	Number of Units	Average Daily Load Factor	Average Daily Utilization Rate	Average Work Hours per Day (hours)	Total Utilized Equipment Operating Hours per Day	Operating Hours per Day (all equipment)	Start Date	End Date	Construction Activity Months of Activity	Construction Activity Days of Activity	Diesel Pollutant Emission Factors CO g/hour	NOx g/hour	PM10 g/hour	$PM_{2.5}$ g/hour	VOC g/hour	CO_2 (lbs/hour)	SO_2 g/hour
Lay Track Elevated + Retained Fill																			
Aerial Lifts-0120	60	Diesel	1	0.31	0.35	8	3	3	11/21/2016	6/6/2017	8	141	106.90	61.97	2.51	2.44	3.08	26.18	0.20
Other Construction Equipment-9999	3,000	Diesel	1	0.42	0.85	8	7	7	11/21/2016	6/6/2017	8	141	220.64	2519.28	70.29	68.18	120.94	524.57	1.13
Other Construction Equipment-0500	350	Diesel	1	0.42	0.85	8	7	7	11/21/2016	6/6/2017	8	141	220.64	667.24	25.40	24.64	41.99	171.46	1.13
Other Construction Equipment-0175	125	Diesel	1	0.42	0.85	8	7	7	11/21/2016	6/6/2017	8	141	265.63	396.49	21.22	20.59	29.81	72.38	0.54
Other Construction Equipment-0500	300	Diesel	1	0.42	0.85	8	7	7	11/21/2016	6/6/2017	8	141	220.64	667.24	25.40	24.64	41.99	171.46	1.13
Off-Highway Trucks-0500	479	Diesel	1	0.44	0.85	8	7	7	11/21/2016	6/6/2017	8	141	262.68	631.94	24.63	23.89	45.20	164.46	1.21
Off-Highway Trucks-0250	189	Diesel	1	0.44	0.85	8	7	7	11/21/2016	6/6/2017	8	141	165.48	439.78	19.73	19.14	33.58	91.81	0.85
Other General Industrial Equipment-0050	45	Diesel	1	0.34	0.85	8	7	7	11/21/2016	6/6/2017	8	141	111.62	65.13	6.13	5.95	14.25	15.34	0.13
Other Construction Equipment-0500	500	Diesel	1	0.42	0.85	8	7	7	11/21/2016	6/6/2017	8	141	220.64	667.24	25.40	24.64	41.99	171.46	1.13
Other Construction Equipment-0500	400	Diesel	1	0.42	0.85	8	7	7	11/21/2016	6/6/2017	8	141	220.64	667.24	25.40	24.64	41.99	171.46	1.13
Construction Equipment Total			***10***																
Lay Track Elevated + Retained Fill (Continued)																			
Surfacing Equipment-0500	400	Diesel	1	0.30	0.85	8	7	7	11/1/2016	5/17/2017	7	141	248.67	396.33	12.98	12.59	20.88	124.45	0.98
Other General Industrial Equipment-0050	10	Diesel	1	0.34	0.50	8	4	4	11/1/2016	5/17/2017	7	141	111.62	65.13	6.13	5.95	14.25	15.34	0.13
Other General Industrial Equipment-0050	10	Diesel	1	0.34	0.50	8	4	4	11/1/2016	5/17/2017	7	141	111.62	65.13	6.13	5.95	14.25	15.34	0.13
Cranes-0500	399	Diesel	1	0.29	0.50	8	4	4	11/1/2016	5/17/2017	7	141	200.87	576.49	24.08	23.36	37.56	111.12	0.80
Crawler Tractors-0175	147	Diesel	1	0.43	0.35	8	3	3	11/1/2016	5/17/2017	7	141	333.56	440.56	24.40	23.67	33.96	73.54	0.62
Other Construction Equipment-0050	16	Diesel	1	0.42	0.45	8	4	4	11/1/2016	5/17/2017	7	141	110.85	87.24	7.85	7.62	16.95	20.30	0.16
Rough Terrain Forklifts-0175	145	Diesel	1	0.40	0.30	8	2	2	11/1/2016	5/17/2017	7	141	327.92	172.04	6.77	6.56	9.40	59.72	0.64
Other General Industrial Equipment-0750	549	Diesel	1	0.34	0.75	8	6	6	11/1/2016	5/17/2017	7	141	418.56	659.00	22.10	21.44	43.20	232.64	1.99
Off-Highway Trucks-0500	479	Diesel	1	0.44	0.25	8	2	2	11/1/2016	5/17/2017	7	141	262.68	631.94	24.63	23.89	45.20	164.46	1.21
Other General Industrial Equipment-0050	45	Diesel	1	0.34	0.65	8	5	5	11/1/2016	5/17/2017	7	141	111.62	65.13	6.13	5.95	14.25	15.34	0.13
Construction Equipment Total			***10***																
Lay Track Elevated + Retained Fill (Continued)																			
Other Construction Equipment-0500	500	Diesel	1	0.42	0.85	8	7	7	11/1/2016	5/17/2017	7	141	220.64	667.24	25.40	24.64	41.99	171.46	1.13
Other Construction Equipment-0500	400	Diesel	1	0.42	0.85	8	7	7	11/1/2016	5/17/2017	7	141	220.64	667.24	25.40	24.64	41.99	171.46	1.13
Surfacing Equipment-0500	400	Diesel	1	0.30	0.85	8	7	7	11/1/2016	5/17/2017	7	141	248.67	396.33	12.98	12.59	20.88	124.45	0.98
Other Construction Equipment-0750	600	Diesel	1	0.42	0.50	8	4	4	11/1/2016	5/17/2017	7	141	220.64	1037.02	35.88	34.80	59.57	285.49	1.13
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/1/2016	5/17/2017	7	141	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/1/2016	5/17/2017	7	141	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/1/2016	5/17/2017	7	141	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/1/2016	5/17/2017	7	141	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/1/2016	5/17/2017	7	141	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/1/2016	5/17/2017	7	141	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***4***																

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ELEVATED TRACK

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration		Pollutant Emission Factors						
						Months of Activity	Days of Activity	CO	NOx	PM10	PM2.5	HC	CO_2	SO_2
Lay Track Elevated + Retained Fill														
Track Elevated - enter area / volume to be demolished	Square Feet to demolish	0		Nov-16	Jun-17	8	141			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Nov-16	Jun-17	8	141			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-16	Jun-17	8	141	2.5	0.0842	0.0467	0.0195	0.0842	464	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	1	1	Nov-16	Jun-17	8	141			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-16	Jun-17	8	141	1.2	0.2419	0.1916	0.1168	0.2419	1362	0.0136
Truck Loading-Dust	ton of mat. removed	0		Nov-16	Jun-17	8	141			0.0000	0.0000			
Worker Trips	Number of Vehicles	13	40	Nov-16	Jun-17	8	141	1.5	0.0489	0.0465	0.0194	0.0489	287	0.0040
Lay Track Elevated + Retained Fill (Continued)														
Track Elevated - enter area / volume to be demolished	Square Feet to demolish	0		Nov-16	May-17	7	141			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Nov-16	May-17	7	141			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-16	May-17	7	141	2.5	0.0842	0.0467	0.0195	0.0842	464	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	1	1	Nov-16	May-17	7	141			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-16	May-17	7	141	1.2	0.2419	0.1916	0.1168	0.2419	1362	0.0136
Truck Loading	lb/ton of mat. removed	0		Nov-16	May-17	7	141			0.0000	0.0000			
Worker Trips	Number of Vehicles	13	40	Nov-16	May-17	7	141	1.5	0.0489	0.0465	0.0194	0.0489	287	0.0040
Lay Track Elevated + Retained Fill (Continued)														
Track Elevated - enter area / volume to be demolished	Square Feet to demolish	0		Nov-16	May-17	7	141			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	3	Aggregate	Nov-16	May-17	7	141			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-16	May-17	7	141	2.5	0.0842	0.0467	0.0195	0.0842	464	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Nov-16	May-17	7	141			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-16	May-17	7	141	1.2	0.2419	0.1916	0.1168	0.2419	1362	0.0136
Truck Loading	lb/ton of mat. removed	0		Nov-16	May-17	7	141			0.0000	0.0000			
Worker Trips	Number of Vehicles	5	40	Nov-16	May-17	7	141	1.5	0.0489	0.0465	0.0194	0.0489	287	0.0040

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ELEVATED STRUCTURES

Construction Equipment	Actual Equipment Rated HP (2) hp/hr	Type of Fuel	Number of Units	Average Daily Load Factor	Average Daily Utilization Rate	Average Work Hours per Day (hours)	Total Utilized Equipment Operating Hours per Day	Operating Hours per Day (all equipment)	Start Date	End Date	Construction Activity Months of Activity	Construction Activity Days of Activity	Diesel Pollutant Emission Factors CO g/hour	NOx g/hour	PM10 g/hour	$PM_{2.5}$ g/hour	VOC g/hour	CO_2 (lbs/hour)	SO_x g/hour
Elevated Structures - Site 1																			
Aerial Lifts-0120	60	Diesel	2	0.31	0.15	8	1	2	11/7/2014	10/28/2016	24	515	108.88	77.34	3.70	3.59	3.85	26.18	0.20
Other General Industrial Equipment-0120	106	Diesel	3	0.34	0.20	8	2	4	11/7/2014	10/28/2016	24	515	201.37	171.22	14.63	14.19	16.66	28.57	0.33
Bore/Drill Rigs-0500	291	Diesel	6	0.50	0.90	8	7	40	11/7/2014	10/28/2016	24	515	249.79	575.71	18.61	18.05	30.43	197.37	1.38
Excavators-0500	300	Diesel	3	0.38	0.85	8	7	17	11/7/2014	10/28/2016	24	515	231.25	431.53	14.13	13.71	24.92	143.60	1.04
Cranes-0500	420	Diesel	3	0.29	0.65	8	5	16	11/7/2014	10/28/2016	24	515	224.35	614.49	25.54	24.77	39.21	111.12	0.80
Off-Highway Trucks-0250	210	Diesel	5	0.44	0.65	8	5	23	11/7/2014	10/28/2016	24	515	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Cranes-0500	420	Diesel	2	0.29	0.65	8	5	10	11/7/2014	10/28/2016	24	515	224.35	614.49	25.54	24.77	39.21	111.12	0.80
Other General Industrial Equipment-0050	10	Diesel	3	0.34	0.45	8	4	9	11/7/2014	10/28/2016	24	515	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Other General Industrial Equipment-0050	10	Diesel	3	0.34	0.15	8	1	3	11/7/2014	10/28/2016	24	515	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Crawler Tractors-0500	310	Diesel	1	0.43	0.65	8	5	3	11/7/2014	10/28/2016	24	515	402.95	833.66	32.39	31.42	50.73	169.08	1.15
Construction Equipment Total			***28***																
Elevated Structures - Site 1 (Continued)																			
Rubber Tired Loaders-0500	262	Diesel	1	0.36	0.65	8	5	3	11/7/2014	10/28/2016	24	515	275.88	616.81	23.47	22.77	41.41	131.80	1.05
Graders-0175	158	Diesel	1	0.41	0.65	8	5	3	11/7/2014	10/28/2016	24	515	332.22	529.37	29.76	28.87	42.63	70.92	0.63
Paving Equipment-0175	156-174	Diesel	1	0.36	0.65	8	5	5	11/7/2014	10/28/2016	24	515	274.13	276.22	13.28	12.88	18.19	60.29	0.52
Off-Highway Trucks-0250	210	Diesel	1	0.44	0.65	8	5	4	11/7/2014	10/28/2016	24	515	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Other General Industrial Equipment-0050	45	Diesel	3	0.34	0.65	8	5	13	11/7/2014	10/28/2016	24	515	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Other Construction Equipment-0750	600	Diesel	3	0.42	0.20	8	2	4	11/7/2014	10/28/2016	24	515	230.24	1058.04	35.95	34.87	57.94	285.41	1.13
None-0	0	Diesel	0	0.00	1.00	1	1	0	11/7/2014	10/28/2016	24	515	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	1	1	0	11/7/2014	10/28/2016	24	515	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	1	1	0	11/7/2014	10/28/2016	24	515	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	1	1	0	11/7/2014	10/28/2016	24	515	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***8***																
Elevated Structures - Site 2																			
Aerial Lifts-0120	60	Diesel	2	0.31	0.15	8	1	2	11/5/2014	10/26/2016	24	515	108.88	77.34	3.70	3.59	3.85	26.18	0.20
Other General Industrial Equipment-0120	106	Diesel	3	0.34	0.20	8	2	4	11/5/2014	10/26/2016	24	515	201.37	171.22	14.63	14.19	16.66	28.57	0.33
Bore/Drill Rigs-0500	291	Diesel	6	0.50	0.90	8	7	40	11/5/2014	10/26/2016	24	515	249.79	575.71	18.61	18.05	30.43	197.37	1.38
Excavators-0500	300	Diesel	3	0.38	0.85	8	7	17	11/5/2014	10/26/2016	24	515	231.25	431.53	14.13	13.71	24.92	143.60	1.04
Cranes-0500	420	Diesel	3	0.29	0.65	8	5	16	11/5/2014	10/26/2016	24	515	224.35	614.49	25.54	24.77	39.21	111.12	0.80
Off-Highway Trucks-0250	210	Diesel	5	0.44	0.65	8	5	23	11/5/2014	10/26/2016	24	515	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Cranes-0500	420	Diesel	2	0.29	0.65	8	5	10	11/5/2014	10/26/2016	24	515	224.35	614.49	25.54	24.77	39.21	111.12	0.80
Other General Industrial Equipment-0050	10	Diesel	3	0.34	0.45	8	4	9	11/5/2014	10/26/2016	24	515	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Other General Industrial Equipment-0050	10	Diesel	3	0.34	0.15	8	1	3	11/5/2014	10/26/2016	24	515	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Crawler Tractors-0500	310	Diesel	1	0.43	0.65	8	5	3	11/5/2014	10/26/2016	24	515	402.95	833.66	32.39	31.42	50.73	169.08	1.15
Construction Equipment Total			***28***																
Elevated Structures - Site 2 (Continued)																			
Rubber Tired Loaders-0500	262	Diesel	1	0.36	0.65	8	5	3	11/5/2014	10/26/2016	24	515	275.88	616.81	23.47	22.77	41.41	131.80	1.05
Graders-0175	158	Diesel	1	0.41	0.65	8	5	3	11/5/2014	10/26/2016	24	515	332.22	529.37	29.76	28.87	42.63	70.92	0.63
Paving Equipment-0175	156-174	Diesel	1	0.36	0.65	8	5	5	11/5/2014	10/26/2016	24	515	274.13	276.22	13.28	12.88	18.19	60.29	0.52
Off-Highway Trucks-0250	210	Diesel	1	0.44	0.65	8	5	4	11/5/2014	10/26/2016	24	515	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Other General Industrial Equipment-0050	45	Diesel	3	0.34	0.65	8	5	13	11/5/2014	10/26/2016	24	515	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Other Construction Equipment-0750	600	Diesel	3	0.42	0.20	8	2	4	11/5/2014	10/26/2016	24	515	230.24	1058.04	35.95	34.87	57.94	285.41	1.13
None-0	0	Diesel	0	0.00	1.00	1	1	0	11/5/2014	10/26/2016	24	515	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	1	1	0	11/5/2014	10/26/2016	24	515	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	1	1	0	11/5/2014	10/26/2016	24	515	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	1	1	0	11/5/2014	10/26/2016	24	515	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***8***																

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ELEVATED STRUCTURES

Construction Equipment	Actual Equipment Rated HP [2] hp/hr	Type of Fuel	Number of Units	Average Daily Load Factor	Average Daily Utilization Rate	Average Work Hours per Day (hours)	Total Utilized Equipment Operating Hours per Day	Operating Hours per Day (all equipment)	Start Date	End Date	Construction Activity Months of Activity	Construction Activity Days of Activity	Diesel Pollutant Emission Factors CO g/hour	NOx g/hour	PM10 g/hour	$PM_{2.5}$ g/hour	VOC g/hour	CO_2 (lbs/hour)	SO_x g/hour
Elevated Structures - Site 3																			
Aerial Lifts-0120	60	Diesel	2	0.31	0.15	8	1	2	11/6/2014	1/25/2017	27	579	108.88	77.34	3.70	3.59	3.85	26.18	0.20
Other General Industrial Equipment-0120	106	Diesel	3	0.34	0.20	8	2	4	11/6/2014	1/25/2017	27	579	201.37	171.22	14.63	14.19	16.66	28.57	0.33
Bore/Drill Rigs-0500	291	Diesel	6	0.50	0.90	8	7	40	11/6/2014	1/25/2017	27	579	249.79	575.71	18.61	18.05	30.43	197.37	1.38
Excavators-0500	300	Diesel	3	0.38	0.85	8	7	17	11/6/2014	1/25/2017	27	579	231.25	431.53	14.13	13.71	24.92	143.60	1.04
Cranes-0500	420	Diesel	3	0.29	0.65	8	5	16	11/6/2014	1/25/2017	27	579	224.35	614.49	25.54	24.77	39.21	111.12	0.80
Off-Highway Trucks-0250	210	Diesel	5	0.44	0.65	8	5	23	11/6/2014	1/25/2017	27	579	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Cranes-0500	420	Diesel	2	0.29	0.65	8	5	10	11/6/2014	1/25/2017	27	579	224.35	614.49	25.54	24.77	39.21	111.12	0.80
Other General Industrial Equipment-0050	10	Diesel	3	0.34	0.45	8	4	9	11/6/2014	1/25/2017	27	579	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Other General Industrial Equipment-0050	10	Diesel	3	0.34	0.15	8	1	3	11/6/2014	1/25/2017	27	579	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Crawler Tractors-0500	310	Diesel	1	0.43	0.65	8	5	3	11/6/2014	1/25/2017	27	579	402.95	833.66	32.39	31.42	50.73	169.08	1.15
Construction Equipment Total			***28***																
Elevated Structures - Site 3 (Continued)																			
Rubber Tired Loaders-0500	262	Diesel	1	0.36	0.65	8	5	3	11/6/2014	1/25/2017	27	579	275.88	616.81	23.47	22.77	41.41	131.80	1.05
Graders-0175	158	Diesel	1	0.41	0.65	8	5	3	11/6/2014	1/25/2017	27	579	332.22	529.37	29.76	28.87	42.63	70.92	0.63
Paving Equipment-0175	156-174	Diesel	1	0.36	0.65	8	5	5	11/6/2014	1/25/2017	27	579	274.13	276.22	13.28	12.88	18.19	60.29	0.52
Off-Highway Trucks-0250	210	Diesel	1	0.44	0.65	8	5	4	11/6/2014	1/25/2017	27	579	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Other General Industrial Equipment-0050	45	Diesel	3	0.34	0.65	8	5	13	11/6/2014	1/25/2017	27	579	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Other Construction Equipment-0750	600	Diesel	3	0.42	0.20	8	2	4	11/6/2014	1/25/2017	27	579	230.24	1058.04	35.95	34.87	57.94	285.41	1.13
None-0	0	Diesel	0	0.00	1.00	1	1	0	11/6/2014	1/25/2017	27	579	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	1	1	0	11/6/2014	1/25/2017	27	579	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	1	1	0	11/6/2014	1/25/2017	27	579	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	1	1	0	11/6/2014	1/25/2017	27	579	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***8***																
Elevated Structures - Site 4																			
Aerial Lifts-0120	60	Diesel	2	0.31	0.15	8	1	2	11/6/2014	1/25/2017	27	579	108.88	77.34	3.70	3.59	3.85	26.18	0.20
Other General Industrial Equipment-0120	106	Diesel	3	0.34	0.20	8	2	4	11/6/2014	1/25/2017	27	579	201.37	171.22	14.63	14.19	16.66	28.57	0.33
Bore/Drill Rigs-0500	291	Diesel	6	0.50	0.90	8	7	40	11/6/2014	1/25/2017	27	579	249.79	575.71	18.61	18.05	30.43	197.37	1.38
Excavators-0500	300	Diesel	3	0.38	0.85	8	7	17	11/6/2014	1/25/2017	27	579	231.25	431.53	14.13	13.71	24.92	143.60	1.04
Cranes-0500	420	Diesel	3	0.29	0.65	8	5	16	11/6/2014	1/25/2017	27	579	224.35	614.49	25.54	24.77	39.21	111.12	0.80
Off-Highway Trucks-0250	210	Diesel	5	0.44	0.65	8	5	23	11/6/2014	1/25/2017	27	579	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Cranes-0500	420	Diesel	2	0.29	0.65	8	5	10	11/6/2014	1/25/2017	27	579	224.35	614.49	25.54	24.77	39.21	111.12	0.80
Other General Industrial Equipment-0050	10	Diesel	3	0.34	0.45	8	4	9	11/6/2014	1/25/2017	27	579	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Other General Industrial Equipment-0050	10	Diesel	3	0.34	0.15	8	1	3	11/6/2014	1/25/2017	27	579	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Crawler Tractors-0500	310	Diesel	1	0.43	0.65	8	5	3	11/6/2014	1/25/2017	27	579	402.95	833.66	32.39	31.42	50.73	169.08	1.15
Construction Equipment Total			***28***																
Elevated Structures - Site 4 (Continued)																			
Rubber Tired Loaders-0500	262	Diesel	1	0.36	0.65	8	5	3	11/6/2014	1/25/2017	27	579	275.88	616.81	23.47	22.77	41.41	131.80	1.05
Graders-0175	158	Diesel	1	0.41	0.65	8	5	3	11/6/2014	1/25/2017	27	579	332.22	529.37	29.76	28.87	42.63	70.92	0.63
Paving Equipment-0175	156-174	Diesel	1	0.36	0.65	8	5	5	11/6/2014	1/25/2017	27	579	274.13	276.22	13.28	12.88	18.19	60.29	0.52
Off-Highway Trucks-0250	210	Diesel	1	0.44	0.65	8	5	4	11/6/2014	1/25/2017	27	579	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Other General Industrial Equipment-0050	45	Diesel	3	0.34	0.65	8	5	13	11/6/2014	1/25/2017	27	579	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Other Construction Equipment-0750	600	Diesel	3	0.42	0.20	8	2	4	11/6/2014	1/25/2017	27	579	230.24	1058.04	35.95	34.87	57.94	285.41	1.13
None-0	0	Diesel	0	0.00	1.00	1	1	0	11/6/2014	1/25/2017	27	579	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	1	1	0	11/6/2014	1/25/2017	27	579	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	1	1	0	11/6/2014	1/25/2017	27	579	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	1	1	0	11/6/2014	1/25/2017	27	579	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***8***																

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ELEVATED STRUCTURES

Construction Equipment	Actual Equipment Rated HP [2] hp/hr	Type of Fuel	Number of Units	Average Daily Load Factor	Average Daily Utilization Rate	Average Work Hours per Day (hours)	Total Utilized Equipment Operating Hours per Day	Operating Hours per Day (all equipment)	Start Date	End Date	Construction Activity Months of Activity	Construction Activity Days of Activity	Diesel Pollutant Emission Factors CO g/hour	NOx g/hour	PM10 g/hour	$PM_{2.5}$ g/hour	VOC g/hour	CO_2 (lbs/hour)	SO_x g/hour
Bakersfield																			
Aerial Lifts-0120	60	Diesel	3	0.31	0.15	8	1	3	11/6/2014	1/25/2017	27	579	108.88	77.34	3.70	3.59	3.85	26.18	0.20
Other General Industrial Equipment-0120	106	Diesel	4	0.34	0.20	8	2	6	11/6/2014	1/25/2017	27	579	201.37	171.22	14.63	14.19	16.66	28.57	0.33
Bore/Drill Rigs-0500	291	Diesel	7	0.50	0.90	8	7	50	11/6/2014	1/25/2017	27	579	249.79	575.71	18.61	18.05	30.43	197.37	1.38
Excavators-0500	300	Diesel	4	0.38	0.85	8	7	24	11/6/2014	1/25/2017	27	579	231.25	431.53	14.13	13.71	24.92	143.60	1.04
Cranes-0500	420	Diesel	4	0.29	0.65	8	5	18	11/6/2014	1/25/2017	27	579	224.35	614.49	25.54	24.77	39.21	111.12	0.80
Off-Highway Trucks-0250	210	Diesel	6	0.44	0.65	8	5	31	11/6/2014	1/25/2017	27	579	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Cranes-0500	420	Diesel	3	0.29	0.65	8	5	13	11/6/2014	1/25/2017	27	579	224.35	614.49	25.54	24.77	39.21	111.12	0.80
Other General Industrial Equipment-0050	10	Diesel	4	0.34	0.45	8	4	13	11/6/2014	1/25/2017	27	579	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Other General Industrial Equipment-0050	10	Diesel	4	0.34	0.15	8	1	4	11/6/2014	1/25/2017	27	579	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Crawler Tractors-0500	310	Diesel	1	0.43	0.65	8	5	3	11/6/2014	1/25/2017	27	579	402.95	833.66	32.39	31.42	50.73	169.08	1.15
Construction Equipment Total			***36***																
Bakersfield (Continued)																			
Rubber Tired Loaders-0500	262	Diesel	1	0.36	0.65	8	5	7	11/1/2014	1/19/2017	27	579	275.88	616.81	23.47	22.77	41.41	131.80	1.05
Graders-0175	158	Diesel	1	0.41	0.65	8	5	7	11/1/2014	1/19/2017	27	579	332.22	529.37	29.76	28.87	42.63	70.92	0.63
Paving Equipment-0175	156-174	Diesel	1	0.36	0.65	8	5	7	11/1/2014	1/19/2017	27	579	274.13	276.22	13.28	12.88	18.19	60.29	0.52
Off-Highway Trucks-0250	210	Diesel	1	0.44	0.65	8	5	7	11/1/2014	1/19/2017	27	579	170.48	463.81	20.49	19.88	34.19	91.83	0.85
Other General Industrial Equipment-0050	45	Diesel	4	0.34	0.65	8	5	18	11/1/2014	1/19/2017	27	579	119.51	67.03	6.53	6.34	15.10	15.34	0.13
Other Construction Equipment-0750	600	Diesel	4	0.42	0.20	8	2	6	11/1/2014	1/19/2017	27	579	230.24	1058.04	35.95	34.87	57.94	285.41	1.13
None-0	0	Diesel	0	0.00	1.00	1	1	0	11/1/2014	1/19/2017	27	579	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	1	1	0	11/1/2014	1/19/2017	27	579	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	1	1	0	11/1/2014	1/19/2017	27	579	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	1	1	0	11/1/2014	1/19/2017	27	579	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***12***																

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ELEVATED STRUCTURES

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration		Pollutant Emission Factors						
						Months of Activity	Days of Activity	CO	NOx	PM10	PM2.5	HC	CO_2	SO_2
Elevated Structures - Site 1														
Elevated Structures - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Oct-16	24	515			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	3	Aggregate	Nov-14	Oct-16	24	515			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Oct-16	24	515	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	5	1	Nov-14	Oct-16	24	515			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Oct-16	24	515	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading-Dust	ton of mat. removed	0		Nov-14	Oct-16	24	515			0.0000	0.0000			
Worker Trips	Number of Vehicles	34	40	Nov-14	Oct-16	24	515	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Elevated Structures - Site 1 (Continued)														
Elevated Structures - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Oct-16	24	515			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Nov-14	Oct-16	24	515			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Oct-16	24	515	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	1	1	Nov-14	Oct-16	24	515			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Oct-16	24	515	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Nov-14	Oct-16	24	515			0.0000	0.0000			
Worker Trips	Number of Vehicles	10	40	Nov-14	Oct-16	24	515	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Elevated Structures - Site 2														
Elevated Structures - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Oct-16	24	515			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	3	Aggregate	Nov-14	Oct-16	24	515			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Oct-16	24	515	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	5	1	Nov-14	Oct-16	24	515			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Oct-16	24	515	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Nov-14	Oct-16	24	515			0.0000	0.0000			
Worker Trips	Number of Vehicles	34	40	Nov-14	Oct-16	24	515	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Elevated Structures - Site 2 (Continued)														
Elevated Structures - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Oct-16	24	515			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Nov-14	Oct-16	24	515			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Oct-16	24	515	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	1	1	Nov-14	Oct-16	24	515			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Oct-16	24	515	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Nov-14	Oct-16	24	515			0.0000	0.0000			
Worker Trips	Number of Vehicles	10	40	Nov-14	Oct-16	24	515	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Elevated Structures - Site 3														
Elevated Structures - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Jan-17	27	579			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	3	Aggregate	Nov-14	Jan-17	27	579			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Jan-17	27	579	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	5	1	Nov-14	Jan-17	27	579			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Jan-17	27	579	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Nov-14	Jan-17	27	579			0.0000	0.0000			
Worker Trips	Number of Vehicles	34	40	Nov-14	Jan-17	27	579	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ELEVATED STRUCTURES

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration		Pollutant Emission Factors						
						Months of Activity	Days of Activity	CO	NOx	PM10	PM2.5	HC	CO_2	SO_2
Elevated Structures - Site 3 (Continued)														
Elevated Structures - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Jan-17	27	579			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Nov-14	Jan-17	27	579			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Jan-17	27	579	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	1	1	Nov-14	Jan-17	27	579			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Jan-17	27	579	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Nov-14	Jan-17	27	579			0.0000	0.0000			
Worker Trips	Number of Vehicles	10	40	Nov-14	Jan-17	27	579	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Elevated Structures - Site 4														
Elevated Structures - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Jan-17	27	579			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	3	Aggregate	Nov-14	Jan-17	27	579			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Jan-17	27	579	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	5	1	Nov-14	Jan-17	27	579			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Jan-17	27	579	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Nov-14	Jan-17	27	579			0.0000	0.0000			
Worker Trips	Number of Vehicles	34	40	Nov-14	Jan-17	27	579	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Elevated Structures - Site 4 (Continued)														
Elevated Structures - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Jan-17	27	579			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Nov-14	Jan-17	27	579			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Jan-17	27	579	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	1	1	Nov-14	Jan-17	27	579			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Jan-17	27	579	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Nov-14	Jan-17	27	579			0.0000	0.0000			
Worker Trips	Number of Vehicles	10	40	Nov-14	Jan-17	27	579	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Bakersfield														
Elevated Structures - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Jan-17	27	579			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	3	Aggregate	Nov-14	Jan-17	27	579			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Jan-17	27	579	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	6	1	Nov-14	Jan-17	27	579			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Jan-17	27	579	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Nov-14	Jan-17	27	579			0.0000	0.0000			
Worker Trips	Number of Vehicles	45	40	Nov-14	Jan-17	27	579	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040
Bakersfield (Continued)														
Elevated Structures - enter area / volume to be demolished	Square Feet to demolish	0		Nov-14	Jan-17	27	579			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Nov-14	Jan-17	27	579			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-14	Jan-17	27	579	2.9	0.1006	0.0468	0.0197	0.1006	489	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	1	1	Nov-14	Jan-17	27	579			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-14	Jan-17	27	579	1.7	0.3167	0.2426	0.1637	0.3167	1398	0.0137
Truck Loading	lb/ton of mat. removed	0		Nov-14	Jan-17	27	579			0.0000	0.0000			
Worker Trips	Number of Vehicles	15	40	Nov-14	Jan-17	27	579	1.9	0.0690	0.0468	0.0197	0.0690	309	0.0040

Concrete Batch Plant

Data Taken from Project Descriptions or Provided
Estimated Values
Data used in calculations

Construction Start Date:	2015
Construction End Date:	2019
Operation Duration (yrs):	4.8
Operation hours: Change to 6100	8,085
Hours per day:	8
Number of days of operation in year :	250

Total volume of structural concrete to be used (cy):	6,860,000
Daily batch plant rate (concrete) (cy/day):	5,717

Hrs per day	**8**	**8**	**8**	**8**	**8**	
% daily utilization	**50%**	**85%**	**85%**	**85%**	**50%**	
Total hours of operation	**500**	**1700**	**1700**	**1700**	**500**	**6100**
	8%	**28%**	**28%**	**28%**	**8%**	**100%**
Year	2015	2016	2017	2018	2019	
Tons per Month	0.56	0.56	0.56	0.56	0.56	

Concrete Composition*		
Cement Feed Rate:	491	pounds of cement/cy
Aggregate Feed Rate:	1865	pounds of aggregate/cy
Sand Feed Rate:	1428	pounds of sand/cy
Cement Supplement Feed Rate:	73.0	pounds of supplement/xy
Concrete Production Rate:	4024	pounds of mix/xy

Note:
* Concrete composition data were based on BAAQMD Permit Handbook 11.5 Concrete Batch Plants.

EMISSION FACTORS FOR CONCRETE BATCHING		
	lb of PM_{10} per ton of material loaded	
Source	**Uncontrolled**	**Controlled**
Aggregate transfer [a]	0.0033	ND
Sand transfer [a]	0.00099	ND
Cement supplement unloading to elevated storage silo (pneumatic) [b,c]	1.1	0.0049
Cement unloading to elevated storage silo (pneumatic) [c]	0.46	0.00034
Weigh hopper loading (Aggregate and Sand) [d]	0.0024	ND
Mixer loading - Cement and Cement Supplement (central mix) [e]	0.134	0.0048

Note :

Concrete batching emissions estimated using AP-42 Fifth Edition, Volume I Chapter 11.12: Concrete Batching. Types of controls used may include water sprays, enclosures, hoods, curtains, shrouds, movable and telescoping chutes, central duct collection systems, and the like.

ND= No Data. Since emission factor data is available, the controlled emission assumed the uncontrolled emission factor instead.

a Emission factors are based upon an equation from AP-42, section 13.2.4 Aggregate Handling And Storage Piles, equation 1 with kPM-10 =.35, kPM = .74, U = 10mph, Maggregate =1.77%, and Msand= 4.17%. These moisture contents of the materials (Maggregate and Msand) are the averages of the values [b,c].

b Assume supplement unloading (rather than pneumatic for cement) to storage silo since supplement unloading has the higer emission factor.

c Final Test Report for USEPA [sic] Test Program Conducted at Concrete Ready Mixed Corporation, ETS, Inc., Roanoke, VA April 1994.

d Emission factors were developed by using the Aggregate and Sand Transfer Emission Factors in conjunction with the ratio of aggregate and sand used in an average cubic yard of concrete. The unit for these emission factors is lb of pollutant per ton of aggregate and sand.

e The emission factor units are lb of pollutant per ton of cement and cement supplement. The general factor is the arithmetic mean of all test data.

Daily $PM_{10}/PM_{2.5}$ Concrete Batching Emissions (3 Concrete Batch Plants)

Source	Tons of Material / day	Lbs of $PM_{10}/PM_{2.5}$ per day	
		Uncontrolled	Controlled
Aggregate transfer	5,331	17.59	17.59
Sand transfer	4,082	4.04	4.04
Cement supplement unloading to elevated storage silo (pneumatic)	209	229.52	1.02
Cement unloading to elevated storage silo (pneumatic)	1,403	645.58	0.48
Weigh hopper loading (Aggregate and Sand)	9,412	22.59	22.59
Mixer loading (central mix) Cement and Cement Supplement	1,612	216.02	7.74
Daily Emissions for each Concrete Batch Plant:		**1135.35**	**53.46**

Note :

Concrete production rate per foot of structures was provided by ARUP in October 2010. The length of structures requiring concrete was provided by ARUP in April 2011.

Assumed concrete production rate of 200 cy/ hr, provided by ARUP in October 2010

Assumed $PM_{2.5}$ emissions are equal to PM_{10} emissions.

Annual $PM_{10}/PM_{2.5}$ Concrete Batching Emissions (3 Concrete Batch Plants)

Source	Tons of Material / year	Tons of $PM_{10}/PM_{2.5}$ per year		Tons of $PM_{10}/PM_{2.5}$ per month	
		Uncontrolled	Controlled	Uncontrolled	Controlled
Aggregate transfer	1,332,698	2.20	2.20	0.18	0.18
Sand transfer	1,020,425	0.51	0.51	0.04	0.04
Cement supplement unloading to elevated storage silo (pneumatic)	52,165	28.69	0.13	2.39	0.01
Cement unloading to elevated storage silo (pneumatic)	350,860	80.70	0.06	6.72	0.00
Weigh hopper loading (Aggregate and Sand)	2,353,123	2.82	2.82	0.24	0.24
Mixer loading (central mix) Cement and Cement Supplement	403,025	27.00	0.97	2.25	0.08
Annual Emissions for each Concrete Batch Plant:		**141.92**	**6.68**	**11.83**	**0.56**

Note :

Concrete production rate per foot of structures was provided by ARUP in October 2010. The length of structures requiring concrete was provided by ARUP in April 2011.

Assumed concrete production rate of 200 cy/ hr, provided by ARUP in October 2010

Assumed $PM_{2.5}$ emissions are equal to PM_{10} emissions.

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
DEMOBILIZATION

Construction Equipment	Actual Equipment Rated HP [2] hp/hr	Type of Fuel	Number of Units	Average Daily Load Factor	Average Daily Utilization Rate	Average Work Hours per Day (hours)	Total Utilized Equipment Operating Hours per Day	Operating Hours per Day (all equipment)	Start Date	End Date	Construction Activity Months of Activity	Construction Activity Days of Activity	Diesel Pollutant Emission Factors CO g/hour	NOx g/hour	PM10 g/hour	$PM_{2.5}$ g/hour	VOC g/hour	CO_2 (lbs/hour)	SO_2 g/hour
Demobilization - Site 1																			
Off-Highway Trucks-0175	175	Diesel	2	0.44	0.35	10	4	7	11/1/2016	1/31/2017	3	65	342.23	291.20	16.23	15.74	24.48	69.26	0.64
Off-Highway Trucks-0250	210	Diesel	1	0.44	0.35	10	4	4	11/1/2016	1/31/2017	3	65	165.48	439.78	19.73	19.14	33.58	91.81	0.85
Off-Highway Trucks-0500	300-500	Diesel	5	0.44	0.30	10	3	15	11/1/2016	1/31/2017	3	65	262.68	631.94	24.63	23.89	45.20	164.46	1.21
Off-Highway Trucks-0500	300	Diesel	2	0.44	0.35	10	4	7	11/1/2016	1/31/2017	3	65	262.68	631.94	24.63	23.89	45.20	164.46	1.21
Off-Highway Trucks-0250	210	Diesel	1	0.44	0.35	10	4	4	11/1/2016	1/31/2017	3	65	165.48	439.78	19.73	19.14	33.58	91.81	0.85
Other General Industrial Equipment-0050	10	Diesel	3	0.34	1.00	10	10	30	11/1/2016	1/31/2017	3	65	111.62	65.13	6.13	5.95	14.25	15.34	0.13
Off-Highway Trucks-0250	200	Diesel	2	0.44	0.25	10	3	5	11/1/2016	1/31/2017	3	65	165.48	439.78	19.73	19.14	33.58	91.81	0.85
Off-Highway Trucks-0500	330	Diesel	1	0.44	0.25	10	3	3	11/1/2016	1/31/2017	3	65	262.68	631.94	24.63	23.89	45.20	164.46	1.21
Tractors/Loaders/Backhoes-0120	87	Diesel	1	0.37	0.25	10	3	3	11/1/2016	1/31/2017	3	65	156.77	160.18	12.44	12.07	13.96	35.33	0.27
Excavators-0500	300	Diesel	1	0.38	0.20	10	2	2	11/1/2016	1/31/2017	3	65	219.84	380.09	12.67	12.29	23.97	143.53	1.04
Construction Equipment Total			***19***																
Demobilization - Site 1 (Continued)																			
Crawler Tractors-0175	125	Diesel	1	0.43	0.20	10	2	2	11/1/2016	1/31/2017	3	65	333.56	440.56	24.40	23.67	33.96	73.54	0.62
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/1/2016	1/31/2017	3	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/1/2016	1/31/2017	3	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/1/2016	1/31/2017	3	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/1/2016	1/31/2017	3	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/1/2016	1/31/2017	3	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/1/2016	1/31/2017	3	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/1/2016	1/31/2017	3	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/1/2016	1/31/2017	3	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***1***																
Demobilization - Site 2																			
Off-Highway Trucks-0175	175	Diesel	2	0.44	0.35	10	4	7	11/1/2016	1/31/2017	3	65	342.23	291.20	16.23	15.74	24.48	69.26	0.64
Off-Highway Trucks-0250	210	Diesel	1	0.44	0.35	10	4	4	11/1/2016	1/31/2017	3	65	165.48	439.78	19.73	19.14	33.58	91.81	0.85
Off-Highway Trucks-0500	300-500	Diesel	5	0.44	0.30	10	3	15	11/1/2016	1/31/2017	3	65	262.68	631.94	24.63	23.89	45.20	164.46	1.21
Off-Highway Trucks-0500	300	Diesel	2	0.44	0.35	10	4	7	11/1/2016	1/31/2017	3	65	262.68	631.94	24.63	23.89	45.20	164.46	1.21
Off-Highway Trucks-0250	210	Diesel	1	0.44	0.35	10	4	4	11/1/2016	1/31/2017	3	65	165.48	439.78	19.73	19.14	33.58	91.81	0.85
Other General Industrial Equipment-0050	10	Diesel	3	0.34	1.00	10	10	30	11/1/2016	1/31/2017	3	65	111.62	65.13	6.13	5.95	14.25	15.34	0.13
Off-Highway Trucks-0250	200	Diesel	2	0.44	0.25	10	3	5	11/1/2016	1/31/2017	3	65	165.48	439.78	19.73	19.14	33.58	91.81	0.85
Off-Highway Trucks-0500	330	Diesel	1	0.44	0.25	10	3	3	11/1/2016	1/31/2017	3	65	262.68	631.94	24.63	23.89	45.20	164.46	1.21
Tractors/Loaders/Backhoes-0120	87	Diesel	1	0.37	0.25	10	3	3	11/1/2016	1/31/2017	3	65	156.77	160.18	12.44	12.07	13.96	35.33	0.27
Excavators-0500	300	Diesel	1	0.38	0.20	10	2	2	11/1/2016	1/31/2017	3	65	219.84	380.09	12.67	12.29	23.97	143.53	1.04
Construction Equipment Total			***19***																
Demobilization - Site 2 (Continued)																			
Crawler Tractors-0175	125	Diesel	1	0.43	0.20	10	2	2	11/1/2016	1/31/2017	3	65	333.56	440.56	24.40	23.67	33.96	73.54	0.62
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/1/2016	1/31/2017	3	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/1/2016	1/31/2017	3	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/1/2016	1/31/2017	3	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/1/2016	1/31/2017	3	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/1/2016	1/31/2017	3	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/1/2016	1/31/2017	3	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/1/2016	1/31/2017	3	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/1/2016	1/31/2017	3	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/1/2016	1/31/2017	3	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***1***																

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
DEMOBILIZATION

Construction Equipment	Actual Equipment Rated HP [2] hp/hr	Type of Fuel	Number of Units	Average Daily Load Factor	Average Daily Utilization Rate	Average Work Hours per Day (hours)	Total Utilized Equipment Operating Hours per Day	Operating Hours per Day (all equipment)	Start Date	End Date	Construction Activity Months of Activity	Construction Activity Days of Activity	Diesel Pollutant Emission Factors CO g/hour	NOx g/hour	PM10 g/hour	$PM_{2.5}$ g/hour	VOC g/hour	CO_2 (lbs/hour)	SO_2 g/hour
Demobilization - Site 3																			
Off-Highway Trucks-0175	175	Diesel	2	0.44	0.35	10	4	7	1/24/2017	4/25/2017	4	65	342.00	269.88	14.96	14.51	23.18	69.29	0.64
Off-Highway Trucks-0250	210	Diesel	1	0.44	0.35	10	4	4	1/24/2017	4/25/2017	4	65	163.54	404.31	18.12	17.58	31.58	91.83	0.85
Off-Highway Trucks-0500	300-500	Diesel	5	0.44	0.30	10	3	15	1/24/2017	4/25/2017	4	65	257.27	592.14	22.97	22.28	43.08	164.33	1.21
Off-Highway Trucks-0500	300	Diesel	2	0.44	0.35	10	4	7	1/24/2017	4/25/2017	4	65	257.27	592.14	22.97	22.28	43.08	164.33	1.21
Off-Highway Trucks-0250	210	Diesel	1	0.44	0.35	10	4	4	1/24/2017	4/25/2017	4	65	163.54	404.31	18.12	17.58	31.58	91.83	0.85
Other General Industrial Equipment-0050	10	Diesel	3	0.34	1.00	10	10	30	1/24/2017	4/25/2017	4	65	108.26	63.70	5.83	5.66	13.63	15.34	0.13
Off-Highway Trucks-0250	200	Diesel	2	0.44	0.25	10	3	5	1/24/2017	4/25/2017	4	65	163.54	404.31	18.12	17.58	31.58	91.83	0.85
Off-Highway Trucks-0500	330	Diesel	1	0.44	0.25	10	3	3	1/24/2017	4/25/2017	4	65	257.27	592.14	22.97	22.28	43.08	164.33	1.21
Tractors/Loaders/Backhoes-0120	87	Diesel	1	0.37	0.25	10	3	3	1/24/2017	4/25/2017	4	65	155.96	151.19	11.51	11.17	13.14	35.29	0.27
Excavators-0500	300	Diesel	1	0.38	0.20	10	2	2	1/24/2017	4/25/2017	4	65	215.81	342.39	11.52	11.17	22.65	143.61	1.04
Construction Equipment Total			***19***																
Demobilization - Site 3 (Continued)																			
Crawler Tractors-0175	125	Diesel	1	0.43	0.20	10	2	2	1/24/2017	4/25/2017	4	65	332.74	435.21	24.27	23.54	33.84	73.55	0.62
None-0	0	Diesel	0	0.00	1.00	8	8	0	1/24/2017	4/25/2017	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	1/24/2017	4/25/2017	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	1/24/2017	4/25/2017	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	1/24/2017	4/25/2017	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	1/24/2017	4/25/2017	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	1/24/2017	4/25/2017	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	1/24/2017	4/25/2017	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	1/24/2017	4/25/2017	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***1***																
Demobilization - Site 4																			
Off-Highway Trucks-0175	175	Diesel	2	0.44	0.35	10	4	7	1/24/2017	4/25/2017	4	65	342.00	269.88	14.96	14.51	23.18	69.29	0.64
Off-Highway Trucks-0250	210	Diesel	1	0.44	0.35	10	4	4	1/24/2017	4/25/2017	4	65	163.54	404.31	18.12	17.58	31.58	91.83	0.85
Off-Highway Trucks-0500	300-500	Diesel	5	0.44	0.30	10	3	15	1/24/2017	4/25/2017	4	65	257.27	592.14	22.97	22.28	43.08	164.33	1.21
Off-Highway Trucks-0500	300	Diesel	2	0.44	0.35	10	4	7	1/24/2017	4/25/2017	4	65	257.27	592.14	22.97	22.28	43.08	164.33	1.21
Off-Highway Trucks-0250	210	Diesel	1	0.44	0.35	10	4	4	1/24/2017	4/25/2017	4	65	163.54	404.31	18.12	17.58	31.58	91.83	0.85
Other General Industrial Equipment-0050	10	Diesel	3	0.34	1.00	10	10	30	1/24/2017	4/25/2017	4	65	108.26	63.70	5.83	5.66	13.63	15.34	0.13
Off-Highway Trucks-0250	200	Diesel	2	0.44	0.25	10	3	5	1/24/2017	4/25/2017	4	65	163.54	404.31	18.12	17.58	31.58	91.83	0.85
Off-Highway Trucks-0500	330	Diesel	1	0.44	0.25	10	3	3	1/24/2017	4/25/2017	4	65	257.27	592.14	22.97	22.28	43.08	164.33	1.21
Tractors/Loaders/Backhoes-0120	87	Diesel	1	0.37	0.25	10	3	3	1/24/2017	4/25/2017	4	65	155.96	151.19	11.51	11.17	13.14	35.29	0.27
Excavators-0500	300	Diesel	1	0.38	0.20	10	2	2	1/24/2017	4/25/2017	4	65	215.81	342.39	11.52	11.17	22.65	143.61	1.04
Construction Equipment Total			***19***																
Demobilization - Site 4 (Continued)																			
Crawler Tractors-0175	125	Diesel	1	0.43	0.20	10	2	2	1/24/2017	4/25/2017	4	65	332.74	435.21	24.27	23.54	33.84	73.55	0.62
None-0	0	Diesel	0	0.00	1.00	8	8	0	1/24/2017	4/25/2017	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	1/24/2017	4/25/2017	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	1/24/2017	4/25/2017	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	1/24/2017	4/25/2017	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	1/24/2017	4/25/2017	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	1/24/2017	4/25/2017	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	1/24/2017	4/25/2017	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	1/24/2017	4/25/2017	4	65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***1***																

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
DEMOBILIZATION

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration		Pollutant Emission Factors						
						Months of Activity	Days of Activity	CO	NOx	PM10	PM2.5	HC	CO_2	SO_2
Demobilization - Site 1														
demobilization - enter area / volume to be demolished	Square Feet to demolish	0		Nov-16	Jan-17	3	65			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Nov-16	Jan-17	3	65			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	15	Nov-16	Jan-17	3	65	2.5	0.0842	0.0467	0.0195	0.0842	464	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	14	1	Nov-16	Jan-17	3	65			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-16	Jan-17	3	65	1.2	0.2419	0.1916	0.1168	0.2419	1362	0.0136
Truck Loading-Dust	ton of mat. removed	0		Nov-16	Jan-17	3	65			0.0000	0.0000			
Worker Trips	Number of Vehicles	24	40	Nov-16	Jan-17	3	65	1.5	0.0489	0.0465	0.0194	0.0489	287	0.0040
Demobilization - Site 1 (Continued)														
demobilization - enter area / volume to be demolished	Square Feet to demolish	0		Nov-16	Jan-17	3	65			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Nov-16	Jan-17	3	65			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	15	Nov-16	Jan-17	3	65	2.5	0.0842	0.0467	0.0195	0.0842	464	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Nov-16	Jan-17	3	65			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-16	Jan-17	3	65	1.2	0.2419	0.1916	0.1168	0.2419	1362	0.0136
Truck Loading	lb/ton of mat. removed	0		Nov-16	Jan-17	3	65			0.0000	0.0000			
Worker Trips	Number of Vehicles	1	40	Nov-16	Jan-17	3	65	1.5	0.0489	0.0465	0.0194	0.0489	287	0.0040
Demobilization - Site 2														
demobilization - enter area / volume to be demolished	Square Feet to demolish	0		Nov-16	Jan-17	3	65			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Nov-16	Jan-17	3	65			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	15	Nov-16	Jan-17	3	65	2.5	0.0842	0.0467	0.0195	0.0842	464	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	14	1	Nov-16	Jan-17	3	65			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-16	Jan-17	3	65	1.2	0.2419	0.1916	0.1168	0.2419	1362	0.0136
Truck Loading	lb/ton of mat. removed	0		Nov-16	Jan-17	3	65			0.0000	0.0000			
Worker Trips	Number of Vehicles	24	40	Nov-16	Jan-17	3	65	1.5	0.0489	0.0465	0.0194	0.0489	287	0.0040
Demobilization - Site 2 (Continued)														
demobilization - enter area / volume to be demolished	Square Feet to demolish	0		Nov-16	Jan-17	3	65			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Nov-16	Jan-17	3	65			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	15	Nov-16	Jan-17	3	65	2.5	0.0842	0.0467	0.0195	0.0842	464	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Nov-16	Jan-17	3	65			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-16	Jan-17	3	65	1.2	0.2419	0.1916	0.1168	0.2419	1362	0.0136
Truck Loading	lb/ton of mat. removed	0		Nov-16	Jan-17	3	65			0.0000	0.0000			
Worker Trips	Number of Vehicles	1	40	Nov-16	Jan-17	3	65	1.5	0.0489	0.0465	0.0194	0.0489	287	0.0040
Demobilization - Site 3														
demobilization - enter area / volume to be demolished	Square Feet to demolish	0		Jan-17	Apr-17	4	65			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Jan-17	Apr-17	4	65			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	15	Jan-17	Apr-17	4	65	2.3	0.0768	0.0466	0.0195	0.0768	450	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	14	1	Jan-17	Apr-17	4	65			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Jan-17	Apr-17	4	65	1.2	0.2419	0.1788	0.1050	0.2419	1362	0.0136
Truck Loading	lb/ton of mat. removed	0		Jan-17	Apr-17	4	65			0.0000	0.0000			
Worker Trips	Number of Vehicles	24	40	Jan-17	Apr-17	4	65	1.5	0.0489	0.0465	0.0194	0.0489	287	0.0040

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
DEMOBILIZATION

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration		Pollutant Emission Factors						
						Months of Activity	Days of Activity	CO	NOx	PM10	PM2.5	HC	CO_2	SO_2
Demobilization - Site 3 (Continued)														
demobilization - enter area / volume to be demolished	Square Feet to demolish	0		Jan-17	Apr-17	4	65			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Jan-17	Apr-17	4	65			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	15	Jan-17	Apr-17	4	65	2.3	0.0768	0.0466	0.0195	0.0768	450	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Jan-17	Apr-17	4	65			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Jan-17	Apr-17	4	65	1.2	0.2419	0.1788	0.1050	0.2419	1362	0.0136
Truck Loading	lb/ton of mat. removed	0		Jan-17	Apr-17	4	65			0.0000	0.0000			
Worker Trips	Number of Vehicles	1	40	Jan-17	Apr-17	4	65	1.5	0.0489	0.0465	0.0194	0.0489	287	0.0040
Demobilization - Site 4														
demobilization - enter area / volume to be demolished	Square Feet to demolish	0		Jan-17	Apr-17	4	65			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Jan-17	Apr-17	4	65			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	15	Jan-17	Apr-17	4	65	2.3	0.0768	0.0466	0.0195	0.0768	450	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	14	1	Jan-17	Apr-17	4	65			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Jan-17	Apr-17	4	65	1.2	0.2419	0.1788	0.1050	0.2419	1362	0.0136
Truck Loading	lb/ton of mat. removed	0		Jan-17	Apr-17	4	65			0.0000	0.0000			
Worker Trips	Number of Vehicles	24	40	Jan-17	Apr-17	4	65	1.5	0.0489	0.0465	0.0194	0.0489	287	0.0040
Demobilization - Site 4 (Continued)														
demobilization - enter area / volume to be demolished	Square Feet to demolish	0		Jan-17	Apr-17	4	65			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Jan-17	Apr-17	4	65			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	15	Jan-17	Apr-17	4	65	2.3	0.0768	0.0466	0.0195	0.0768	450	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Jan-17	Apr-17	4	65			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Jan-17	Apr-17	4	65	1.2	0.2419	0.1788	0.1050	0.2419	1362	0.0136
Truck Loading	lb/ton of mat. removed	0		Jan-17	Apr-17	4	65			0.0000	0.0000			
Worker Trips	Number of Vehicles	1	40	Jan-17	Apr-17	4	65	1.5	0.0489	0.0465	0.0194	0.0489	287	0.0040

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
FRESNO STATION

Construction Equipment	Actual Equipment Rated HP (2) hp/hr	Type of Fuel	Number of Units	Average Daily Load Factor	Average Daily Utilization Rate	Average Work Hours per Day (hours)	Total Utilized Equipment Operating Hours per Day	Operating Hours per Day (all equipment)	Start Date	End Date	Construction Activity Months of Activity	Construction Activity Days of Activity	Diesel Pollutant Emission Factors CO g/hour	NOx g/hour	PM10 g/hour	$PM_{2.5}$ g/hour	VOC g/hour	CO_2 (lbs/hour)	SO_2 g/hour
Fresno Station																			
Graders-0175	174	Diesel	1	0.41	0.75	8	6	6	6/15/2017	8/16/2017	3	44	330.87	501.24	28.36	27.51	40.93	70.74	0.63
Rubber Tired Dozers-0500	357	Diesel	1	0.40	0.75	8	6	6	8/16/2017	4/19/2018	9	176	497.67	1098.99	51.44	49.90	81.76	163.09	1.18
Tractors/Loaders/Backhoes-0120	108	Diesel	2	0.37	0.88	8	7	14	8/16/2017	4/19/2018	9	176	155.96	151.19	11.51	11.17	13.14	35.29	0.27
Off-Highway Trucks-0250	189	Diesel	1	0.44	1.00	8	8	8	8/16/2017	4/19/2018	9	176	163.54	404.31	18.12	17.58	31.58	91.83	0.85
Cranes-0500	399	Diesel	1	0.29	0.50	8	4	4	2/19/2018	10/23/2018	9	176	185.19	510.74	21.30	20.66	34.00	111.25	0.80
Forklifts-0175	145	Diesel	2	0.20	0.75	8	6	12	2/19/2018	10/23/2018	9	176	150.54	149.55	8.25	8.00	11.96	32.59	0.29
Other General Industrial Equipment-0050	45	Diesel	3	0.34	1.00	8	8	24	8/23/2018	4/30/2020	21	440	105.22	60.70	5.17	5.01	12.06	15.34	0.13
Other General Industrial Equipment-0050	49	Diesel	1	0.34	1.00	8	8	8	8/23/2018	4/30/2020	21	440	105.22	60.70	5.17	5.01	12.06	15.34	0.13
Graders-0175	174	Diesel	1	0.41	0.25	8	2	2	3/30/2020	4/29/2020	2	22	330.00	415.91	23.41	22.71	34.59	70.32	0.63
Forklifts-0175	145	Diesel	1	0.20	0.20	8	2	2	8/23/2018	4/30/2020	21	440	150.54	149.55	8.25	8.00	11.96	32.59	0.29
Construction Equipment Total			***14***																

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
FRESNO STATION

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration		Pollutant Emission Factors						
						Months of Activity	Days of Activity	CO	NOx	PM10	PM2.5	HC	CO_2	SO_2
Fresno Station														
Fresno Station - enter area / volume to be demolished	Square Feet to demolish	0		Jun-17	Aug-17	3	44			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	12	Dirt	Jun-17	Apr-18	11	220			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	2	15	Jun-17	Apr-20	35	748	2.3	0.0768	0.0466	0.0195	0.0768	450	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	2	1	Jun-17	Apr-20	35	748			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Jun-17	Apr-20	35	748	1.1	0.2218	0.1788	0.1050	0.2218	1339	0.0136
Truck Loading-Dust	ton of mat. removed	0		Jun-17	Apr-20	35	748			0.0000	0.0000			
Worker Trips	Number of Vehicles	18	40	Jun-17	Apr-20	35	748	1.3	0.0405	0.0465	0.0193	0.0405	276	0.0040
Fresno Station														
Fresno Station - enter area / volume to be demolished	Square Feet to demolish	0		Sep-15	Oct-15	2	40			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	2	Dirt	Mar-20	May-20	3	40			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	15	Mar-20	Apr-20	2	22	1.8	0.0576	0.0465	0.0194	0.0576	408	0.0061
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Mar-20	Apr-20	2	22			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Mar-20	Apr-20	2	22	1.1	0.2218	0.1623	0.0898	0.2218	1339	0.0136
Truck Loading	lb/ton of mat. removed	0		Mar-20	Apr-20	2	22			0.0000	0.0000			
Worker Trips	Number of Vehicles	0	40	Mar-20	Apr-20	2	22	1.3	0.0405	0.0465	0.0193	0.0405	276	0.0040

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
BAKERSFIELD STATION

Construction Equipment	Actual Equipment Rated HP [2] hp/hr	Type of Fuel	Number of Units	Average Daily Load Factor	Average Daily Utilization Rate	Average Work Hours per Day (hours)	Total Utilized Equipment Operating Hours per Day	Operating Hours per Day (all equipment)	Start Date	End Date	Construction Activity Months of Activity	Construction Activity Days of Activity	Diesel Pollutant Emission Factors CO g/hour	NOx g/hour	PM10 g/hour	$PM_{2.5}$ g/hour	VOC g/hour	CO_2 (lbs/hour)	SO_2 g/hour
Bakersfield Station																			
Graders-0175	174	Diesel	1	0.41	0.75	**8**	6	6	6/15/2018	8/16/2018	3	44	330.55	466.36	26.32	25.53	38.27	70.53	0.63
Rubber Tired Dozers-0500	357	Diesel	1	0.40	0.75	**8**	6	6	8/16/2018	4/19/2019	9	176	468.84	1022.84	47.79	46.35	77.10	163.35	1.18
Tractors/Loaders/Backhoes-0120	108	Diesel	2	0.37	0.88	**8**	7	14	8/16/2018	4/19/2019	9	176	155.27	133.97	9.72	9.42	11.42	35.25	0.27
Off-Highway Trucks-0250	189	Diesel	1	0.44	1.00	**8**	8	8	8/16/2018	4/19/2019	9	176	161.88	342.13	14.82	14.38	27.36	91.91	0.85
Cranes-0500	399	Diesel	1	0.29	0.50	**8**	4	4	2/19/2019	10/23/2019	9	176	179.11	488.92	20.38	19.77	32.94	111.22	0.80
Forklifts-0175	145	Diesel	2	0.20	0.75	**8**	6	12	2/19/2019	10/23/2019	9	176	150.39	136.82	7.56	7.34	11.13	32.59	0.29
Other General Industrial Equipment-0050	45	Diesel	3	0.34	1.00	**8**	8	24	8/23/2019	4/30/2021	21	440	102.43	58.62	4.68	4.54	10.93	15.34	0.13
Other General Industrial Equipment-0050	49	Diesel	1	0.34	1.00	**8**	8	8	8/23/2019	4/30/2021	21	440	102.43	58.62	4.68	4.54	10.93	15.34	0.13
Graders-0175	174	Diesel	1	0.41	0.25	**8**	2	2	3/30/2021	4/29/2021	2	22	329.77	390.13	21.94	21.28	32.74	70.29	0.63
Forklifts-0175	145	Diesel	1	0.20	0.20	**8**	2	2	8/23/2019	4/30/2021	21	440	150.39	136.82	7.56	7.34	11.13	32.59	0.29
Construction Equipment Total			***14***																

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
BAKERSFIELD STATION

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration		Pollutant Emission Factors						
						Months of Activity	Days of Activity	CO	NOx	PM10	PM2.5	HC	CO_2	SO_2
Bakersfield Station														
BKS Station - enter area / volume to be demolished	Square Feet to demolish	0		Jun-18	Aug-18	3	44			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	12	Dirt	Jun-18	Apr-19	11	220			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	2	15	Jun-18	Apr-21	35	748	2.1	0.0700	0.0466	0.0194	0.0700	436	0.0061
Dust * (emission factor is in lbs/mile)	Number of Vehicles	2	1	Jun-18	Apr-21	35	748			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Jun-18	Apr-21	35	748	1.0	0.2126	0.1735	0.1001	0.2126	1315	0.0135
Truck Loading-Dust	ton of mat. removed	0		Jun-18	Apr-21	35	748			0.0000	0.0000			
Worker Trips	Number of Vehicles	18	40	Jun-18	Apr-21	35	748	1.2	0.0340	0.0464	0.0193	0.0340	265	0.0040
TASK DESCRIPTION														
BKS Station - enter area / volume to be demolished	Square Feet to demolish	0		Sep-15	Oct-15	2	40			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	2	Dirt	Mar-21	Apr-21	2	22			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	15	Mar-21	Apr-21	2	22	1.7	0.0516	0.0465	0.0194	0.0516	403	0.0061
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Mar-21	Apr-21	2	22			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Mar-21	Apr-21	2	22	1.0	0.2126	0.1564	0.0844	0.2126	1315	0.0135
Truck Loading	lb/ton of mat. removed	0		Mar-21	Apr-21	2	22			0.0000	0.0000			
Worker Trips	Number of Vehicles	0	40	Mar-21	Apr-21	2	22	1.2	0.0340	0.0464	0.0193	0.0340	265	0.0040

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
KINGS-TULARE STATION

Construction Equipment	Actual Equipment Rated HP [2] hp/hr	Type of Fuel	Number of Units	Average Daily Load Factor	Average Daily Utilization Rate	Average Work Hours per Day (hours)	Total Utilized Equipment Operating Hours per Day	Operating Hours per Day (all equipment)	Start Date	End Date	Construction Activity Months of Activity	Construction Activity Days of Activity	Diesel Pollutant Emission Factors (grams/hour) CO g/hour	NOx g/hour	PM10 g/hour	$PM_{2.5}$ g/hour	VOC g/hour	CO_2 (lbs/hour)	SO_2 g/hour
Kings-Tulare Station																			
Graders-0175	174	Diesel	1	0.41	0.75	**8**	6	6	6/1/2020	7/31/2020	2	44	330.00	415.91	23.41	22.71	34.59	70.32	0.63
Rubber Tired Dozers-0500	357	Diesel	1	0.40	0.75	**8**	6	6	8/1/2020	4/5/2021	9	176	420.66	947.13	44.21	42.89	72.50	163.18	1.18
Tractors/Loaders/Backhoes-0120	108	Diesel	2	0.37	0.88	**8**	7	14	8/1/2020	4/5/2021	9	176	154.20	109.79	7.31	7.09	9.32	35.20	0.27
Off-Highway Trucks-0250	189	Diesel	1	0.44	1.00	**8**	8	8	8/1/2020	4/5/2021	9	176	159.28	284.89	12.05	11.69	23.96	92.08	0.85
Cranes-0500	399	Diesel	1	0.29	0.50	**8**	4	4	2/5/2021	10/11/2021	9	176	169.82	447.46	18.85	18.28	31.27	111.18	0.80
Forklifts-0175	145	Diesel	2	0.20	0.75	**8**	6	12	2/5/2021	10/11/2021	9	176	149.51	104.83	5.67	5.50	8.91	32.59	0.29
Other General Industrial Equipment-0050	45	Diesel	3	0.34	1.00	**8**	8	24	8/11/2021	4/19/2023	21	440	97.76	53.96	3.64	3.54	8.79	15.34	0.13
Other General Industrial Equipment-0050	49	Diesel	1	0.34	1.00	**8**	8	8	8/11/2021	4/19/2023	21	440	97.76	53.96	3.64	3.54	8.79	15.34	0.13
Graders-0175	174	Diesel	1	0.41	0.25	**8**	2	2	3/19/2023	4/18/2023	2	22	329.57	341.96	19.11	18.54	29.10	70.18	0.63
Forklifts-0175	145	Diesel	1	0.20	0.20	**8**	2	2	8/11/2021	4/19/2023	21	440	149.51	104.83	5.67	5.50	8.91	32.59	0.29
Construction Equipment Total			***14***																

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
KINGS-TULARE STATION

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration		Pollutant Emission Factors						
						Months of Activity	Days of Activity	CO	NOx	PM10	PM2.5	HC	CO_2	SO_2
Kings-Tulare Station														
KT Station - enter area / volume to be demolished	Square Feet to demolish	0		Jun-20	Jul-20	2	44			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	12	Dirt	Jun-20	Apr-21	11	220			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	2	15	Jun-20	Apr-23	35	748	1.8	0.0576	0.0465	0.0194	0.0576	408	0.0061
Dust * (emission factor is in lbs/mile)	Number of Vehicles	2	1	Jun-20	Apr-23	35	748			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Jun-20	Apr-23	35	748	0.8	0.1922	0.1623	0.0898	0.1922	1262	0.0135
Truck Loading-Dust	ton of mat. removed	0		Jun-20	Apr-23	35	748			0.0000	0.0000			
Worker Trips	Number of Vehicles	18	40	Jun-20	Apr-23	35	748	1.0	0.0267	0.0464	0.0193	0.0267	246	0.0040
Kings-Tulare Station														
KT Station - enter area / volume to be demolished	Square Feet to demolish	0		Sep-15	Oct-15	2	40			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	2	Dirt	Mar-23	Apr-23	2	22			3.0633	1.2261			
Trucks - Delivery	Number of Vehicles	0	15	Mar-23	Apr-23	2	22	1.5	0.0424	0.0464	0.0193	0.0424	394	0.0061
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Mar-23	Apr-23	2	22			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Mar-23	Apr-23	2	22	0.8	0.1922	0.1529	0.0812	0.1922	1262	0.0135
Truck Loading	lb/ton of mat. removed	0		Mar-23	Apr-23	2	22			0.0000	0.0000			
Worker Trips	Number of Vehicles	0	40	Mar-23	Apr-23	2	22	1.0	0.0267	0.0464	0.0193	0.0267	246	0.0040

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
HMF PHASE 1

Construction Equipment	Actual Equipment Rated HP (2) hp/hr	Type of Fuel	Number of Units	Average Daily Load Factor	Average Daily Utilization Rate	Average Work Hours per Day (hours)	Total Utilized Equipment Operating Hours per Day	Operating Hours per Day (all equipment)	Start Date	End Date	Construction Activity Months of Activity	Construction Activity Days of Activity	Diesel Pollutant Emission Factors CO g/hour	NOx g/hour	PM10 g/hour	$PM_{2.5}$ g/hour	VOC g/hour	CO_2 (lbs/hour)	SO_2 g/hour
HMF Phase 1 & 3																			
Graders-0175	174	Diesel	1	0.41	0.35	8	3	1	5/20/2017	11/16/2018	19	390	330.87	501.24	28.36	27.51	40.93	70.74	0.63
Rubber Tired Dozers-0500	357	Diesel	1	0.40	0.65	8	5	3	5/20/2017	11/16/2018	19	390	497.67	1098.99	51.44	49.90	81.76	163.09	1.18
Tractors/Loaders/Backhoes-0120	108	Diesel	2	0.37	0.25	8	2	4	5/20/2017	11/16/2018	19	390	155.96	151.19	11.51	11.17	13.14	35.29	0.27
Off-Highway Trucks-0250	189	Diesel	1	0.44	0.65	8	5	3	5/20/2017	11/16/2018	19	390	163.54	404.31	18.12	17.58	31.58	91.83	0.85
Cranes-0500	399	Diesel	1	0.29	0.50	8	4	2	5/20/2017	11/16/2018	19	390	192.32	553.80	23.15	22.45	36.42	111.16	0.80
Forklifts-0175	145	Diesel	1	0.20	0.65	8	5	5	5/20/2017	11/16/2018	19	390	150.61	166.14	9.21	8.94	13.12	32.59	0.29
Excavators-0175	168	Diesel	1	0.38	0.35	8	3	1	5/20/2017	11/16/2018	19	390	301.10	217.52	10.82	10.50	16.28	64.04	0.57
Scrapers-0500	313	Diesel	1	0.48	0.30	8	2	2	5/20/2017	11/16/2018	19	390	435.38	1101.72	45.39	44.03	73.12	211.32	1.43
Pavers-0120	100	Diesel	1	0.42	0.55	8	4	2	5/20/2017	11/16/2018	19	390	221.78	194.87	15.17	14.71	17.90	37.72	0.37
Paving Equipment-0120	104	Diesel	1	0.36	0.55	8	4	4	5/20/2017	11/16/2018	19	390	173.74	172.54	13.07	12.67	15.63	36.25	0.29
HMF Phase 1 & 3 (Continued)																			
Rollers-0120	95	Diesel	1	0.38	0.35	8	3	3	5/20/2017	11/16/2018	19	390	178.69	188.78	13.87	13.46	17.00	37.55	0.31
Other General Industrial Equipment-0050	49	Diesel	1	0.34	0.80	8	6	3	5/20/2017	11/16/2018	19	390	108.26	63.70	5.83	5.66	13.63	15.34	0.13
Other General Industrial Equipment-0050	45	Diesel	1	0.34	0.70	8	6	6	5/20/2017	11/16/2018	19	390	108.26	63.70	5.83	5.66	13.63	15.34	0.13
None-0	0	Diesel	0	0.00	1.00	8	8	0	5/20/2017	11/16/2018	19	390	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	5/20/2017	11/16/2018	19	390	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	5/20/2017	11/16/2018	19	390	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	5/20/2017	11/16/2018	19	390	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	5/20/2017	11/16/2018	19	390	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	5/20/2017	11/16/2018	19	390	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	5/20/2017	11/16/2018	19	390	0.00	0.00	0.00	0.00	0.00	0.00	0.00

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
HMF PHASE 1 3

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration		Pollutant Emission Factors						
						Months of Activity	Days of Activity	CO	NOx	PM10	PM2.5	HC	CO_2	SO_2
HMF Phase 1 & 3														
HMF Phase 1 & 3 - enter area / volume to be demolished	Square Feet to demolish	0		May-17	Nov-18	19	390			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	6	Aggregate	May-17	Nov-18	19	390			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	May-17	Nov-18	19	390	2.3	0.0768	0.0466	0.0195	0.0768	450	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	May-17	Nov-18	19	390			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	May-17	Nov-18	19	390	1.1	0.2218	0.1788	0.1050	0.2218	1339	0.0136
Truck Loading-Dust	ton of mat. removed	0		May-17	Nov-18	19	390			0.0000	0.0000			
Worker Trips	Number of Vehicles	11	40	May-17	Nov-18	19	390	1.3	0.0405	0.0465	0.0193	0.0405	276	0.0040
HMF Phase 1 & 3 (Continued)														
HMF Phase 1 & 3 - enter area / volume to be demolished	Square Feet to demolish	0		May-17	Nov-18	19	390			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	May-17	Nov-18	19	390			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	May-17	Nov-18	19	390	2.3	0.0768	0.0466	0.0195	0.0768	450	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	May-17	Nov-18	19	390			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	May-17	Nov-18	19	390	1.1	0.2218	0.1788	0.1050	0.2218	1339	0.0136
Truck Loading	lb/ton of mat. removed	0		May-17	Nov-18	19	390			0.0000	0.0000			
Worker Trips	Number of Vehicles	3	40	May-17	Nov-18	19	390	1.3	0.0405	0.0465	0.0193	0.0405	276	0.0040

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
HMF TRACK PHASE 3

Construction Equipment	Actual Equipment Rated HP (2) hp/hr	Type of Fuel	Number of Units	Average Daily Load Factor	Average Daily Utilization Rate	Average Work Hours per Day (hours)	Total Utilized Equipment Operating Hours per Day	Operating Hours per Day (all equipment)	Start Date	End Date	Construction Activity Months of Activity	Construction Activity Days of Activity	Diesel Pollutant Emission Factors CO g/hour	NOx g/hour	PM10 g/hour	$PM_{2.5}$ g/hour	VOC g/hour	CO_2 (lbs/hour)	SO_2 g/hour
HMF Track Phase 3																			
Aerial Lifts-0120	60	Diesel	4	0.31	1.00	1	1	4	6/16/2018	11/16/2018	6	110	105.22	47.45	1.32	1.28	2.32	26.18	0.20
Other Construction Equipment-0120	106	Diesel	4	0.42	1.00	3	3	12	6/16/2018	11/16/2018	6	110	231.87	195.73	15.11	14.66	17.98	38.89	0.43
Other Construction Equipment-0050	10	Diesel	1	0.42	1.00	0	0	0	6/16/2018	11/16/2018	6	110	106.15	84.11	7.25	7.03	15.65	20.29	0.16
Other Construction Equipment-0050	10	Diesel	1	0.42	1.00	0	0	0	6/16/2018	11/16/2018	6	110	106.15	84.11	7.25	7.03	15.65	20.29	0.16
Cranes-0500	399	Diesel	2	0.29	1.00	1	1	1	6/16/2018	11/16/2018	6	110	185.19	510.74	21.30	20.66	34.00	111.25	0.80
Cranes-0175	147	Diesel	1	0.29	1.00	4	4	4	6/16/2018	11/16/2018	6	110	215.99	325.11	17.77	17.24	25.64	49.16	0.41
Other Construction Equipment-0050	16	Diesel	1	0.42	1.00	4	4	4	6/16/2018	11/16/2018	6	110	106.15	84.11	7.25	7.03	15.65	20.29	0.16
Excavators-0175	168	Diesel	1	0.38	1.00	1	1	1	6/16/2018	11/16/2018	6	110	300.97	184.24	9.10	8.83	14.25	64.04	0.57
Forklifts-0175	145	Diesel	1	0.20	1.00	1	1	1	6/16/2018	11/16/2018	6	110	150.54	149.55	8.25	8.00	11.96	32.59	0.29
Other Construction Equipment-0750	549	Diesel	1	0.42	1.00	1	1	1	6/16/2018	11/16/2018	6	110	214.97	911.03	31.71	30.76	55.18	285.30	1.13
Construction Equipment Total			***17***																
HMF Track Phase 3 (Continued)																			
Forklifts-0175	174	Diesel	1	0.20	1.00	3	3	3	6/16/2018	11/16/2018	6	110	150.54	149.55	8.25	8.00	11.96	32.59	0.29
Off-Highway Trucks-0500	479	Diesel	1	0.44	1.00	4	4	4	6/16/2018	11/16/2018	6	110	252.84	505.44	19.39	18.81	38.42	164.41	1.21
Other Construction Equipment-0050	8	Diesel	1	0.42	1.00	3	3	3	6/16/2018	11/16/2018	6	110	106.15	84.11	7.25	7.03	15.65	20.29	0.16
Other General Industrial Equipment-0050	1	Diesel	1	0.34	1.00	1	1	1	6/16/2018	11/16/2018	6	110	105.22	60.70	5.17	5.01	12.06	15.34	0.13
Rollers-0120	95	Diesel	1	0.38	1.00	4	4	4	6/16/2018	11/16/2018	6	110	177.55	163.81	11.52	11.17	14.26	37.53	0.31
Scrapers-0500	313	Diesel	1	0.48	1.00	4	4	4	6/16/2018	11/16/2018	6	110	415.51	1002.48	41.17	39.93	67.53	211.33	1.43
Other Construction Equipment-0050	15	Diesel	1	0.42	1.00	0	0	0	6/16/2018	11/16/2018	6	110	106.15	84.11	7.25	7.03	15.65	20.29	0.16
Skid Steer Loaders-0050	44	Diesel	1	0.37	1.00	3	3	3	6/16/2018	11/16/2018	6	110	92.21	62.42	2.86	2.77	6.56	20.52	0.15
Tractors/Loaders/Backhoes-0120	108	Diesel	1	0.37	1.00	4	4	4	6/16/2018	11/16/2018	6	110	155.27	133.97	9.72	9.42	11.42	35.25	0.27
Trenchers-0120	63	Diesel	1	0.50	1.00	3	3	3	6/16/2018	11/16/2018	6	110	203.81	257.87	19.82	19.22	23.95	47.61	0.34
Construction Equipment Total			***10***																
HMF Track Phase 3 (Continued)																			
Off-Highway Trucks-0250	189	Diesel	1	0.44	1.00	4	4	4	6/16/2018	11/16/2018	6	110	161.88	342.13	14.82	14.38	27.36	91.91	0.85
Other General Industrial Equipment-0050	45	Diesel	1	0.34	1.00	1	1	1	6/16/2018	11/16/2018	6	110	105.22	60.70	5.17	5.01	12.06	15.34	0.13
Other Construction Equipment-0500	500	Diesel	1	0.42	1.00	4	4	4	6/16/2018	11/16/2018	6	110	214.97	535.82	20.25	19.64	35.32	171.25	1.13
Other Construction Equipment-0500	400	Diesel	1	0.42	1.00	4	4	4	6/16/2018	11/16/2018	6	110	214.97	535.82	20.25	19.64	35.32	171.25	1.13
Surfacing Equipment-0500	400	Diesel	0	0.30	1.00	3	3	0	6/16/2018	11/16/2018	6	110	228.80	253.04	9.07	8.80	15.28	124.72	0.98
None-0	0	Diesel	0	0.00	1.00	8	8	0	6/16/2018	11/16/2018	6	110	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	0.25	8	2	0	6/16/2018	11/16/2018	6	110	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	0.25	8	2	0	6/16/2018	11/16/2018	6	110	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	0.25	8	2	0	6/16/2018	11/16/2018	6	110	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	0.20	8	2	0	6/16/2018	11/16/2018	6	110	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***4***																

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
HMF TRACK PHASE 3

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration		Pollutant Emission Factors						
						Months of Activity	Days of Activity	CO	NOx	PM10	PM2.5	HC	CO_2	SO_2
HMF Track Phase 3														
HMF Track Phase 3 - enter area / volume to be demolished	Square Feet to demolish	0		Jun-18	Nov-18	6	110			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Jun-18	Nov-18	6	110			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Jun-18	Nov-18	6	110	2.1	0.0700	0.0466	0.0194	0.0700	436	0.0061
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Jun-18	Nov-18	6	110			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Jun-18	Nov-18	6	110	1.0	0.2126	0.1735	0.1001	0.2126	1315	0.0135
Truck Loading-Dust	ton of mat. removed	0		Jun-18	Nov-18	6	110			0.0000	0.0000			
Worker Trips	Number of Vehicles	21	40	Jun-18	Nov-18	6	110	1.2	0.0340	0.0464	0.0193	0.0340	265	0.0040
HMF Track Phase 3 (Continued)														
HMF Track Phase 3 - enter area / volume to be demolished	Square Feet to demolish	0		Jun-18	Nov-18	6	110			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	4	Aggregate	Jun-18	Nov-18	6	110			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Jun-18	Nov-18	6	110	2.1	0.0700	0.0466	0.0194	0.0700	436	0.0061
Dust * (emission factor is in lbs/mile)	Number of Vehicles	1	1	Jun-18	Nov-18	6	110			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Jun-18	Nov-18	6	110	1.0	0.2126	0.1735	0.1001	0.2126	1315	0.0135
Truck Loading	lb/ton of mat. removed	0		Jun-18	Nov-18	6	110			0.0000	0.0000			
Worker Trips	Number of Vehicles	13	40	Jun-18	Nov-18	6	110	1.2	0.0340	0.0464	0.0193	0.0340	265	0.0040
HMF Track Phase 3 (Continued)														
HMF Track Phase 3 - enter area / volume to be demolished	Square Feet to demolish	0		Jun-18	Nov-18	6	110			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	1	Aggregate	Jun-18	Nov-18	6	110			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Jun-18	Nov-18	6	110	2.1	0.0700	0.0466	0.0194	0.0700	436	0.0061
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Jun-18	Nov-18	6	110			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Jun-18	Nov-18	6	110	1.0	0.2126	0.1735	0.1001	0.2126	1315	0.0135
Truck Loading	lb/ton of mat. removed	0		Jun-18	Nov-18	6	110			0.0000	0.0000			
Worker Trips	Number of Vehicles	5	40	Jun-18	Nov-18	6	110	1.2	0.0340	0.0464	0.0193	0.0340	265	0.0040

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
MOWF

Construction Equipment	Actual Equipment Rated HP (2) hp/hr	Type of Fuel	Number of Units	Average Daily Load Factor	Average Daily Utilization Rate	Average Work Hours per Day (hours)	Total Utilized Equipment Operating Hours per Day	Operating Hours per Day (all equipment)	Start Date	End Date	Construction Activity Months of Activity	Construction Activity Days of Activity	Diesel Pollutant Emission Factors CO g/hour	NOx g/hour	PM10 g/hour	$PM_{2.5}$ g/hour	VOC g/hour	CO_2 (lbs/hour)	SO_2 g/hour
MOWF																			
Graders-0175	174	Diesel	1	0.41	0.35	**8**	3	3	5/20/2017	1/30/2018	9	190	330.87	501.24	28.36	27.51	40.93	70.74	0.63
Rubber Tired Dozers-0500	357	Diesel	1	0.40	0.65	**8**	5	5	5/20/2017	1/30/2018	9	190	497.67	1098.99	51.44	49.90	81.76	163.09	1.18
Tractors/Loaders/Backhoes-0120	108	Diesel	2	0.37	0.25	**8**	2	4	5/20/2017	1/30/2018	9	190	155.96	151.19	11.51	11.17	13.14	35.29	0.27
Off-Highway Trucks-0250	189	Diesel	1	0.44	0.65	**8**	5	5	5/20/2017	1/30/2018	9	190	163.54	404.31	18.12	17.58	31.58	91.83	0.85
Cranes-0500	399	Diesel	1	0.29	0.50	**6**	3	3	5/20/2017	1/30/2018	9	190	192.32	553.80	23.15	22.45	36.42	111.16	0.80
Forklifts-0175	145	Diesel	1	0.20	0.65	**6**	4	4	5/20/2017	1/30/2018	9	190	150.61	166.14	9.21	8.94	13.12	32.59	0.29
Excavators-0175	168	Diesel	1	0.38	0.35	**8**	3	3	5/20/2017	1/30/2018	9	190	301.10	217.52	10.82	10.50	16.28	64.04	0.57
Scrapers-0500	313	Diesel	1	0.48	0.30	**8**	2	2	5/20/2017	1/30/2018	9	190	435.38	1101.72	45.39	44.03	73.12	211.32	1.43
Pavers-0120	100	Diesel	1	0.42	0.55	**8**	4	4	11/1/2017	1/30/2018	3	80	221.78	194.87	15.17	14.71	17.90	37.72	0.37
Paving Equipment-0120	104	Diesel	1	0.36	0.55	**8**	4	4	11/1/2017	1/30/2018	3	80	173.74	172.54	13.07	12.67	15.63	36.25	0.29
MOWF (Continued)																			
Rollers-0120	95	Diesel	1	0.38	0.35	**6**	2	2	11/1/2017	1/30/2018	3	80	178.69	188.78	13.87	13.46	17.00	37.55	0.31
Other General Industrial Equipment-0050	49	Diesel	1	0.34	0.80	**8**	6	6	5/20/2017	1/30/2018	9	190	108.26	63.70	5.83	5.66	13.63	15.34	0.13
Other General Industrial Equipment-0050	45	Diesel	1	0.34	0.70	**8**	6	6	5/20/2017	1/30/2018	9	190	108.26	63.70	5.83	5.66	13.63	15.34	0.13
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	5/20/2017	1/30/2018	9	190	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	5/20/2017	1/30/2018	9	190	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	5/20/2017	1/30/2018	9	190	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	5/20/2017	1/30/2018	9	190	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	5/20/2017	1/30/2018	9	190	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	5/20/2017	1/30/2018	9	190	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	5/20/2017	1/30/2018	9	190	0.00	0.00	0.00	0.00	0.00	0.00	0.00

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
MOWF

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration		Pollutant Emission Factors						
						Months of Activity	Days of Activity	CO	NOx	PM10	PM2.5	HC	CO_2	SO_2
MOWF														
mowf - enter area / volume to be demolished	Square Feet to demolish	0		May-17	Feb-18	10	190			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	1	Aggregate	May-17	Feb-18	10	190			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	May-17	Feb-18	10	190	2.3	0.0768	0.0466	0.0195	0.0768	450	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	May-17	Feb-18	10	190			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	May-17	Feb-18	10	190	1.1	0.2218	0.1788	0.1050	0.2218	1339	0.0136
Truck Loading-Dust	ton of mat. removed	0		May-17	Feb-18	10	190			0.0000	0.0000			
Worker Trips	Number of Vehicles	11	40	May-17	Feb-18	10	190	1.3	0.0405	0.0465	0.0193	0.0405	276	0.0040
MOWF (Continued)														
mowf - enter area / volume to be demolished	Square Feet to demolish	0		Nov-17	Feb-18	4	80			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Nov-17	Feb-18	4	80			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-17	Feb-18	4	80	2.3	0.0768	0.0466	0.0195	0.0768	450	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Nov-17	Feb-18	4	80			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-17	Feb-18	4	80	1.1	0.2218	0.1788	0.1050	0.2218	1339	0.0136
Truck Loading	lb/ton of mat. removed	0		Nov-17	Feb-18	4	80			0.0000	0.0000			
Worker Trips	Number of Vehicles	3	40	Nov-17	Feb-18	4	80	1.3	0.0405	0.0465	0.0193	0.0405	276	0.0040

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
MOWF TRACK

Construction Equipment	Actual Equipment Rated HP (2) hp/hr	Type of Fuel	Number of Units	Average Daily Load Factor	Average Daily Utilization Rate	Average Work Hours per Day (hours)	Total Utilized Equipment Operating Hours per Day	Operating Hours per Day (all equipment)	Start Date	End Date	Construction Activity Months of Activity	Construction Activity Days of Activity	Diesel Pollutant Emission Factors CO g/hour	NOx g/hour	PM10 g/hour	$PM_{2.5}$ g/hour	VOC g/hour	CO_2 (lbs/hour)	SO_2 g/hour
MOWF Track																			
Aerial Lifts-0120	60	Diesel	1	0.31	1.00	**1**	1	1	11/16/2017	1/18/2018	3	45	106.02	53.68	1.86	1.81	2.65	26.18	0.20
Other Construction Equipment-0120	106	Diesel	1	0.42	1.00	**3**	3	3	11/16/2017	1/18/2018	3	45	233.01	211.90	16.64	16.14	19.62	38.82	0.43
Bore/Drill Rigs-0500	291	Diesel	1	0.50	1.00	0	0	0	11/16/2017	1/18/2018	3	45	249.76	463.08	14.80	14.35	27.07	197.55	1.38
Other Construction Equipment-0050	10	Diesel	1	0.42	1.00	**0**	0	0	11/16/2017	1/18/2018	3	45	108.39	86.17	7.66	7.43	16.59	20.29	0.16
Other Construction Equipment-0050	10	Diesel	1	0.42	1.00	**0**	0	0	11/16/2017	1/18/2018	3	45	108.39	86.17	7.66	7.43	16.59	20.29	0.16
Cranes-0500	399	Diesel	1	0.29	1.00	**1**	1	1	11/16/2017	1/18/2018	3	45	192.32	553.80	23.15	22.45	36.42	111.16	0.80
Crawler Tractors-0175	147	Diesel	1	0.43	1.00	**4**	4	4	11/16/2017	1/18/2018	3	45	332.74	435.21	24.27	23.54	33.84	73.55	0.62
Other Construction Equipment-0175	142	Diesel	1	0.42	1.00	0	0	0	11/16/2017	1/18/2018	3	45	265.57	370.93	19.81	19.21	27.94	72.34	0.54
Other Construction Equipment-0050	16	Diesel	1	0.42	1.00	**4**	4	4	11/16/2017	1/18/2018	3	45	108.39	86.17	7.66	7.43	16.59	20.29	0.16
Excavators-0175	168	Diesel	1	0.38	1.00	**1**	1	1	11/16/2017	1/18/2018	3	45	301.10	217.52	10.82	10.50	16.28	64.04	0.57
Construction Equipment Total			***10***																
MOWF Track (Continued)																			
Forklifts-0175	145	Diesel	1	0.20	1.00	**1**	1	1	11/16/2017	1/18/2018	3	45	150.61	166.14	9.21	8.94	13.12	32.59	0.29
Other Construction Equipment-0750	549	Diesel	1	0.42	1.00	**1**	1	1	11/16/2017	1/18/2018	3	45	217.39	1003.62	34.71	33.67	58.72	285.39	1.13
Graders-0175	174	Diesel	1	0.41	1.00	**3**	3	3	11/16/2017	1/18/2018	3	45	330.87	501.24	28.36	27.51	40.93	70.74	0.63
Off-Highway Tractors-0500	267	Diesel	1	0.44	1.00	**3**	3	3	11/16/2017	1/18/2018	3	45	595.28	467.09	17.20	16.68	31.01	166.45	1.63
Off-Highway Trucks-0500	479	Diesel	1	0.44	1.00	**4**	4	4	11/16/2017	1/18/2018	3	45	257.27	592.14	22.97	22.28	43.08	164.33	1.21
Other Construction Equipment-0050	8	Diesel	1	0.42	1.00	**3**	3	3	11/16/2017	1/18/2018	3	45	108.39	86.17	7.66	7.43	16.59	20.29	0.16
Other General Industrial Equipment-0050	1	Diesel	1	0.34	1.00	**1**	1	1	11/16/2017	1/18/2018	3	45	108.26	63.70	5.83	5.66	13.63	15.34	0.13
Rollers-0120	95	Diesel	1	0.38	1.00	**4**	4	4	11/16/2017	1/18/2018	3	45	178.69	188.78	13.87	13.46	17.00	37.55	0.31
Rough Terrain Forklifts-0120	93	Diesel	1	0.40	1.00	**1**	1	1	11/16/2017	1/18/2018	3	45	190.50	134.89	7.25	7.03	8.94	44.52	0.33
Scrapers-0500	313	Diesel	1	0.48	1.00	**4**	4	4	11/16/2017	1/18/2018	3	45	435.38	1101.72	45.39	44.03	73.12	211.32	1.43
Construction Equipment Total			***10***																
MOWF Track (Continued)																			
Other Construction Equipment-0050	15	Diesel	1	0.42	1.00	0	0	0	11/16/2017	1/18/2018	3	45	108.39	86.17	7.66	7.43	16.59	20.29	0.16
Skid Steer Loaders-0050	44	Diesel	1	0.37	1.00	**3**	3	3	11/16/2017	1/18/2018	3	45	93.21	66.12	3.51	3.41	7.63	20.54	0.15
Surfacing Equipment-0500	362	Diesel	1	0.30	1.00	**3**	3	3	11/16/2017	1/18/2018	3	45	237.90	349.60	11.66	11.31	19.06	125.02	0.98
Sweepers/Scrubbers-0120	91	Diesel	1	0.46	1.00	**1**	1	1	11/16/2017	1/18/2018	3	45	226.70	220.84	19.22	18.64	22.02	40.71	0.40
Tractors/Loaders/Backhoes-0120	108	Diesel	1	0.37	1.00	**4**	4	4	11/16/2017	1/18/2018	3	45	155.96	151.19	11.51	11.17	13.14	35.29	0.27
Trenchers-0120	63	Diesel	1	0.50	1.00	**3**	3	3	11/16/2017	1/18/2018	3	45	205.22	282.63	22.23	21.56	26.75	47.66	0.34
Off-Highway Trucks-0250	189	Diesel	1	0.44	1.00	**4**	4	4	11/16/2017	1/18/2018	3	45	163.54	404.31	18.12	17.58	31.58	91.83	0.85
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/16/2017	1/18/2018	3	45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/16/2017	1/18/2018	3	45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/16/2017	1/18/2018	3	45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***7***																

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
MOWF TRACK

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration		Pollutant Emission Factors (3)						
						Months of Activity	Days of Activity	CO	NOx	PM10	PM2.5	HC	CO_2	SO_2
MOWF Track														
mowf - enter area / volume to be demolished	Square Feet to demolish	0		Nov-17	Jan-18	3	45			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	4	Aggregate	Nov-17	Jan-18	3	45			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-17	Jan-18	3	45	2.3	0.0768	0.0466	0.0195	0.0768	450	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Nov-17	Jan-18	3	45			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-17	Jan-18	3	45	1.1	0.2218	0.1788	0.1050	0.2218	1339	0.0136
Truck Loading-Dust	ton of mat. removed	0		Nov-17	Jan-18	3	45			0.0000	0.0000			
Worker Trips	Number of Vehicles	13	40	Nov-17	Jan-18	3	45	1.3	0.0405	0.0465	0.0193	0.0405	276	0.0040
MOWF Track (Continued)														
mowf - enter area / volume to be demolished	Square Feet to demolish	0		Nov-17	Jan-18	3	45			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Nov-17	Jan-18	3	45			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-17	Jan-18	3	45	2.3	0.0768	0.0466	0.0195	0.0768	450	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	2	1	Nov-17	Jan-18	3	45			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-17	Jan-18	3	45	1.1	0.2218	0.1788	0.1050	0.2218	1339	0.0136
Truck Loading	lb/ton of mat. removed	0		Nov-17	Jan-18	3	45			0.0000	0.0000			
Worker Trips	Number of Vehicles	13	40	Nov-17	Jan-18	3	45	1.3	0.0405	0.0465	0.0193	0.0405	276	0.0040
MOWF Track (Continued)														
mowf - enter area / volume to be demolished	Square Feet to demolish	0		Nov-17	Jan-18	3	45			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	4	Aggregate	Nov-17	Jan-18	3	45			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-17	Jan-18	3	45	2.3	0.0768	0.0466	0.0195	0.0768	450	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Nov-17	Jan-18	3	45			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-17	Jan-18	3	45	1.1	0.2218	0.1788	0.1050	0.2218	1339	0.0136
Truck Loading	lb/ton of mat. removed	0		Nov-17	Jan-18	3	45			0.0000	0.0000			
Worker Trips	Number of Vehicles	9	40	Nov-17	Jan-18	3	45	1.3	0.0405	0.0465	0.0193	0.0405	276	0.0040

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
PPSS

Construction Equipment	Actual Equipment Rated HP (2) hp/hr	Number of Units	Average Daily Load Factor	Average Work Hours per Day (hours)	Total Utilized Equipment Operating Hours per Day	Operating Hours per Day (all equipment)	Start Date	End Date	Construction Activity Months of Activity of whole activity	Days of Activity	Diesel Pollutant Emission Factors CO g/hour	NOx g/hour	PM10 g/hour	$PM_{2.5}$ g/hour	VOC g/hour	CO_2 (lbs/hour)	SO_2 g/hour
PPSS - Sites 1-15 Concurrent																	
Graders-0175	174	15	0.41	6	6	14	11/1/2017	5/16/2018	7	140	330.87	501.24	28.36	27.51	40.93	70.74	0.63
Rubber Tired Dozers-0500	357	15	0.40	6	6	14	11/1/2017	5/16/2018	7	140	497.67	1098.99	51.44	49.90	81.76	163.09	1.18
Tractors/Loaders/Backhoes-0120	108	30	0.37	7	7	33	11/1/2017	5/16/2018	7	140	155.96	151.19	11.51	11.17	13.14	35.29	0.27
Off-Highway Trucks-0250	189	15	0.44	8	8	19	11/1/2017	5/16/2018	7	140	163.54	404.31	18.12	17.58	31.58	91.83	0.85
Cranes-0500	399	15	0.29	4	4	28	11/1/2017	5/16/2018	7	140	192.32	553.80	23.15	22.45	36.42	111.16	0.80
Forklifts-0175	145	30	0.20	6	6	113	11/1/2017	5/16/2018	7	140	150.61	166.14	9.21	8.94	13.12	32.59	0.29
None-0	0	0	0.00	8	8	0	11/1/2017	5/16/2018	7	140	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	0	0.00	8	8	0	11/1/2017	5/16/2018	7	140	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	0	0.00	8	8	0	11/1/2017	5/16/2018	7	140	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	0	0.00	8	8	0	11/1/2017	5/16/2018	7	140	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total		***120***															
PPSS - Sites 16 & 17 Concurrent																	
Graders-0175	174	2	0.41	6	6	2	11/1/2018	5/16/2019	7	140	330.55	466.36	26.32	25.53	38.27	70.53	0.63
Rubber Tired Dozers-0500	357	2	0.40	6	6	2	11/1/2018	5/16/2019	7	140	468.84	1022.84	47.79	46.35	77.10	163.35	1.18
Tractors/Loaders/Backhoes-0120	108	4	0.37	7	7	4	11/1/2018	5/16/2019	7	140	155.27	133.97	9.72	9.42	11.42	35.25	0.27
Off-Highway Trucks-0250	189	2	0.44	8	8	3	11/1/2018	5/16/2019	7	140	161.88	342.13	14.82	14.38	27.36	91.91	0.85
Cranes-0500	399	2	0.29	4	4	4	11/1/2018	5/16/2019	7	140	185.19	510.74	21.30	20.66	34.00	111.25	0.80
Forklifts-0175	145	4	0.20	6	6	15	11/1/2018	5/16/2019	7	140	150.54	149.55	8.25	8.00	11.96	32.59	0.29
None-0	0	0	0.00	8	8	0	11/1/2018	5/16/2019	7	140	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	0	0.00	8	8	0	11/1/2018	5/16/2019	7	140	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	0	0.00	8	8	0	11/1/2018	5/16/2019	7	140	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	0	0.00	8	8	0	11/1/2018	5/16/2019	7	140	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total		***16***															

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
PPSS

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration		Pollutant Emission Factors (3)						
						Months of Activity	Days of Activity	CO	NOx	PM10	PM2.5	HC	CO_2	SO_2
PPSS - Sites 1-15 Concurrent														
mowf - enter area / volume to be demolished	Square Feet to demolish	0		Nov-17	May-18	7	140			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	14	Aggregate	Nov-17	May-18	7	140			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-17	May-18	7	140	2.3	0.0768	0.0466	0.0195	0.0768	450	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Nov-17	May-18	7	140			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-17	May-18	7	140	1.1	0.2218	0.1788	0.1050	0.2218	1339	0.0136
Truck Loading-Dust	ton of mat. removed	0		Nov-17	May-18	7	140			0.0000	0.0000			
Worker Trips	Number of Vehicles	150	40	Nov-17	May-18	7	140	1.3	0.0405	0.0465	0.0193	0.0405	276	0.0040
PPSS - Sites 16 & 17 Concurrent														
mowf - enter area / volume to be demolished	Square Feet to demolish	0		Nov-18	May-19	7	140			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	2	Aggregate	Nov-18	May-19	7	140			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-18	May-19	7	140	2.1	0.0700	0.0466	0.0194	0.0700	436	0.0061
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Nov-18	May-19	7	140			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-18	May-19	7	140	1.1	0.2218	0.1735	0.1001	0.2218	1339	0.0136
Truck Loading	lb/ton of mat. removed	0		Nov-18	May-19	7	140			0.0000	0.0000			
Worker Trips	Number of Vehicles	20	40	Nov-18	May-19	7	140	1.3	0.0405	0.0465	0.0193	0.0405	276	0.0040

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
SPSS

Construction Equipment	Actual Equipment Rated HP (2) hp/hr	Type of Fuel	Number of Units	Average Daily Load Factor	Average Daily Utilization Rate	Average Work Hours per Day (hours)	Total Utilized Equipment Operating Hours per Day	Operating Hours per Day (all equipment)	Start Date	End Date	Construction Activity Months of Activity	Construction Activity Days of Activity	Diesel Pollutant Emission Factors CO g/hour	NOx g/hour	PM10 g/hour	$PM_{2.5}$ g/hour	VOC g/hour	CO_2 (lbs/hour)	SO_2 g/hour
SPSS - Sites 1-5 Concurrent																			
Graders-0175	174	Diesel	5	0.41	1.00	**6**	6	6	6/19/2017	5/14/2018	12	235	330.87	501.24	28.36	27.51	40.93	70.74	0.63
Rubber Tired Dozers-0500	357	Diesel	5	0.40	1.00	**6**	6	6	6/19/2017	5/14/2018	12	235	497.67	1098.99	51.44	49.90	81.76	163.09	1.18
Tractors/Loaders/Backhoes-0120	108	Diesel	10	0.37	1.00	**7**	7	13	6/19/2017	5/14/2018	12	235	155.96	151.19	11.51	11.17	13.14	35.29	0.27
Off-Highway Trucks-0250	189	Diesel	5	0.44	1.00	**8**	8	40	6/19/2017	5/14/2018	12	235	163.54	404.31	18.12	17.58	31.58	91.83	0.85
Cranes-0500	399	Diesel	5	0.29	1.00	**4**	4	11	6/19/2017	5/14/2018	12	235	192.32	553.80	23.15	22.45	36.42	111.16	0.80
Forklifts-0175	145	Diesel	10	0.20	1.00	**6**	6	45	6/19/2017	5/14/2018	12	235	150.61	166.14	9.21	8.94	13.12	32.59	0.29
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/19/2017	5/14/2018	12	235	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/19/2017	5/14/2018	12	235	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/19/2017	5/14/2018	12	235	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/19/2017	5/14/2018	12	235	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***40***																

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
SPSS

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration		Pollutant Emission Factors						
						Months of Activity	Days of Activity	CO	NOx	PM10	PM2.5	HC	CO_2	SO_2
SPSS - Sites 1-5 Concurrent														
Demolition - enter area / volume to be demolished	Square Feet to demolish	0		Jun-17	May-18	12	235			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	6	Aggregate	Jun-17	May-18	12	235			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Jun-17	May-18	12	235	2.3	0.0768	0.0466	0.0195	0.0768	450	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Jun-17	May-18	12	235			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Jun-17	May-18	12	235	1.1	0.2218	0.1788	0.1050	0.2218	1339	0.0136
Truck Loading-Dust	ton of mat. removed	0		Jun-17	May-18	12	235			0.0000	0.0000			
Worker Trips	Number of Vehicles	50	40	Jun-17	May-18	12	235	1.3	0.0405	0.0465	0.0193	0.0405	276	0.0040

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
TPSS

Construction Equipment	Actual Equipment Rated HP (2) hp/hr	Type of Fuel	Number of Units	Average Daily Load Factor	Average Daily Utilization Rate	Average Work Hours per Day (hours)	Total Utilized Equipment Operating Hours per Day	Operating Hours per Day (all equipment)	Start Date	End Date	Construction Activity Months of Activity	Construction Activity Days of Activity	Diesel Pollutant Emission Factors CO g/hour	NOx g/hour	PM10 g/hour	$PM_{2.5}$ g/hour	VOC g/hour	CO_2 (lbs/hour)	SO_2 g/hour
TPSS - Sites 1-4 Concurrent																			
Graders-0175	174	Diesel	4	0.41	1.00	6	6	4	11/14/2016	5/14/2018	19	390	331.25	518.35	29.30	28.42	42.13	70.84	0.63
Rubber Tired Dozers-0500	357	Diesel	4	0.40	1.00	6	6	4	11/14/2016	5/14/2018	19	390	529.72	1123.19	52.48	50.91	82.78	163.10	1.18
Tractors/Loaders/Backhoes-0120	108	Diesel	8	0.37	1.00	7	7	9	11/14/2016	5/14/2018	19	390	156.77	160.18	12.44	12.07	13.96	35.33	0.27
Off-Highway Trucks-0250	189	Diesel	4	0.44	1.00	8	8	32	11/14/2016	5/14/2018	19	390	165.48	439.78	19.73	19.14	33.58	91.81	0.85
Cranes-0500	399	Diesel	4	0.29	1.00	4	4	8	11/14/2016	5/14/2018	19	390	200.87	576.49	24.08	23.36	37.56	111.12	0.80
Forklifts-0175	145	Diesel	8	0.20	1.00	6	6	32	11/14/2016	5/14/2018	19	390	150.58	174.65	9.67	9.38	13.62	32.59	0.29
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/14/2016	5/14/2018	19	390	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/14/2016	5/14/2018	19	390	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/14/2016	5/14/2018	19	390	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/14/2016	5/14/2018	19	390	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***32***																
TPSS - Site 5																			
Graders-0175	174	Diesel	1	0.41	1.00	6	6	1	11/8/2017	5/9/2019	19	391	330.87	501.24	28.36	27.51	40.93	70.74	0.63
Rubber Tired Dozers-0500	357	Diesel	1	0.40	1.00	6	6	1	11/8/2017	5/9/2019	19	391	497.67	1098.99	51.44	49.90	81.76	163.09	1.18
Tractors/Loaders/Backhoes-0120	108	Diesel	2	0.37	1.00	7	7	2	11/8/2017	5/9/2019	19	391	155.96	151.19	11.51	11.17	13.14	35.29	0.27
Off-Highway Trucks-0250	189	Diesel	1	0.44	1.00	8	8	8	11/8/2017	5/9/2019	19	391	163.54	404.31	18.12	17.58	31.58	91.83	0.85
Cranes-0500	399	Diesel	1	0.29	1.00	4	4	2	11/8/2017	5/9/2019	19	391	192.32	553.80	23.15	22.45	36.42	111.16	0.80
Forklifts-0175	145	Diesel	2	0.20	1.00	6	6	8	11/8/2017	5/9/2019	19	391	150.61	166.14	9.21	8.94	13.12	32.59	0.29
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/8/2017	5/9/2019	19	391	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/8/2017	5/9/2019	19	391	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/8/2017	5/9/2019	19	391	0.00	0.00	0.00	0.00	0.00	0.00	0.00
None-0	0	Diesel	0	0.00	1.00	8	8	0	11/8/2017	5/9/2019	19	391	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Equipment Total			***8***																

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
TPSS

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration		Pollutant Emission Factors						
						Months of Activity	Days of Activity	CO	NOx	PM10	PM2.5	HC	CO_2	SO_2
TPSS - Sites 1-4 Concurrent														
Demolition - enter area / volume to be demolished	Square Feet to demolish	0		Nov-16	May-18	19	390			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	4	Aggregate	Nov-16	May-18	19	390			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-16	May-18	19	390	2.5	0.0842	0.0467	0.0195	0.0842	464	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Nov-16	May-18	19	390			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-16	May-18	19	390	1.2	0.2419	0.1916	0.1168	0.2419	1362	0.0136
Truck Loading-Dust	ton of mat. removed	0		Nov-16	May-18	19	390			0.0000	0.0000			
Worker Trips	Number of Vehicles	40	40	Nov-16	May-18	19	390	1.5	0.0489	0.0465	0.0194	0.0489	287	0.0040
TPSS - Site 5														
Demolition - enter area / volume to be demolished	Square Feet to demolish	0		Nov-17	May-19	19	391			0.0000	0.0000			
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	1	Aggregate	Nov-17	May-19	19	391			0.1515	0.1210			
Trucks - Delivery	Number of Vehicles	0	15	Nov-17	May-19	19	391	2.3	0.0768	0.0466	0.0195	0.0768	450	0.0060
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Nov-17	May-19	19	391			0.6418	0.0642			
Truck Loading	Number of Vehicles	0	15	Nov-17	May-19	19	391	1.2	0.2419	0.1788	0.1050	0.2419	1362	0.0136
Truck Loading	lb/ton of mat. removed	0		Nov-17	May-19	19	391			0.0000	0.0000			
Worker Trips	Number of Vehicles	10	40	Nov-17	May-19	19	391	1.5	0.0489	0.0465	0.0194	0.0489	287	0.0040

HST Material Hauling

Data Taken from Project Descriptions or Provided
Estimated Values
Data used in calculations

Truck Capacity

20	cy/truck
30	tons/truck

Source Geography (4)	Material Hauled	Total Quantity	Units	Possible Material Origin Location	Average Distance Travelled within air basin	Duration of Activity (Years)	Duration of Activity (Days)
L	Fill (Import)	11,300,000	cy	Between Fresno and Bakersfield	40	1.5	550
R	Sub-Ballast	2,796,897	cy	Bay Area, Sacramento, Riverside	10	1.5	1300
R	Ballast	2,796,897	cy	Bay Area, Sacramento, Riverside	10	1.5	1300
L	Concrete Railway Ties	655,000	each	Between Fresno and Bakersfield	10	1.0	1200
N	Rail (3)	2,600,000	LF	Out of state. Only one time delivery	10	1.0	1200
L/R	Reinforcing Steel (Manufacture & Fabricate)	156,000	Ton	Livermore, Fresno, Bakersfield, Pomona	40	2.0	1200
F/N	Structural Steel (Manufacture & Fabricate)	21,000	Ton	Out of state.	40	2.0	750
L	Structural Concrete	1,812,780	cy	Concrete Batch plant to construction site 7.3 miles away	40	3.0	1200
R/L	Cement for structures	445,037	tons	Cupertino, Ventura, Riverside, Long Beach	40	2.0	1200
R/L	Sand for structures	1,294,325	tons	Cupertino, Ventura, Riverside, Long Beach	40	2.0	1200
R/L	Aggregate for structures	1,690,417	tons	Cupertino, Ventura, Riverside, Long Beach	40	2.0	1200

Notes:
(1) Information about excavation (import), rail, reinforcing steel and structural steel was obtained from the JV report: 15% Material Haul Data, Revised July 12, 2011. Infromation about the ballast, sub-ballast and rail ties was obtained from the JV report: 15% Material Haul Data, Revised June 29, 2011.
(2) Assumptions for the sand, aggregate and cement composition in the concrete were based on BAAQMD information
(3) Rail will only be a one-time delivery, so it is not inlcuded in the material hauling calculations
(4) L = local, R= regional, N= national

HST Material Hauling Trucks

Material Hauled	No. of Trucks	Total Duration (yrs)	Average RT Distance Traveled in the SJVAB (miles)	Year of Activity							
				2013	2014	2015	2016	2017			2018
Fill (Import)	565,000	1.5	80	0.0	0.7	0.7	0.2	0.0			0.0
Sub-Ballast	139,845	1.5	20	0.0	0.2	0.3	0.0	0.0			1.0
Ballast	139,845	1.5	20	0.0	0.1	0.2	0.3	1.0			1.0
Concrete Railway Ties	10,917	1.0	20	0.0	0.0	0.2	0.2	0.4			0.2
Reinforcing Steel (Manufacture & Fabricate)	5,200	2.0	80	0.0	0.3	0.3	0.5	0.5			0.5
Structural Steel (Manufacture & Fabricate)	700	2.0	80	0.0	0.0	0.0	0.5	0.5			1.0
Structural Concrete	90,639	3.0	80	0.0	0.5	0.5	0.5	0.5			1.0
Cement for structures	14,835	2.0	80	0.0	0.0	0.4	0.4	0.2			1.0
Sand for structures	43,144	2.0	80	0.0	0.2	0.3	0.4	0.1			1.0
Aggregate for structures	56,347	2.0	80	0.0	0.2	0.3	0.4	0.1			1.0

Assumptions:

Weight of the average concrete railway tie	1,000 lbs
	125 lbs/yrd
Weight of rail (UIC60 rail)	42 lbs/ft

Source: http://www.railway-technical.com/track.shtml

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
MATERIAL HAULING TRUCK EMISSIONS

	Number of Miles Driven per Year					
Material Hauled	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Fill (Import)	-	21,093,333	21,093,333	6,026,667	-	-
Sub-Ballast	-	372,920	559,379	-	-	1,864,598
Ballast	-	186,460	372,920	559,379	1,864,598	1,864,598
Concrete Railway Ties	-	-	43,667	43,667	87,333	43,667
Reinforcing Steel (Manufacture & Fabricate)	-	52,000	52,000	104,000	104,000	104,000
Structural Steel (Manufacture & Fabricate)	-	-	-	14,000	14,000	28,000
Structural Concrete	-	1,208,520	1,208,520	1,208,520	1,208,520	2,417,040
Cement for structures	-	-	237,353	237,353	118,677	593,383
Sand for structures	-	345,153	517,730	690,307	172,577	1,725,767
Aggregate for structures	-	450,778	676,167	901,556	225,389	2,253,890
Total	-	23,709,164	24,761,069	9,785,449	3,795,094	10,894,942

Assumptions:

Delivery of material of rail: Put it onto the track and then drag - using a rail mounted truck - small locomotive 300 - 300 hp (5 mph - idling) (approx 120 hrs to transport running rail from siding to where it needs to go).

Assume there is no fugitive dust associated with hauling materials, only vehicle exhaust emissions.

The HHDT DSL Emission Factors for SJVAPCD will be used in EMFAC to determine vehicle exhaust emissions. Assume travel speed of 55 mph.

Cannot assume that fill material will not be recycled - unknown what % is organic matter.

Distance travelled will be estimated based on the origin of the material being delivered.

Material haul: quantities will be delivered over the time frame of the use in the construction phase (as per schedule).

Do not account for the emissions from delivering the rail since there is only one trip.

Assume the cement, sand, and gravel will be hauled in support of concrete batch plant operations for 8 hrs/day, 280 days/yr for 5.2 years

Data from EMFAC

	DATA FROM EMFAC2011							
	Unmitigated Grams per Mile							
uipment Descript	**CO**	**NO_x**	**PM_{10}**	**$PM_{2.5}$**	**ROG**	SO_2	**CO_2**	**CH_4**
HHDT 2013	1.85	8.27	0.41	0.33	0.31	0.017	1,569.75	0.02
HHDT 2014	1.29	7.15	0.26	0.18	0.21	0.017	1,564.52	0.01
HHDT 2015	1.16	5.93	0.22	0.15	0.18	0.017	1,542.98	0.01
HHDT 2016	1.07	4.96	0.20	0.13	0.16	0.017	1,523.61	0.01
HHDT 2017	1.02	4.30	0.19	0.12	0.15	0.016	1,496.83	0.01
HHDT 2018	1.01	3.81	0.19	0.12	0.15	0.016	1,470.55	0.01

HST Material Hauling Emissions

	Unmitigated Tons per Year [1]							
uipment Descript	**CO**	**NO_x**	**PM_{10}**	**$PM_{2.5}$**	**ROG**	SO_2	**CO_2**	**CH_4**
HHDT 2013	-	-	-	-	-	-	-	-
HHDT 2014	30.69	169.54	6.16	4.38	5.02	0.39	37,094	0.34
HHDT 2015	28.60	146.80	5.49	3.71	4.46	0.41	38,206	0.30
HHDT 2016	10.48	48.57	1.99	1.30	1.57	0.16	14,909	0.10
HHDT 2017	3.87	16.33	0.72	0.46	0.57	0.06	5,681	0.04
HHDT 2018	11.05	41.46	2.06	1.30	1.62	0.18	16,022	0.11

Notes

1 .Unmitigated:

Exhaust emissions were based on EMFAC default range of 45 years for vehicle model years.

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
MOWF HAUL TRUCK EMISSIONS

HMF and MOWF Track Material Hauling

Data Taken from Project Descriptions or Provided
Estimated Values
Data used in calculations

Truck Capacity

20	cy/truck
35000	lb/truck
30	tons/truck

MOWF Construction Haul Trucks (1)

Source Geography (3)	Material Hauled	Total Quantity	Units	Possible Material Origin Location	Average Distance Travelled within air basin (One-way)	Duration of Activity (Years)		Duration of Activity (Years)	Truck Haul (miles) Round Trips
L	Fill (Import)	73,892	cy	Between Fresno and Bakersfield	40	0.125		0.125	15
R	Sub-Ballast	8,043	cy	Bay Area, Sacramento, Riverside	10	0.125		0.125	15
R	Ballast	8,043	cy	Bay Area, Sacramento, Riverside	10	0.125	BY RAIL	0.125	10
L	Concrete Railway Ties	4,283	each	Between Fresno and Bakersfield	10	0.125	BY RAIL	0.125	10
L/R	(Manufacture & Fabricate)	1,020	Ton	Livermore, Fresno, Bakersfield, Pomona	40	0.125	BY RAIL	0.125	10
L	Structural Concrete	11,854	cy	miles away	40	0.125	BY RAIL	0.125	10
R/L	Cement for structures	2,910	tons	Cupertino, Ventura, Riverside, Long Beach	40	0.125		0.125	10
R/L	Sand for structures	8,464	tons	Cupertino, Ventura, Riverside, Long Beach	40	0.125		0.125	15
R/L	structures	11,054	tons	Cupertino, Ventura, Riverside, Long Beach	40	0.125		0.125	15

HMF Construction Haul Trucks (2)

Source Geography (3)	Material Hauled	Total Quantity	Units	Possible Material Origin Location	Average Distance Travelled within air basin (One-way)	Duration of Activity (Years)	Duration of Activity (Years)	Truck Haul (miles) Round Trips
L	Fill (Import)	281,700	cy	Between Fresno and Bakersfield	40	0.125	0.125	15
R	Sub-Ballast	5,429	cy	Bay Area, Sacramento, Riverside	10	0.125	0.125	15
R	Ballast	6,996	cy	Bay Area, Sacramento, Riverside	10	0.125	0.125	10
L	Concrete Railway Ties	17,002	each	Between Fresno and Bakersfield	10	0.125	0.125	10
L/R	(Manufacture & Fabricate)	48,290,880	lbs	Livermore, Fresno, Bakersfield, Pomona	40	0.125	0.125	10
L	Structural Concrete	184,642	cy	miles away	40	0.125	0.125	10
R/L	Cement for structures	123,200	tons	Cupertino, Ventura, Riverside, Long Beach	40	0.125	0.125	10
R/L	Sand for structures	291,200	tons	Cupertino, Ventura, Riverside, Long Beach	40	0.125	0.125	15
R/L	Aggregate for structures	459,200	tons	Cupertino, Ventura, Riverside, Long Beach	40	0.125	0.125	15

Notes:

(1) Information about the amount of material hauled for the MOWF is based on the ratio of total amount required HST alignment, total length of HST alignment for the BNSF Alternative and the total length of the MOWF tracks in feet.

(2) Information about material hauling for HMF construction was obtained from M-F spreadsheet titled "Material Hauling" provided on January 14, 2011 including amount of material hauled and duration of activity

(3) L = local, R= regional, N= national

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
MOWF HAUL TRUCK EMISSIONS

HMF and MOWF Track Material Hauling Trucks

Material Hauled	No. of Trucks in 2018	Total Duration in 2018 (yrs)	No. of Trucks in 2021	Total Duration in 2021 (yrs)	Average RT Distance Traveled in the
Fill (Import)	3,695	0.125	14,085	0.1	80
Sub-Ballast	402	0.125	271	0.1	20
Ballast	402	0.125	350	0.1	20
Concrete Railway Ties	71	0.125	283	0.1	20
Reinforcing Steel (Manufacture & Fabricate)	34	0.125	805	0.1	80
Structural Concrete	593	0.125	9,232	0.1	80
Cement for structures	97	0.125	4,107	0.1	80
Sand for structures	282	0.125	9,707	0.1	80
Aggregate for structures	368	0.125	15,307	0.1	80

Assumptions:
Weight of the average concrete railway tie 1,000 lbs
Source: http://www.railway-technical.com/track.shtml

Material Hauled	Number of Miles Driven per Year	
	2018	2021
Fill (Import)	295,566	1,126,798
Sub-Ballast	8,043	5,429
Ballast	8,043	6,996
Concrete Railway Ties	1,428	5,667
Reinforcing Steel (Manufacture & Fabricate)	2,720	64,388
Structural Concrete	47,416	738,566
Cement for structures	7,760	328,533
Sand for structures	22,570	776,533
Aggregate for structures	29,477	1,224,533
Total	423,022	4,277,445

Notes:
2018 is the year in which all of the MOWF Track is constructed.
2021 is the year in which all of the HMF Track is constructed.
Assume there is no fugitive dust associated with hauling materials, only vehicle exhaust emissions.
The HHDT DSL Emission Factors for SJVAPCD will be used in EMFAC to determine vehicle exhaust emissions. Assume travel speed of 55 mph.
Cannot assume that fill material will not be recycled - unknown what % is organic matter.
Distance travelled will be estimated based on the origin of the material being delivered.
Material haul: quantities will be delivered over the time frame of the use in the construction phase (as per schedule).
Assume the cement, sand, and gravel will be hauled in support of concrete batch plant operations for 10 hrs/day, 280 days/yr for 1 year for the HMF.

Data from EMFAC

Equipment Description	DATA FROM EMFAC2011							
	Unmitigated Grams per Mile							
	CO	NO_x	PM_{10}	$PM_{2.5}$	ROG	SO_2	CO_2	CH_4
HHDT 2018	1.014276526	3.805394573	0.1890093	0.119691105	0.148247789	0.016456688	1470.551947	0.00992361
HHDT 2021	1.002925298	2.348676973	0.1858001	0.116737755	0.143787476	0.016387707	1409.559895	0.00962504

HMF and MOWF Track Material Hauling Emissions

Equipment Description	Unmitigated Tons per Year [1]							
	CO	NO_x	PM_{10}	$PM_{2.5}$	ROG	SO_2	CO_2	CH_4
HHDT 2018	0.43	1.61	0.08	0.05	0.06	0.01	622	0.00
HHDT 2021	4.29	10.05	0.79	0.50	0.62	0.07	6,029	0.04

Notes
1 .Unmitigated:
Exhaust emissions were based on EMFAC default range of 45 years for vehicle model years.

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS - MATERIAL HAULED BY RAIL EMISSIONS

HST Material Hauling by Rail

Data Taken from Project Descriptions or Provided
Estimated Values
Data used in calculations

HST Alignment Construction by Rail [(1), (2)]

Source Geography	Material Hauled	Total Quantity	Units	Total Quantity	Units	Possible Material Origin Location	Average Distance Travelled within air basin by rail (One-way)	Duration of Activity (Years)	Duration of Activity (Days)
R	Sub-Ballast	2,796,897	cy	5,873,484	tons	Riverside	56	1.5	375
R	Sub-Ballast	2,796,897	cy	5,873,484	tons	Bay Area, Sacramento	158	1.5	375
R	Ballast	2,796,897	cy	5,873,484	tons	Riverside	56	1.5	375
R	Ballast	2,796,897	cy	5,873,484	tons	Bay Area, Sacramento	158	1.0	250

Notes:
(1) Information about excavation (import), sub-ballast, ballast was obtained from the JV report: 15% Material Haul Data, Revised June 29 2011 250
(2) Distance travelled by rail calculated for travel in the air basin only. Travel outside the air basin is calculated in a separate memo
(3) Density of ballast and sub-ballast was assumed to be 2.1 tons/cubic yard

HST Alignment Construction by Rail by Year

Year	Ballast (tons)	Sub-Ballast (tons)
2014	1,407,874	1,407,874
2015	1,407,874	1,407,874
2016	1,407,874	1,407,874
2017	985,571	985,571
2018	6,461	6,461
2021	699,532	699,532

Emission Factors

Emission Factors - Rail (g/ton-mile) [(1)]							
	VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$	CO_2
2014	0.013	0.055	0.279	0.000	0.007	0.007	21.1

Emission Factors - Rail (g/gal) [(2), (3)]							
	VOC	CO	NOx	SO_2	PM_{10}	$PM_{2.5}$	CO_2
2014	6.1	26.6	135	0.096	3.6	3.49	10217

Notes
(1) The conversaion factor of 484 ton-mile/gallon based on the report by the American Association of Railroads "The Environmental Benefits of Moving Freight by Rail", April 2010
ARB
(3) 2014 was assumed to be the most conservative year, so rail emission factors in 2014 were used for all years.

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS - MATERIAL HAULED BY RAIL EMISSIONS

HST Material Hauling by Rail Emissions

Equipment Description	Unmitigated Tons per Year (1)						
	CO	NO_x	PM_{10}	$PM_{2.5}$	ROG	SO_2	CO_2
Rail from Riverside 2014	9.52	48.26	1.29	1.25	2.18	0.03	3,652.86
Rail from Riverside 2015	9.52	48.26	1.29	1.25	2.18	0.03	3,652.86
Rail from Riverside 2016	9.52	48.26	1.29	1.25	2.18	0.03	3,652.86
Rail from Riverside 2017	6.66	33.79	0.90	0.87	1.53	0.02	2,557.15
Rail from Riverside 2018	0.04	0.22	0.01	0.01	0.01	0.00	16.76
Rail from Riverside 2021	4.73	23.98	0.64	0.62	1.08	0.02	1,815.00

Equipment Description	Unmitigated Tons per Year (1)						
	CO	NO_x	PM_{10}	$PM_{2.5}$	ROG	SO_2	CO_2
Rail from Bay Area, Sacramento 2014	26.98	136.79	3.65	3.54	6.18	0.10	10,352.50
Rail from Bay Area, Sacramento 2015	26.98	136.79	3.65	3.54	6.18	0.10	10,352.50
Rail from Bay Area, Sacramento 2016	26.98	136.79	3.65	3.54	6.18	0.10	10,352.50
Rail from Bay Area, Sacramento 2017	18.88	95.76	2.55	2.48	4.33	0.07	7,247.18
Rail from Bay Area, Sacramento 2018	0.12	0.63	0.02	0.02	0.03	0.00	47.51
Rail from Bay Area, Sacramento 2021	13.40	67.97	1.81	1.76	3.07	0.05	5,143.86

Notes

(1) To be conservative, the larger emissions are used for calculations purposes

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
DIRT HANDLING EMISSION FACTORS

Bulldozing		
Bulldozing, dirt pushing loading (AP-42, Table 11.9-1)	PM10	PM2.5
Emission Equation	e=(1.0*(s)^1.5)/((M^1.4))	e=(5.7*(s)^1.2)/((M^1.3))
Scaling Factor, Page A9-100, SCAQMD handbook	0.7500	0.105
e= Emission Factor		
s = Material Silt Content (%), Page A9-100, SCAQMD handbook	15	15
M= Material Moisture Content (%), exposed ground from Table 13.2.4-1	3.4	3.4
e in terms of pounds per hour	7.8547	3.1438

Truck Loading		
Truck loading (AP-42, page 13.2.4-4)	PM10	PM2.5
Emission Equation	e=k(0.0032)*(((u/5)^1.3)/((m/2)^1.4))	
e= Emission Factor		
K = Particle Size	0.35	0.053
U = mean wind speed, miles per hour (mph) - Fresno and Bakersfield Airport	6.1	6.1
M = material moisture content	3.4	3.4
e, in terms of pounds per ton of material moved	0.000690013	0.000104488

Dust from truck travel on unpaved roads		
SCAQMD handbook Page A9-97	PM10	PM2.5
Emission Factor (lbs per mile)	F=2.1*(G/12)*(H/30)*((I/3)^0.7) x((J/4)^0.5)* ((365-k)/365)	
G = Silt content	15	
H= Mean Vehicle Speed - assume 5 mph	5	
I = Mean vehicle Weight	26250.5	
J = Number of Wheels	10	
K=Mean number of days per year with at least 0.01 inches of rain, http://www.currentresults.com/Weather/California/average-yearly-city-precipitation.php#b	56	
Emission Factor (lbs per mile) with programmatic measures	0.641754192	0.064175419

Demolition		
Truck loading (AP-42, page 13.2.4-4)	PM10	PM2.5
Emission Equation	e=k(0.0032)*(((u/5)^1.3)/((m/2)^1.4))	
e= Emission Factor		
K = Particle Size	0.35	0.053
U = mean wind speed, miles per hour (mph) - Fresno and Bakersfield Airport	6.1	6.1
M = material moisture content, AP-42 Table 13.2.4-1	3.4	3.4
e, in terms of pounds per ton of material moved	0.000690013	0.000104488

Dust from truck travel on paved roads		
SCAQMD handbook Page A9-96	PM10	PM2.5
Emission Factor (lbs per mile)	F=0.77*((Gx0.35)^.3	
G = road silt, Construction site with Cleaning	1.4	
Emission Factor (lbs per mile) with programmatic measures	0.621655169	0.062165517

Bulldozing aggregate		
Bulldozing, dirt pushing loading (AP-42, Table 11.9-1)	PM10	PM2.5
Emission Equation	e=(1.0*(s)^1.5)/((M^1.4))	e=(5.7*(s)^1.2)/((M^1.3))
Scaling Factor	0.7500	0.105
e= Emission Factor		
s = Material Silt Content (%), Crushed Limestone page A9-100, as per PMT	1.5	1.5
M= Material Moisture Content (%)	3.4	3.4
e in terms of pounds per hour	0.2484	0.1984
Programmatic reduction	61%	61%
e in terms of pounds per hour	0.151515653	0.120998757

Demolition

Data for alignment from "FB database final 1_17_12 v7 (revised final)" spreadsheet, data for HMF and Stations from "station and HMF database jan 2012 v2" spreadsheet

Construction Start Date:	Sep-12
Duration (months):	See schedule

Project Data

		Number of Displaced Structures										
Observed_Land_Use	**Average Approx. Size (sq ft)**	**BNSF Alternative**	**Hanford Depressed to BNSF**	**Hanford Depressed to CE and CB**	**Handford HMF**	**Wasco HMF**	**Shafter East HMF**	**Shafter West HMF**	**KTR Hanford Station**	**Hanford West Station**	**Bakersfield North Station**	**Bakersfield South Station**
Ag	7,149	2	1	1	0	0	0	0	0	0	0	0
Ag/Res	2,764	17	20	2	1	0	0	0	0	2	0	0
Com	14,907	82	0	0	0	1	0	0	0	0	14	3
Comm/Park	17,005	18	0	0	0	0	0	0	0	0	0	0
Com/MFR	13,193	1	0	0	0	0	0	0	0	0	0	0
Ind	38,539	91	1	1	1	0	4	1	0	1	9	10
MFR	1,962	18	2	2	0	0	0	0	0	0	0	0
Mun	10,887	9	0	0	0	0	0	0	0	0	4	3
Religious	6,112	4	0	0	0	0	0	0	0	0	1	0
SFR	1,810	434	32	48	0	1	0	5	0	0	15	0
Total Size (sqft)		**6,053,271**	**162,802**	**142,019**	**41,303**	**16,717**	**154,156**	**47,589**	**0**	**44,066**	**632,359**	**462,772**

total 7,046,654

Construction Equipment - From ARB Offroad 2011 model				
	Equipment Rated HP (2)		Average Daily Load Factor	Average Daily Utilization Rate
	hp/hr			
Aerial Lifts	0050	Aerial Lifts-0050	0.31	1.00
Aerial Lifts	0120	Aerial Lifts-0120	0.31	1.00
Aerial Lifts	0175	Aerial Lifts-0175	0.31	1.00
Aerial Lifts	0250	Aerial Lifts-0250	0.31	1.00
Aerial Lifts	0500	Aerial Lifts-0500	0.31	1.00
Bore/Drill Rigs	0050	Bore/Drill Rigs-0050	0.50	1.00
Bore/Drill Rigs	0120	Bore/Drill Rigs-0120	0.50	1.00
Bore/Drill Rigs	0175	Bore/Drill Rigs-0175	0.50	1.00
Bore/Drill Rigs	0250	Bore/Drill Rigs-0250	0.50	1.00
Bore/Drill Rigs	0500	Bore/Drill Rigs-0500	0.50	1.00
Bore/Drill Rigs	0750	Bore/Drill Rigs-0750	0.50	1.00
Bore/Drill Rigs	1000	Bore/Drill Rigs-1000	0.50	1.00
Bore/Drill Rigs	9999	Bore/Drill Rigs-9999	0.50	1.00
Cranes	0050	Cranes-0050	0.29	1.00
Cranes	0120	Cranes-0120	0.29	1.00
Cranes	0175	Cranes-0175	0.29	1.00
Cranes	0250	Cranes-0250	0.29	1.00
Cranes	0500	Cranes-0500	0.29	1.00
Cranes	0750	Cranes-0750	0.29	1.00
Cranes	1000	Cranes-1000	0.29	1.00
Cranes	9999	Cranes-9999	0.29	1.00
Crawler Tractors	0050	Crawler Tractors-0050	0.43	1.00
Crawler Tractors	0120	Crawler Tractors-0120	0.43	1.00
Crawler Tractors	0175	Crawler Tractors-0175	0.43	1.00
Crawler Tractors	0250	Crawler Tractors-0250	0.43	1.00
Crawler Tractors	0500	Crawler Tractors-0500	0.43	1.00
Crawler Tractors	0750	Crawler Tractors-0750	0.43	1.00
Crawler Tractors	1000	Crawler Tractors-1000	0.43	1.00
Crawler Tractors	9999	Crawler Tractors-9999	0.43	1.00
Excavators	0050	Excavators-0050	0.38	1.00
Excavators	0120	Excavators-0120	0.38	1.00
Excavators	0175	Excavators-0175	0.38	1.00
Excavators	0250	Excavators-0250	0.38	1.00
Excavators	0500	Excavators-0500	0.38	1.00
Excavators	0750	Excavators-0750	0.38	1.00
Excavators	1000	Excavators-1000	0.38	1.00
Excavators	9999	Excavators-9999	0.38	1.00
Forklifts	0050	Forklifts-0050	0.20	1.00
Forklifts	0120	Forklifts-0120	0.20	1.00
Forklifts	0175	Forklifts-0175	0.20	1.00
Forklifts	0250	Forklifts-0250	0.20	1.00
Forklifts	0500	Forklifts-0500	0.20	1.00
Forklifts	1000	Forklifts-1000	0.20	1.00
Graders	0050	Graders-0050	0.41	1.00
Graders	0120	Graders-0120	0.41	1.00
Graders	0175	Graders-0175	0.41	1.00
Graders	0250	Graders-0250	0.41	1.00
Graders	0500	Graders-0500	0.41	1.00
Graders	1000	Graders-1000	0.41	1.00
Graders	9999	Graders-9999	0.41	1.00
None	0	None-0	0.00	1.00
Off-Highway Tractors	0050	Highway Tractors-0050	0.44	1.00
Off-Highway Tractors	0120	Highway Tractors-0120	0.44	1.00
Off-Highway Tractors	0175	Highway Tractors-0175	0.44	1.00
Off-Highway Tractors	0250	Highway Tractors-0250	0.44	1.00
Off-Highway Tractors	0500	Highway Tractors-0500	0.44	1.00
Off-Highway Tractors	0750	Highway Tractors-0750	0.44	1.00
Off-Highway Tractors	1000	Highway Tractors-1000	0.44	1.00
Off-Highway Tractors	9999	Highway Tractors-9999	0.44	1.00
Off-Highway Trucks	0050	-Highway Trucks-0050	0.44	1.00
Off-Highway Trucks	0120	-Highway Trucks-0120	0.44	1.00
Off-Highway Trucks	0175	-Highway Trucks-0175	0.44	1.00
Off-Highway Trucks	0250	-Highway Trucks-0250	0.44	1.00
Off-Highway Trucks	0500	-Highway Trucks-0500	0.44	1.00
Off-Highway Trucks	0750	-Highway Trucks-0750	0.44	1.00
Off-Highway Trucks	1000	-Highway Trucks-1000	0.44	1.00
Off-Highway Trucks	9999	-Highway Trucks-9999	0.44	1.00
Other Construction Equipment	0050	ction Equipment-0050	0.42	1.00
Other Construction Equipment	0120	ction Equipment-0120	0.42	1.00

Construction Equipment - From ARB Offroad 2011 model				
	Equipment Rated HP (2)		Average Daily Load Factor	Average Daily Utilization Rate
	hp/hr			
Other Construction Equipment	0175	ction Equipment-0175	0.42	1.00
Other Construction Equipment	0250	ction Equipment-0250	0.42	1.00
Other Construction Equipment	0500	ction Equipment-0500	0.42	1.00
Other Construction Equipment	0750	ction Equipment-0750	0.42	1.00
Other Construction Equipment	1000	ction Equipment-1000	0.42	1.00
Other Construction Equipment	9999	ction Equipment-9999	0.42	1.00
Other General Industrial Equipment	0050	strial Equipment-0050	0.34	1.00
Other General Industrial Equipment	0120	strial Equipment-0120	0.34	1.00
Other General Industrial Equipment	0175	strial Equipment-0175	0.34	1.00
Other General Industrial Equipment	0250	strial Equipment-0250	0.34	1.00
Other General Industrial Equipment	0500	strial Equipment-0500	0.34	1.00
Other General Industrial Equipment	0750	strial Equipment-0750	0.34	1.00
Other General Industrial Equipment	1000	strial Equipment-1000	0.34	1.00
Other General Industrial Equipment	9999	strial Equipment-9999	0.34	1.00
Other Material Handling Equipment	0050	dling Equipment-0050	0.3953	1.00
Other Material Handling Equipment	0120	dling Equipment-0120	0.3953	1.00
Other Material Handling Equipment	0175	dling Equipment-0175	0.3953	1.00
Other Material Handling Equipment	0250	dling Equipment-0250	0.3953	1.00
Other Material Handling Equipment	0500	dling Equipment-0500	0.3953	1.00
Other Material Handling Equipment	0750	dling Equipment-0750	0.3953	1.00
Other Material Handling Equipment	1000	dling Equipment-1000	0.3953	1.00
Other Material Handling Equipment	9999	dling Equipment-9999	0.3953	1.00
Pavers	0050	Pavers-0050	0.4154	1.00
Pavers	0120	Pavers-0120	0.4154	1.00
Pavers	0175	Pavers-0175	0.4154	1.00
Pavers	0250	Pavers-0250	0.4154	1.00
Pavers	0500	Pavers-0500	0.4154	1.00
Pavers	0750	Pavers-0750	0.4154	1.00
Paving Equipment	0050	aving Equipment-0050	0.3551	1.00
Paving Equipment	0120	aving Equipment-0120	0.3551	1.00
Paving Equipment	0175	aving Equipment-0175	0.3551	1.00
Paving Equipment	0250	aving Equipment-0250	0.3551	1.00
Paving Equipment	0500	aving Equipment-0500	0.3551	1.00
Paving Equipment	0750	aving Equipment-0750	0.3551	1.00
Paving Equipment	1000	aving Equipment-1000	0.3551	1.00
Rollers	0050	Rollers-0050	0.3752	1.00
Rollers	0120	Rollers-0120	0.3752	1.00
Rollers	0175	Rollers-0175	0.3752	1.00
Rollers	0250	Rollers-0250	0.3752	1.00
Rollers	0500	Rollers-0500	0.3752	1.00
Rollers	0750	Rollers-0750	0.3752	1.00
Rough Terrain Forklifts	0050	Terrain Forklifts-0050	0.402	1.00
Rough Terrain Forklifts	0120	Terrain Forklifts-0120	0.402	1.00
Rough Terrain Forklifts	0175	Terrain Forklifts-0175	0.402	1.00
Rough Terrain Forklifts	0250	Terrain Forklifts-0250	0.402	1.00
Rough Terrain Forklifts	0500	Terrain Forklifts-0500	0.402	1.00
Rough Terrain Forklifts	0750	Terrain Forklifts-0750	0.402	1.00
Rubber Tired Dozers	0050	ber Tired Dozers-0050	0.3953	1.00
Rubber Tired Dozers	0120	ber Tired Dozers-0120	0.3953	1.00
Rubber Tired Dozers	0175	ber Tired Dozers-0175	0.3953	1.00

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ARB OFFROAD 2011 DATA

Construction Equipment - From ARB Offroad 2011 model				
	Equipment Rated HP (2)		Average Daily Load Factor	Average Daily Utilization Rate
	hp/hr			
Rubber Tired Dozers	0250	ber Tired Dozers-0250	0.3953	1.00
Rubber Tired Dozers	0500	ber Tired Dozers-0500	0.3953	1.00
Rubber Tired Dozers	0750	ber Tired Dozers-0750	0.3953	1.00
Rubber Tired Loaders	0050	ber Tired Loaders-0050	0.3618	1.00
Rubber Tired Loaders	0120	ber Tired Loaders-0120	0.3618	1.00
Rubber Tired Loaders	0175	ber Tired Loaders-0175	0.3618	1.00
Rubber Tired Loaders	0250	ber Tired Loaders-0250	0.3618	1.00
Rubber Tired Loaders	0500	ber Tired Loaders-0500	0.3618	1.00
Rubber Tired Loaders	0750	ber Tired Loaders-0750	0.3618	1.00
Rubber Tired Loaders	1000	ber Tired Loaders-1000	0.3618	1.00
Rubber Tired Loaders	9999	ber Tired Loaders-9999	0.3618	1.00
Scrapers	0050	Scrapers-0050	0.4824	1.00
Scrapers	0120	Scrapers-0120	0.4824	1.00
Scrapers	0175	Scrapers-0175	0.4824	1.00
Scrapers	0250	Scrapers-0250	0.4824	1.00
Scrapers	0500	Scrapers-0500	0.4824	1.00
Scrapers	0750	Scrapers-0750	0.4824	1.00
Scrapers	1000	Scrapers-1000	0.4824	1.00
Scrapers	9999	Scrapers-9999	0.4824	1.00
Skid Steer Loaders	0050	kid Steer Loaders-0050	0.3685	1.00
Skid Steer Loaders	0120	kid Steer Loaders-0120	0.3685	1.00
Skid Steer Loaders	0175	kid Steer Loaders-0175	0.3685	1.00
Skid Steer Loaders	0250	kid Steer Loaders-0250	0.3685	1.00
Skid Steer Loaders	0500	kid Steer Loaders-0500	0.3685	1.00
Skid Steer Loaders	0750	kid Steer Loaders-0750	0.3685	1.00
Skid Steer Loaders	1000	kid Steer Loaders-1000	0.3685	1.00
Surfacing Equipment	0050	acing Equipment-0050	0.3015	1.00
Surfacing Equipment	0120	acing Equipment-0120	0.3015	1.00
Surfacing Equipment	0175	acing Equipment-0175	0.3015	1.00
Surfacing Equipment	0250	acing Equipment-0250	0.3015	1.00
Surfacing Equipment	0500	acing Equipment-0500	0.3015	1.00
Surfacing Equipment	0750	acing Equipment-0750	0.3015	1.00
Surfacing Equipment	1000	acing Equipment-1000	0.3015	1.00
Surfacing Equipment	9999	acing Equipment-9999	0.3015	1.00
Sweepers/Scrubbers	0050	epers/Scrubbers-0050	0.4556	1.00
Sweepers/Scrubbers	0120	epers/Scrubbers-0120	0.4556	1.00
Sweepers/Scrubbers	0175	epers/Scrubbers-0175	0.4556	1.00
Sweepers/Scrubbers	0250	epers/Scrubbers-0250	0.4556	1.00
Sweepers/Scrubbers	0500	epers/Scrubbers-0500	0.4556	1.00
Sweepers/Scrubbers	1000	epers/Scrubbers-1000	0.4556	1.00
Tractors/Loaders/Backhoes	0050	paders/Backhoes-0050	0.3685	1.00
Tractors/Loaders/Backhoes	0120	paders/Backhoes-0120	0.3685	1.00
Tractors/Loaders/Backhoes	0175	paders/Backhoes-0175	0.3685	1.00
Tractors/Loaders/Backhoes	0250	paders/Backhoes-0250	0.3685	1.00
Tractors/Loaders/Backhoes	0500	paders/Backhoes-0500	0.3685	1.00
Tractors/Loaders/Backhoes	0750	paders/Backhoes-0750	0.3685	1.00
Tractors/Loaders/Backhoes	1000	paders/Backhoes-1000	0.3685	1.00
Tractors/Loaders/Backhoes	9999	paders/Backhoes-9999	0.3685	1.00
Trenchers	0050	Trenchers-0050	0.5025	1.00
Trenchers	0120	Trenchers-0120	0.5025	1.00
Trenchers	0175	Trenchers-0175	0.5025	1.00
Trenchers	0250	Trenchers-0250	0.5025	1.00
Trenchers	0500	Trenchers-0500	0.5025	1.00
Trenchers	0750	Trenchers-0750	0.5025	1.00
Trenchers	1000	Trenchers-1000	0.5025	1.00

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ARB OFFROAD2011 NOx EMISSION RATES

Equipment Type	Horsepower Bin	BaseNOx grams/hr										
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Aerial Lifts	0050	66.33234499	61.64487676	58.29060272	55.988564	52.2891762	49.42309455	46.03771522	44.11228471	42.0624647	41.47797401	41.11646454
Aerial Lifts	0120	100.0902605	89.87809312	77.33851968	71.490221	61.9738774	53.67509671	47.44806682	44.81638098	41.93646743	39.17698098	36.49639652
Aerial Lifts	0175	161.8719225	151.6436991	129.6897749	106.30655	80.0179744	76.15527256	40.39794733	40.51487207	38.57033318	34.6021252	27.47615144
Aerial Lifts	0250	759.2703236	763.1122631	764.6167773	765.74303	571.935189	571.9643165	571.9934437	16.84003883	16.90120595	16.96237308	17.02354021
Aerial Lifts	0500	829.346394	537.0246351	539.1872328	541.34983	543.512428	545.675026	74.54031284	74.79517587	75.05003889	75.30490192	75.55976495
Bore/Drill Rigs	0050	107.5988526	107.4282104	105.2343242	104.66373	104.560296	101.1038873	97.18338698	94.72535351	92.21441493	91.99453921	85.76851855
Bore/Drill Rigs	0120	194.7960586	187.2244032	175.4322434	168.84719	161.334691	152.3573243	142.4583787	137.4056756	127.9313192	116.4204235	110.0560476
Bore/Drill Rigs	0175	337.9656371	322.049041	303.5209398	295.30595	276.983278	234.7209497	185.5395895	171.9524711	154.3183637	140.1389084	108.3408714
Bore/Drill Rigs	0250	450.5464144	422.2781183	377.4742703	357.73353	330.152079	282.9231393	242.7411602	211.7237489	193.3470946	177.7651654	147.1130413
Bore/Drill Rigs	0500	651.4424459	614.4811422	575.7146815	541.13722	496.753122	463.0833006	368.3258241	353.5131084	298.3397529	242.7172664	217.4973807
Bore/Drill Rigs	0750	856.1016015	792.279929	741.1797699	741.76196	677.992356	667.1793748	485.9489251	455.4500599	363.4859216	332.2238561	249.9388188
Bore/Drill Rigs	1000	2022.396618	1600.858387	1378.167453	1382.5591	1389.24153	1394.86303	1399.952144	1404.506229	1408.520905	1411.988368	1054.706652
Bore/Drill Rigs	9999	5626.495381	5659.772996	5688.679399	5713.2146	5733.37857	5749.171335	5760.592889	5767.643231	5774.693573	5781.743915	5788.794257
Cranes	0050	72.20649659	71.49899811	71.32187398	71.729843	72.1339112	72.52851026	70.86935562	70.67443424	71.05998262	71.39930686	71.68545215
Cranes	0120	275.0547353	270.0899898	268.3477034	265.00137	261.285889	253.771013	236.5747455	221.7174096	211.8976491	200.6677769	179.0161801
Cranes	0175	380.9619992	376.3255626	362.563328	362.5667	349.65395	341.4148764	325.1101893	312.7405713	301.4664033	291.1499655	260.279219
Cranes	0250	518.9918841	510.0773685	496.7332644	493.59039	490.933206	471.4099214	446.1609243	428.2019598	410.6125514	404.7042737	366.5300935
Cranes	0500	657.4247602	632.8653917	614.4886166	605.27938	576.486334	553.8028918	510.7354537	488.917521	470.1852557	447.4557476	403.0199528
Cranes	0750	728.1739167	713.6638878	707.1247234	704.58536	704.918878	701.828034	637.1701055	616.0233889	584.7733077	530.8812342	484.248684
Cranes	1000	3130.294494	3134.302807	3138.235856	3142.0936	3145.88919	3149.83024	2741.193896	2685.384564	2292.748404	2302.602385	2307.711809
Cranes	9999	1924.12607	1936.395266	676.7961266	680.95751	685.049762	689.0728812	693.0268677	696.9117217	700.7274431	704.474032	708.1514884
Crawler Tractors	0050	118.7229482	117.1947635	116.8661264	117.33949	116.231149	114.9766169	113.5006932	112.7325243	113.0573276	112.0769951	109.6793312
Crawler Tractors	0120	286.0095546	285.1870455	281.506395	280.86025	277.590599	273.4553632	263.7951758	255.92355	242.904304	235.3123959	220.9337329
Crawler Tractors	0175	456.1181613	452.2749851	445.805857	445.86245	440.564352	435.2062039	409.6985574	384.3612653	360.5932052	338.9054717	302.9226992
Crawler Tractors	0250	560.0690561	555.7937508	549.3255313	547.4815	543.830861	534.4572195	502.5292908	474.4988306	443.6676293	418.0862288	371.6747624
Crawler Tractors	0500	863.48706	857.0900872	833.6587533	827.71628	816.308803	795.818383	721.8043306	672.4215851	628.6569915	579.3753679	486.6574194
Crawler Tractors	0750	1284.845278	1249.660462	1199.761024	1196.9033	1164.45784	1109.905691	1004.086235	928.3760357	899.9970821	850.6264342	709.7261014
Crawler Tractors	1000	2608.208807	2622.97162	2637.019211	2650.3486	2662.95658	2674.840107	2685.990549	2561.16392	2387.570475	2394.030431	2126.677221
Crawler Tractors	9999	3902.321384	3925.173308	3946.686322	3966.8206	3985.52802	4002.750363	4018.415973	3840.820003	3850.926933	3860.841157	3868.655116
Excavators	0050	70.90474113	68.9949543	67.79339033	67.154132	65.9747504	64.033891	60.25947353	57.63461471	55.09146512	53.52943492	50.97633738
Excavators	0120	175.8716614	167.8687804	160.9929992	158.12796	149.94603	140.991802	125.8697959	114.770312	104.933805	96.94013119	86.2636181
Excavators	0175	300.557444	284.4499081	261.8801934	253.67155	238.497652	217.5155604	184.242204	162.880045	145.3363295	128.6214373	104.4578183
Excavators	0250	444.3527628	416.5925574	372.684048	359.83448	326.765466	295.7556081	235.5956206	203.6553049	179.0168743	153.7035677	121.2384262
Excavators	0500	509.2061697	473.234413	431.5324671	418.97018	380.094661	342.3924208	275.0530295	234.8530826	202.6151163	177.1022753	138.9412033
Excavators	0750	968.8952636	895.0314319	776.535277	761.34615	748.238288	627.045078	507.0115829	454.7862232	417.8121333	368.4125492	319.5965983
Excavators	1000	2197.636253	2206.823641	2101.165012	2106.4856	2111.66857	1525.133859	1214.841351	1128.160231	1134.890169	1141.422715	753.3819145
Excavators	9999	2710.183004	2408.696412	2153.770286	2165.8346	2180.2578	2194.111537	1843.443325	1849.251902	1862.291751	1874.886209	1373.917067
Forklifts	0050	53.51065258	52.55328168	51.580168	51.125148	50.0364659	48.87870746	46.22026286	44.32349794	42.56009791	41.05977421	39.63889882
Forklifts	0120	123.0221339	120.0822249	115.1615128	111.86676	107.557451	102.2912688	91.16015453	84.99714831	76.41318692	71.26985855	64.98634515
Forklifts	0175	202.189214	197.891785	187.1227896	181.75817	174.650924	166.1397581	149.5521395	136.8156942	117.1969995	104.8342844	91.87205119
Forklifts	0250	340.651511	325.6432677	324.6348348	312.76832	304.924421	291.8706247	246.5119917	211.9885115	180.8204129	169.7016677	141.7066886
Forklifts	0500	542.7691311	503.3397047	490.3384683	467.26309	424.614036	354.1415643	315.9131929	300.1955298	246.9303842	233.0268748	177.4054799
Forklifts	1000	2762.915126	2762.915126	2762.915126	2762.9151	2762.91513	2762.915126	2762.915126	2762.915126	2762.915126	2762.915126	2762.915126
Graders	0050	104.8429487	105.1808582	104.8288641	105.14896	105.42906	105.5968033	102.8225903	102.9979667	101.2379278	99.84381527	97.46207485
Graders	0120	382.6179555	380.9265549	376.9556791	376.78208	375.999663	374.7771721	349.4588448	342.8187992	325.539631	319.9474654	298.7938346
Graders	0175	537.9644259	534.4962426	529.3697669	529.06393	518.352379	501.2435609	466.355638	446.1317635	415.9059012	390.1284307	341.9620944
Graders	0250	482.4901319	479.9487012	479.7311223	481.36822	478.908259	472.4069341	458.1583825	449.3491721	435.409368	407.400066	363.9705371
Graders	0500	456.7853568	444.8044765	447.29937	448.19585	443.858388	436.1914202	415.4732166	406.5757292	386.4270503	381.083935	359.4300053

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ARB OFFROAD2011 NOx EMISSION RATES

Equipment Type	Horsepower Bin	BaseNOx grams/hr										
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Graders	1000	3007.570083	3023.018055	3023.018055	3023.0181	3023.01805	3023.018055	3023.018055	3023.018055	3023.018055	3023.018055	777.4724683
Graders	9999	5293.990598	5317.879991	5338.895004	5355.2597	5361.41086	5386.813746	5411.582185	5435.790894	5459.531172	5482.915767	5504.855352
None	0											
Off-Highway Tractors	0050	95.59452294	94.88715486	94.38579048	93.900233	93.232742	91.99403934	88.12047258	85.2381407	83.43552534	81.02333773	76.17157076
Off-Highway Tractors	0120	229.5305817	223.6029859	211.4351959	207.7226	198.616259	188.7805701	173.2161509	163.4659828	152.7698466	143.0161906	132.0948345
Off-Highway Tractors	0175	393.0229558	373.2037451	349.5822295	331.75488	314.837462	283.7071655	254.1032105	228.7321587	207.2587389	193.9549519	162.0782685
Off-Highway Tractors	0250	583.7614287	570.3097314	527.9847219	521.75055	503.024295	470.0572385	387.5127836	347.5875346	307.4128412	259.1405111	195.5144599
Off-Highway Tractors	0500	711.0966291	646.7568763	588.2203076	577.13376	531.588794	467.0916553	387.7045106	340.520302	291.6573272	252.8562377	209.1873699
Off-Highway Tractors	0750	1201.17485	1132.739681	1010.58131	1017.5275	948.401893	760.9292829	554.8063558	557.7328585	489.7350645	416.0431685	405.3769236
Off-Highway Tractors	1000	5344.57794	5344.57794	5344.57794	5344.5779	5344.57794	5344.57794	5344.57794	5344.57794	5344.57794	5344.57794	5344.57794
Off-Highway Tractors	9999	7253.928384	7298.946535	7344.082055	7384.7316	5828.02115	5855.643727	5884.3851	3509.464748	3504.227604	3525.489033	3547.069285
Off-Highway Trucks	0050	64.46561607	64.25414712	64.69171448	64.984659	65.1187987	61.58898848	57.69742994	55.67021922	53.33116687	51.4244595	49.44502906
Off-Highway Trucks	0120	248.1718275	240.1473218	198.1402196	198.84643	199.688204	183.0461565	171.5679197	172.1337251	172.6395695	153.5410603	131.8021771
Off-Highway Trucks	0175	368.1311532	350.9085836	318.1038136	312.78484	291.2001	269.8795177	227.7474662	197.1485246	176.8412836	161.5739562	128.769999
Off-Highway Trucks	0250	518.8290321	495.7224926	463.8083421	455.62454	439.776076	404.3086451	342.1305605	313.164721	284.8940581	251.1263623	195.8124429
Off-Highway Trucks	0500	764.7188663	725.9236387	685.1186477	670.21572	631.938371	592.142733	505.444056	463.1526411	406.4260993	358.0929872	288.3202578
Off-Highway Trucks	0750	1642.454611	1599.232586	1535.613564	1531.5044	1498.80841	1372.048453	1107.497069	970.3339224	887.2916855	767.2723449	670.8612257
Off-Highway Trucks	1000	2434.121297	2361.821083	2211.562975	2207.4161	2178.23139	2074.238009	1786.955107	1763.468651	1706.678679	1610.772244	1406.657049
Off-Highway Trucks	9999	4421.50657	4246.806298	3988.594412	3955.9464	3733.57607	3642.944865	3092.849401	3046.581924	2902.766212	2795.109171	2391.525192
Other Construction Equipment	0050	88.12370693	88.46982259	87.86746495	87.891079	87.2402811	86.17155385	84.1116668	82.9518566	81.10915921	79.5214889	77.34683115
Other Construction Equipment	0120	235.6907357	231.9587895	225.6123213	222.14189	216.881032	211.8970988	195.729676	186.8165399	178.2252435	171.7555039	154.8282888
Other Construction Equipment	0175	438.097528	424.2467616	412.1607798	409.81924	396.494851	370.9269895	339.0687483	319.1395639	302.2565827	281.9999229	241.43287
Other Construction Equipment	0250	604.5321058	568.7897462	527.4747672	524.96721	507.354783	472.8974	420.9020682	387.1445369	366.1185656	340.0142086	283.240444
Other Construction Equipment	0500	803.9581459	770.721548	702.8486225	698.94247	667.240568	619.0158871	535.8217447	484.9239128	440.360487	416.1546072	353.1337856
Other Construction Equipment	0750	1147.845039	1099.485408	1058.041611	1058.3774	1037.01573	1003.624577	911.0339689	874.4611027	812.9904588	729.0295476	603.7008701
Other Construction Equipment	1000	1825.157347	1710.823449	1533.242744	1539.7379	1464.71596	1322.797252	1324.826226	1330.132749	1162.167916	1164.309233	1031.433951
Other Construction Equipment	9999	3085.383311	3097.277406	2483.925442	2501.6693	2519.27805	2271.463937	2286.735285	2303.719504	2320.866968	2338.252457	2355.963089
Other General Industrial Equipment	0050	68.51803112	67.74280921	67.03498191	66.491698	65.1332626	63.69778014	60.69627679	58.61508958	56.04508478	53.95993904	51.40720916
Other General Industrial Equipment	0120	180.4438135	175.9313363	171.2220063	166.14836	159.101041	149.3272032	133.7134719	124.0911338	111.0743832	104.8230717	91.17220252
Other General Industrial Equipment	0175	328.4694591	317.3140513	304.29676	290.21208	277.044262	252.5563112	216.4159042	179.0515768	158.9167253	150.5232409	129.9744824
Other General Industrial Equipment	0250	510.3071287	472.2708784	447.3584557	410.03151	398.600777	364.090336	296.8259596	265.1291864	232.3671529	219.5718258	198.3572481
Other General Industrial Equipment	0500	654.2902537	588.8128276	569.6309424	550.59565	524.010965	495.6560129	453.8049338	409.3296904	361.3856769	290.9476734	243.4369934
Other General Industrial Equipment	0750	949.7188774	832.9446174	764.1732153	677.47672	659.004034	547.6310552	484.6740423	453.6126797	334.3379234	306.3003777	231.8501712
Other General Industrial Equipment	1000	1887.168653	1908.077097	1928.985542	1949.894	1435.27085	1447.459659	1454.587498	1461.715337	1468.843176	1474.39548	1193.978228
Other General Industrial Equipment	9999	2923.54299	2952.384962	2981.226935	3010.0689	3038.91088	3067.752852	3096.594825	3125.436797	1558.742321	1573.634906	1588.527491
Other Material Handling Equipment	0050	83.7235242	82.74471241	81.26764381	81.948925	81.9796263	78.77651567	74.02412118	73.97273276	73.40436424	70.95565377	70.30093031
Other Material Handling Equipment	0120	234.4997596	212.3192533	198.6356143	185.52952	181.015031	171.8994312	153.0648126	140.814755	129.3093431	122.1132082	103.7388926
Other Material Handling Equipment	0175	366.2674128	351.776171	331.4429927	327.91505	311.601822	289.1334592	229.7348609	207.7835116	182.839998	173.4513098	141.7112409
Other Material Handling Equipment	0250	606.231512	588.6454839	565.6197255	542.61137	544.45805	495.8010471	401.1740383	362.9127698	274.2811699	265.2537446	239.8749433
Other Material Handling Equipment	0500	694.5656284	673.3169613	639.1842251	628.09537	625.991422	598.9491697	531.5077837	494.300755	465.9390468	436.3995758	370.0343421
Other Material Handling Equipment	0750	756.1955243	763.276259	770.3569937	777.43773	784.518463	701.1044799	586.4991456	590.3973591	462.8184154	465.4731455	467.6216281
Other Material Handling Equipment	1000	1652.914432	1668.406878	823.6522408	823.65224	831.00625	838.3602591	845.7142683	853.0682774	860.4222866	867.7762957	875.1303049
Other Material Handling Equipment	9999	1824.696321	1841.609347	1426.28881	1435.1009	1448.09588	1461.090881	1474.085886	1487.08089	1500.075894	962.0801535	966.2630948
Pavers	0050	94.03351686	93.72632515	91.72541986	90.850937	90.2767897	89.35850941	87.20048475	83.32488791	82.1654717	79.59166569	76.34638736
Pavers	0120	220.6091971	213.2848888	205.8782343	205.28471	197.801526	194.8659555	175.9165491	166.0036001	159.8601915	152.2623504	134.7132606
Pavers	0175	423.1443694	399.9062396	378.7047415	368.93376	331.99864	307.7706583	264.827986	245.4329209	221.6321771	203.175002	156.4413581
Pavers	0250	390.8665224	374.9654909	366.99024	368.77997	356.676839	337.6434436	299.5015166	268.9906843	233.5218862	210.6573199	166.3331955
Pavers	0500	489.5695737	461.6298012	414.4207686	396.74979	392.332515	338.1819472	315.5083134	308.6961373	290.2035238	279.1932191	246.2339717

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ARB OFFROAD2011 NOx EMISSION RATES

Equipment Type	Horsepower Bin	BaseNOx grams/hr										
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Pavers	0750	750.847552	754.3983621	757.8639632	761.24436	764.539538	767.7495124	770.8742776	373.6146114	370.0406489	370.0704519	80.69745323
Paving Equipment	0050	66.06707816	65.78571865	64.51337808	62.574893	62.0408414	58.85350941	54.44131287	53.78809488	49.46150534	47.99117559	47.52731128
Paving Equipment	0120	221.5417444	210.3907162	202.5232796	196.81101	185.959968	172.5367385	148.1284463	140.5036097	128.916471	117.2723947	102.6417733
Paving Equipment	0175	312.6422894	295.3172773	276.223994	263.05877	238.355814	217.9572412	190.6291972	164.3852557	147.7064907	135.8710512	124.8655847
Paving Equipment	0250	445.1724093	438.3152765	408.6387814	407.84937	380.953545	347.5890167	293.0007693	288.5923877	262.9766481	219.4821283	193.2318793
Paving Equipment	0500	612.1536457	577.2991426	557.8557619	560.61696	548.727423	509.4875468	373.975356	345.6001369	333.751167	303.5598957	213.937053
Paving Equipment	0750	946.0650409	842.0487665	846.6288162	851.11051	836.952496	722.3912827	725.5622479	625.0261745	589.642662	512.4150199	379.2870833
Paving Equipment	1000	2224.842787	2237.39276	1367.15747	1375.1545	1382.99881	1390.690298	685.3830045	689.3263908	693.2041872	697.0163937	700.7630104
Rollers	0050	74.53676822	73.68202648	72.42072561	72.157809	71.0548695	69.46694196	66.32015151	64.18659553	62.577425	60.29237977	57.11620441
Rollers	0120	230.937887	221.8250987	210.5658786	207.90626	197.402989	188.7803263	163.8091696	152.2492481	141.7670554	133.4472137	118.1317277
Rollers	0175	290.3980596	278.3053379	259.0403775	255.58415	238.231625	219.2495107	184.2491885	162.8767107	144.2660994	129.6874069	104.1996931
Rollers	0250	531.4473295	475.4559632	422.3257605	406.83439	392.883068	361.6516621	278.063877	249.5538951	240.5021105	224.8182169	191.6594636
Rollers	0500	837.6390269	752.6622706	739.118845	720.29803	681.437983	563.9283041	476.822738	375.154323	365.1043656	356.8861648	308.2768546
Rollers	0750	1667.302946	1673.53917	1679.687198	975.80974	978.96861	982.1242958	223.623935	224.5011299	225.3564789	226.189982	227.0016391
Rough Terrain Forklifts	0050	104.4187418	101.5129214	99.3442003	98.65043	96.9281158	92.28999373	90.06324938	86.96604265	84.13313001	83.46782271	74.21109667
Rough Terrain Forklifts	0120	204.8923412	191.3310434	174.378086	167.64463	151.710665	134.8872884	113.9627241	105.5593825	98.60888348	93.20277248	85.08652284
Rough Terrain Forklifts	0175	228.4115757	207.6979423	193.7605897	184.74224	172.037221	156.0885777	130.0651276	116.7344928	102.1690201	84.60113913	70.99472035
Rough Terrain Forklifts	0250	595.5189992	531.7882891	511.4558941	514.17747	516.888299	519.5877108	480.4546745	470.1783398	454.2507919	265.8270732	62.13926014
Rough Terrain Forklifts	0500	876.8527376	694.4276942	698.0071318	701.6108	705.226149	709.5950714	371.399798	371.9887239	311.5917424	71.47068076	71.64349969
Rough Terrain Forklifts	0750	3768.098056	3778.375764	3788.653472	3798.9312	3809.20889	3819.486596	3829.764304	3840.042012	3850.31972	65.7574745	65.97989631
Rubber Tired Dozers	0050	109.2386454	108.9119855	109.3633846	109.67548	109.919851	110.0394112	110.0793925	110.1039769	110.1209096	110.138815	110.1865417
Rubber Tired Dozers	0120	306.4818706	307.7636156	308.7819424	309.55449	310.165897	304.8845514	300.6299776	300.8635584	292.7789218	289.0091204	279.6264244
Rubber Tired Dozers	0175	580.5678866	581.2421519	581.8738253	582.47916	583.013476	561.5380793	549.0842676	528.3494227	517.1449271	517.2942824	505.3136451
Rubber Tired Dozers	0250	689.9153619	676.121811	664.8817262	665.84235	666.791343	659.5228727	660.0704806	660.3591359	643.9217245	626.9839789	549.7870703
Rubber Tired Dozers	0500	1201.439226	1166.760426	1137.863975	1129.3606	1123.18984	1098.986166	1022.840837	986.1911156	947.1263981	926.4421875	863.940357
Rubber Tired Dozers	0750	1727.213722	1729.698764	1732.12178	1734.4823	1736.77993	1656.036886	1553.11825	1553.08665	1553.041204	1552.981016	1552.905088
Rubber Tired Loaders	0050	95.10367487	93.59916643	92.84802555	92.985762	92.413213	91.52405303	89.62235828	85.56820814	83.70333025	80.18466132	77.15161047
Rubber Tired Loaders	0120	238.6279096	234.075336	225.3090958	223.40078	213.803143	205.6792851	189.2922294	176.9293965	165.3130639	153.2940645	138.4872998
Rubber Tired Loaders	0175	368.7936714	359.3282884	342.7276715	336.17744	322.417576	303.5159014	271.8489185	250.7187296	230.4633864	212.3817267	176.975508
Rubber Tired Loaders	0250	436.4045036	428.8117858	411.1142115	403.97052	391.096413	370.5928898	322.1609624	298.3179211	275.4548357	250.8627942	211.2242356
Rubber Tired Loaders	0500	646.2297159	637.4656375	616.8063802	612.82556	597.501965	566.3228404	506.3380459	463.0557226	422.2343608	390.9081468	324.4105377
Rubber Tired Loaders	0750	1103.472499	1086.911289	1040.769141	1040.3526	995.18807	980.2920197	846.9319663	737.2127791	714.2554689	657.4469318	590.7580247
Rubber Tired Loaders	1000	2038.307331	2018.705758	2026.359541	2032.4504	2035.92327	1984.171033	1863.223787	1804.289747	1802.671895	1804.402133	1580.190384
Rubber Tired Loaders	9999	3453.377147	3477.907319	3501.36871	3522.4942	3537.31861	3224.745644	2529.294115	2534.01747	2542.056547	2549.582044	2556.550175
Scrapers	0050	116.1611854	116.6531841	117.1274998	117.58413	117.981033	118.3579562	118.72009	119.0674348	119.3999904	119.717757	110.8750947
Scrapers	0120	289.3101471	288.3346918	287.4148772	289.02964	290.576486	292.054689	290.0288905	286.5143499	279.0064531	277.887486	268.0177248
Scrapers	0175	684.1362054	669.0927937	640.6122622	634.52701	613.650234	577.6443338	524.3951478	500.7903681	476.497853	442.5032351	397.8097331
Scrapers	0250	1012.744542	998.815506	977.0319973	977.17231	961.542801	928.9627095	851.7626483	790.0487544	752.5797264	700.5378374	619.4484003
Scrapers	0500	1222.063267	1204.61914	1175.287597	1170.0716	1141.18116	1101.71572	1002.478625	941.3105178	879.4835435	825.7922542	685.6644492
Scrapers	0750	1498.923039	1462.65402	1400.628993	1400.6089	1351.68696	1307.124556	1214.71134	1112.755379	1036.684012	974.8300367	821.2201307
Scrapers	1000	6137.28576	6137.28576	6137.28576	6137.2858	6137.28576	6137.28576	6137.28576	6137.28576	6137.28576	6137.28576	6137.28576
Scrapers	9999	6657.181315	6721.438266	6786.142768	6851.3918	6917.29106	6983.956001	7051.512964	7120.100487	6193.764046	6251.199171	4895.089152
Skid Steer Loaders	0050	82.16987377	77.71394192	73.11946828	71.587378	68.8163862	66.11542497	62.41759879	60.11007769	58.40101202	56.37014565	54.30377422
Skid Steer Loaders	0120	123.0677697	115.6306158	104.6336554	99.390422	92.3714323	85.39246974	75.27511024	69.65853243	64.07364042	60.38314498	55.26091606
Skid Steer Loaders	0175	280.5581667	244.3484982	234.0980597	229.35796	194.212141	162.418853	157.8167599	127.0320517	104.3368277	102.4518355	86.89586796
Skid Steer Loaders	0250	414.5806524	335.5137877	260.0138977	263.55327	267.403232	255.9666169	237.7434757	124.6506091	101.1211975	80.44922507	66.50479567
Skid Steer Loaders	0500	466.0574961	312.6681795	313.1286713	313.48058	141.334189	62.25598833	62.24145214	62.17011956	62.03415672	61.82340857	25.96061461
Skid Steer Loaders	0750	464.9603243	466.8403415	468.5907023	470.21141	471.702455	473.0638467	474.2955821	475.3976611	476.3700838	477.2128501	478.0556164

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ARB OFFROAD2011 NOx EMISSION RATES

Equipment Type	Horsepower Bin	BaseNOx grams/hr										
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Skid Steer Loaders	1000	3032.281431	3039.017404	3045.753377	3052.4894	1415.21786	1444.255039	1475.300431	1508.65935	1544.695269	1583.844357	841.5829499
Surfacing Equipment	0050	60.64053073	59.55315419	58.34041954	58.541577	58.733958	56.49088746	56.67195432	54.04158376	47.67252844	46.23483039	43.25078816
Surfacing Equipment	0120	159.0850833	155.5105128	147.6516814	143.744	136.744739	133.8262161	120.4830306	108.7207526	100.4356708	94.20688947	88.0480122
Surfacing Equipment	0175	295.3051657	270.8631282	260.4032784	261.3911	257.387248	255.1054064	210.5514159	211.0592928	195.9015431	181.5938872	163.641362
Surfacing Equipment	0250	405.6159394	385.4979386	342.9074505	343.7741	344.950967	303.8108957	282.1583029	239.2760943	227.7786271	204.789139	178.7690211
Surfacing Equipment	0500	459.1601954	447.0985535	425.5513775	426.11673	396.326433	349.5959088	253.0364135	235.1006803	204.1519767	194.2536141	178.9723447
Surfacing Equipment	0750	641.1290041	641.872865	609.0678368	609.51963	533.999288	513.6016701	420.7079534	404.0479818	388.2755366	314.8676414	270.0065793
Surfacing Equipment	1000	1546.834296	1403.763307	1408.173354	1412.4321	1416.53896	1420.49354	1424.295187	1427.943192	1246.828628	1092.407938	1093.869182
Surfacing Equipment	9999	2062.523291	1313.786327	1317.338743	1321.834	1326.17867	1330.372704	1334.416123	1338.308926	1342.051112	1345.642681	769.971818
Sweepers/Scrubbers	0050	94.84792152	94.02318991	93.6503386	93.981061	93.7075639	92.4773476	89.38284087	86.2131069	84.04435297	80.40438815	74.85577462
Sweepers/Scrubbers	0120	264.9980911	252.4778388	249.6797847	249.07149	238.549924	220.844947	193.0002299	185.2910304	170.9759071	161.6037028	141.9488715
Sweepers/Scrubbers	0175	723.4212323	709.3713569	686.9998784	675.99132	623.948502	613.9537947	565.4493424	549.2081873	470.0879753	410.2303815	349.799735
Sweepers/Scrubbers	0250	657.091306	620.5517933	624.3342617	628.11673	631.639941	558.5900706	504.3161066	377.0956194	278.4804195	210.78267	154.1631997
Sweepers/Scrubbers	0500	823.056519	826.5106601	829.9648013	833.41894	836.873084	838.8728849	840.2717031	749.1278977	749.738332	750.4417361	751.1451403
Sweepers/Scrubbers	1000	1532.53817	1545.272446	1558.006722	1570.741	1583.47527	1596.20955	1608.943825	1621.678101	1634.412377	1647.146653	871.5785239
Tractors/Loaders/Backhoes	0050	78.64670589	77.89962344	76.32330541	75.879779	74.595768	73.46229683	69.62713586	66.92726007	63.65690749	61.74034053	58.33443231
Tractors/Loaders/Backhoes	0120	185.1579231	179.4703601	170.8791939	166.89361	160.175665	151.1903708	133.9708511	121.2628484	109.7888542	100.5481676	88.23403668
Tractors/Loaders/Backhoes	0175	291.0887108	282.6900748	264.2575565	259.57589	238.62157	221.1866935	188.7800977	168.6364181	149.2897232	129.9687606	106.9589585
Tractors/Loaders/Backhoes	0250	404.8229626	393.9177709	374.0251346	365.20936	343.048653	322.512802	288.8019378	259.7668939	228.8910804	205.0076277	162.5643189
Tractors/Loaders/Backhoes	0500	584.9619672	564.3878383	532.979223	521.1333	477.793641	440.5708658	362.743304	325.6453616	284.2359862	250.5322261	211.1641195
Tractors/Loaders/Backhoes	0750	911.766464	913.8971946	898.5339773	901.9373	876.68129	859.2139409	756.4564757	689.4512841	639.7436681	616.8127826	496.2188036
Tractors/Loaders/Backhoes	1000	1391.741355	1403.739815	1218.734855	1226.2123	1235.3269	1243.787482	1241.979579	1248.038823	942.5596233	948.7943387	941.3594681
Tractors/Loaders/Backhoes	9999	4404.494291	4305.874856	3978.721637	3847.2727	3877.27467	3732.184756	3299.792849	2819.067719	2636.679485	2622.133053	2508.191324
Trenchers	0050	110.6348666	110.138178	109.2331234	108.4948	106.502916	104.1761531	99.82412942	96.68617815	94.52652993	90.71772893	87.25556088
Trenchers	0120	317.2734254	307.2853205	301.2113023	298.89663	290.298988	282.6257255	257.8678003	245.7060932	233.7139275	223.070815	217.0150063
Trenchers	0175	611.4426701	614.095187	572.5971283	570.70791	507.252327	508.9638971	460.4784673	395.6662232	359.8029935	347.8873479	320.3584431
Trenchers	0250	817.5440992	775.1227533	714.2194519	717.07138	708.32413	695.5372455	633.7759322	573.6666285	547.4444428	483.5203854	428.670823
Trenchers	0500	826.0926479	829.1178385	787.3104751	789.69905	739.914647	621.4730895	579.9653747	565.0365975	539.3458791	472.8943991	422.5564882
Trenchers	0750	637.2563476	639.6510438	567.8896924	505.14653	507.237574	444.8480094	319.0247259	219.8803756	174.2745038	147.8469849	93.78180212
Trenchers	1000	5638.864646	5652.239899	5665.615152	5678.9904	5692.36566	5705.740912	5719.116165	5732.491418	5745.866671	5759.241924	5772.617178

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ARB OFFROAD2011 PM EMISSION RATES

Equipment Type	HorsepowerBin	BasePM grams/hr										
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Aerial Lifts	0050	3.507698842	2.79298723	2.250322211	2.2503222	1.48942643	1.134613118	0.842178354	0.654331286	0.449009926	0.360151421	0.31715872
Aerial Lifts	0120	5.727772121	4.625841036	3.702093374	3.7020934	2.51224879	1.862987134	1.315082618	1.060035991	0.866437405	0.684718673	0.616698572
Aerial Lifts	0175	6.938636966	6.307479822	5.32834965	5.3283497	3.43963389	3.246878658	1.26789844	1.278363193	1.2103164	1.08905983	0.972711425
Aerial Lifts	0250	39.21325685	39.62882133	39.73161205	39.731612	35.4662344	35.46885216	35.47146993	0.576038396	0.581535695	0.587032993	0.592530292
Aerial Lifts	0500	26.31786773	11.7235559	11.85491856	11.854919	12.1176439	12.24900655	1.048220225	1.058167718	1.06811521	1.078062703	1.088010196
Bore/Drill Rigs	0050	8.019348949	7.855797102	7.535156509	7.484382	7.55136904	7.112208353	6.679270081	6.2454876	5.90864955	5.846033997	4.963384607
Bore/Drill Rigs	0120	12.4805881	11.5345172	10.47091945	10.470919	9.42878241	8.717680668	7.820536556	7.470920725	6.66915858	5.709076188	5.258803281
Bore/Drill Rigs	0175	16.0700337	14.93410196	13.91302354	13.913024	12.5458001	10.53233019	8.347841055	7.773680665	6.978191806	6.403754539	4.952832148
Bore/Drill Rigs	0250	13.93831696	13.06150053	11.33038536	11.330385	10.0197209	8.564098482	7.299759938	6.443953776	6.018807578	5.755180615	4.830788995
Bore/Drill Rigs	0500	21.84358307	20.22030621	18.61009681	18.610097	16.2835826	14.79795153	11.99035515	11.67855557	9.721859779	7.886709476	7.020667398
Bore/Drill Rigs	0750	28.84961138	26.99021345	25.21120822	25.211208	22.5785569	22.11801754	15.9603739	14.98367385	12.10778286	11.26828434	8.912696865
Bore/Drill Rigs	1000	47.42936296	37.85294367	26.92048732	26.920487	27.3812377	27.65917021	27.9010676	28.10339717	28.26031452	28.36140299	8.471825172
Bore/Drill Rigs	9999	132.7903711	135.5889417	138.0199035	138.0199	141.779001	143.1071357	144.0676621	144.6605796	145.2534971	145.8464146	146.4393321
Cranes	0050	7.286212693	7.143621727	7.10834436	7.1083444	7.33390288	7.445780478	7.492929315	7.415763239	7.523303931	7.611797683	7.678128401
Cranes	0120	20.37732623	20.00556284	19.93804501	19.938045	19.4350111	18.89825649	17.54538783	16.43248869	15.62517517	14.79424185	13.13145527
Cranes	0175	20.48387966	20.30523275	19.59891961	19.59892	19.0479193	18.63249667	17.7730432	17.07954963	16.52423271	15.99231849	14.29436584
Cranes	0250	23.78968975	23.43228961	22.8637733	22.863773	22.6871741	21.79589608	20.58204227	19.83308689	18.96530259	18.73513237	16.9933224
Cranes	0500	27.22135273	26.24770055	25.53663296	25.536633	24.0829858	23.1452263	21.30215019	20.38445905	19.70967396	18.84718121	17.11666775
Cranes	0750	24.79292149	24.55318502	24.63044826	24.630448	24.9777054	24.97261405	23.21896141	22.84848979	22.15636203	20.88744793	19.65901386
Cranes	1000	154.9950807	155.2718192	155.5434226	155.54342	156.072071	156.3360816	127.9218408	126.3867338	99.3959195	100.0495221	100.3914947
Cranes	9999	46.32608152	47.11854179	16.13556257	16.135563	16.7537146	17.05502416	17.35115606	17.64211031	17.92788692	18.20848588	18.48390718
Crawler Tractors	0050	14.03622412	13.71719151	13.63693784	13.636938	13.620215	13.39408097	13.10951028	13.00414165	13.08187053	12.98594403	12.47694651
Crawler Tractors	0120	23.56164328	23.71640488	23.53777089	23.537771	23.4654199	23.2426984	22.4012329	21.76089002	20.64723463	20.00008167	18.59360544
Crawler Tractors	0175	24.48965002	24.46151226	24.32389374	24.323894	24.4045395	24.26879915	22.9394179	21.59049452	20.35900658	19.18433547	17.26087953
Crawler Tractors	0250	21.7359254	21.59091901	21.35646422	21.356464	21.2675959	20.90451077	19.67103458	18.60773443	17.28629587	16.3167153	14.47650928
Crawler Tractors	0500	33.18665611	33.11031723	32.39232835	32.392328	32.1007553	31.39154013	28.76983596	27.07831926	25.52957655	23.78288559	20.16079177
Crawler Tractors	0750	46.08632486	44.90234083	43.8386433	43.838643	42.9332209	41.08631848	37.76976423	35.47237632	34.55671252	33.00315221	27.38022469
Crawler Tractors	1000	76.11984944	76.81715395	77.4845657	77.484566	78.7289345	79.3054792	79.85126537	74.80063051	68.63928905	68.98480348	58.12960366
Crawler Tractors	9999	100.9014447	102.3354387	103.6997558	103.69976	106.211488	107.353909	108.4164231	100.4621787	101.169991	101.8377408	102.4062438
Excavators	0050	5.626883005	5.371546307	5.193470562	5.1934706	4.91929874	4.563729214	3.933717898	3.483224617	3.04483607	2.755716223	2.282247684
Excavators	0120	13.54184544	12.64009462	12.02648571	12.026486	11.0506335	10.1542316	8.621013901	7.557122887	6.637336417	5.87886717	4.798326185
Excavators	0175	15.33626757	14.17479683	12.91389956	12.9139	11.8469385	10.82163841	9.101149827	8.012988567	7.144911814	6.32104595	5.07093055
Excavators	0250	14.07876444	13.39272514	12.04501027	12.04501	10.7306619	9.787420245	7.820841103	6.690277015	5.85201579	5.03338062	3.985841215
Excavators	0500	16.47784761	15.39588694	14.13339348	14.133393	12.6700777	11.5165747	9.33276044	7.995383068	6.89811873	6.08886092	4.789809133
Excavators	0750	32.04530263	29.46270858	24.80627174	24.806272	24.4786145	21.24143541	17.63488062	16.19456875	14.95592006	13.12603525	11.66390132
Excavators	1000	70.70118691	71.29770817	67.14761481	67.147615	67.826312	36.50844267	25.81454038	21.71323751	22.02680932	22.33271547	8.509104033
Excavators	9999	78.07102286	66.55221135	55.58611411	55.586114	57.2150466	58.01338848	34.47369631	34.63887617	35.01884723	35.38363352	13.5610261
Forklifts	0050	6.14126785	5.900633646	5.685569298	5.6855693	5.3598294	5.093085051	4.484244707	4.033837299	3.615345366	3.248810715	2.928922779
Forklifts	0120	10.26707459	10.03824066	9.649580804	9.6495808	9.01300345	8.487827093	7.37561371	6.777090876	5.911461565	5.388734849	4.692093307
Forklifts	0175	10.99732423	10.75266544	10.22826724	10.228267	9.66879253	9.211922898	8.248258816	7.563547394	6.398034754	5.666042122	4.891315437
Forklifts	0250	15.93416054	15.11375045	15.06632185	15.066322	14.0830468	13.47707286	11.03278913	9.27735226	7.762645278	7.273736927	5.918196269
Forklifts	0500	25.5165885	23.29375193	23.02331254	23.023313	19.6612524	16.05304941	14.03745131	13.1915258	10.23034758	9.587705092	6.837383975
Forklifts	1000	154.3016218	154.3016218	154.3016218	154.30162	154.301622	154.3016218	154.3016218	154.3016218	154.3016218	154.3016218	154.3016218
Graders	0050	13.8803503	13.99553553	13.87968491	13.879685	14.072764	14.11965156	13.47820686	13.51790184	13.11872585	12.79215295	12.0836836
Graders	0120	31.53623491	31.58903445	31.39478289	31.394783	31.4704448	31.35527119	29.01910509	28.47867971	26.82042027	26.26554633	24.20123798
Graders	0175	29.99228975	29.95913045	29.76048424	29.760484	29.2967268	28.36293814	26.32410599	25.13360973	23.4074121	21.93973736	19.11364501
Graders	0250	15.48409738	15.44862167	15.49849975	15.4985	15.6681319	15.59020786	15.18264996	15.00150328	14.52275329	13.44741218	11.98185323
Graders	0500	17.37904154	16.93575726	17.21576484	17.215765	17.3844606	17.18544735	16.25922332	15.93578608	15.15524589	14.95719872	14.05212729
Graders	1000	105.0139402	105.2075671	105.2075671	105.20757	105.207567	105.2075671	105.2075671	105.2075671	105.2075671	105.2075671	7.030314507
Graders	9999	158.0715821	159.6069737	161.0176594	161.01766	163.304458	164.9458988	166.5010711	167.9701005	169.3531405	170.6503806	171.7699815

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ARB OFFROAD2011 PM EMISSION RATES

Equipment Type	HorsepowerBin	BasePM grams/hr										
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
None	0											
Off-Highway Tractors	0050	9.813597477	9.639299351	9.54714098	9.547141	9.36156483	9.096345177	8.253846039	7.632857022	7.224254131	6.682395005	5.630552786
Off-Highway Tractors	0120	19.08383874	18.59001375	17.43239614	17.432396	16.3122045	15.39705791	13.86860615	12.87219659	11.80373896	10.82896679	9.623264905
Off-Highway Tractors	0175	20.61580449	19.33952532	17.98721138	17.987211	16.0810824	14.51316044	12.86011581	11.41748898	10.1633835	9.525207361	7.9104556
Off-Highway Tractors	0250	20.94160652	20.44153892	18.9782533	18.978253	18.3114313	17.39692449	14.51654268	13.04511776	11.56826567	9.909337768	7.404765869
Off-Highway Tractors	0500	25.67477007	23.21599495	21.10348466	21.103485	19.3492079	17.19755225	14.43934654	12.63878567	10.79491313	9.316532874	7.938047012
Off-Highway Tractors	0750	42.1794268	40.05268828	33.96500926	33.965009	32.4059998	27.77959186	20.80985324	21.17557015	18.72249455	15.80629292	15.3900552
Off-Highway Tractors	1000	271.919232	271.919232	271.919232	271.91923	271.919232	271.919232	271.919232	271.919232	271.919232	271.919232	271.919232
Off-Highway Tractors	9999	272.9336692	274.5243848	276.1656682	276.16567	209.459498	211.1337492	212.8863021	98.89908672	98.89485684	99.73590538	100.5801828
Off-Highway Trucks	0050	6.748887107	6.675912052	6.731289463	6.7312895	6.76892584	5.884334013	4.883571231	4.412790655	4.049691467	3.745329242	3.376693438
Off-Highway Trucks	0120	20.77373128	19.34255005	16.07111436	16.071114	16.2176296	15.02329115	13.99471287	14.05699793	14.11428107	12.0278498	9.664409898
Off-Highway Trucks	0175	21.45222565	20.03467486	17.83034515	17.830345	16.2315487	14.96146587	12.45213488	10.57782012	9.35832881	8.380090726	6.417042424
Off-Highway Trucks	0250	22.30201187	21.61975008	20.49145581	20.491456	19.7304937	18.12049754	14.82137811	13.5435094	12.04762634	10.51541363	8.042315601
Off-Highway Trucks	0500	29.8953909	28.30734012	26.59266663	26.592667	24.6329503	22.97049355	19.39145589	17.70407019	15.43754006	13.65465935	10.69124917
Off-Highway Trucks	0750	70.23209814	68.59526594	65.67897615	65.678976	64.2632412	58.3824629	45.7032613	39.69480225	36.19565131	30.65729857	25.86967761
Off-Highway Trucks	1000	73.09158885	70.32544896	65.19267646	65.192676	64.0395466	59.99534492	48.04117931	47.2112334	45.03677828	40.91411174	32.42829841
Off-Highway Trucks	9999	141.1721715	136.222148	124.984411	124.98441	113.593661	109.6144327	85.3545129	82.53503183	74.62765663	67.96896439	49.20818171
Other Construction Equipment	0050	7.944839601	8.035546468	7.930074477	7.9300745	7.85125992	7.657385289	7.246352481	7.039634973	6.691311156	6.431843482	6.0137566
Other Construction Equipment	0120	18.40644806	18.05588677	17.62166255	17.621663	17.0341886	16.64366558	15.11037863	14.27451254	13.50281781	12.97246265	11.38747689
Other Construction Equipment	0175	22.97684718	22.36392872	21.80849761	21.808498	21.2219807	19.80712812	18.12615873	17.15070432	16.36115572	15.20428032	12.9285492
Other Construction Equipment	0250	23.32570984	21.72716254	19.55160212	19.551602	19.1564213	18.05954339	16.2573067	14.92613389	13.96238499	12.92967871	10.91380021
Other Construction Equipment	0500	30.51551776	29.29053189	26.44350563	26.443506	25.4032924	23.34087785	20.25021099	18.21353141	16.54625104	15.68950317	13.1730279
Other Construction Equipment	0750	38.1627811	37.17630424	35.94519295	35.945193	35.8751016	34.70756083	31.70887061	30.44211886	27.47406514	23.48744362	19.01919173
Other Construction Equipment	1000	51.19366811	46.74345368	40.29098079	40.290981	37.3241589	31.30418617	31.63476776	32.05001492	25.70788062	25.89128646	19.3946178
Other Construction Equipment	9999	101.8158758	102.5146609	68.22536	68.22536	70.2922338	61.13713397	61.94237115	62.78346568	63.61463679	64.43886914	65.25963997
Other General Industrial Equipment	0050	6.830093392	6.672396897	6.533807634	6.5338076	6.13359728	5.834785848	5.167181125	4.682304151	4.121832761	3.644456455	3.071476855
Other General Industrial Equipment	0120	15.30536869	14.93803349	14.62588955	14.62589	13.4295022	12.38259127	10.69142987	9.760354184	8.337809947	7.676462825	6.214843535
Other General Industrial Equipment	0175	17.77862332	17.21670183	16.53607326	16.536073	15.4184351	14.21589389	12.08859276	9.618301203	8.52516271	8.022009446	6.937752126
Other General Industrial Equipment	0250	22.02878436	19.90761505	18.59116749	18.591167	16.107877	14.71806395	11.4989458	10.00669948	8.720485244	8.447367977	7.87729136
Other General Industrial Equipment	0500	25.07275007	22.39481861	21.82001106	21.820011	20.3787627	19.43605587	17.71975033	16.34022761	14.38234731	11.57787982	9.829161712
Other General Industrial Equipment	0750	32.5267487	28.1398811	25.11677783	25.116778	22.1021191	18.20243386	16.70316031	16.15791612	12.57874806	11.8293855	9.881421103
Other General Industrial Equipment	1000	47.62994821	49.02806029	50.42617237	50.426172	33.8632392	34.61219583	35.0342676	35.45633937	35.87841114	36.18256091	24.04513076
Other General Industrial Equipment	9999	72.26691667	74.69246001	77.11800334	77.118003	81.96909	84.39463334	86.82017668	89.24572001	12.53743433	12.98358349	13.42973265
Other Material Handling Equipment	0050	8.757198579	8.421433483	8.125868603	8.1258686	8.38457403	7.712942982	6.611065111	6.543543396	6.364401326	5.747950769	5.599341019
Other Material Handling Equipment	0120	18.99983803	16.48650027	15.22914065	15.229141	13.8996421	12.95052102	10.75718847	9.498421465	8.339571063	7.472823488	5.554610334
Other Material Handling Equipment	0175	20.37554446	19.08661592	17.94158585	17.941586	16.8559657	15.56314621	12.1700877	10.99038126	9.54718876	9.109359601	7.878955531
Other Material Handling Equipment	0250	25.04198176	24.25922893	22.89520433	22.895204	22.0080221	19.29194418	14.26603603	12.46590998	8.834865571	8.625797103	7.71265396
Other Material Handling Equipment	0500	28.09590243	27.57126097	26.03593697	26.035937	25.633014	24.32672078	21.25980735	19.57894036	18.45730666	17.60804451	15.31155991
Other Material Handling Equipment	0750	24.70951327	25.4213366	26.13315994	26.13316	27.5568066	25.72774122	22.97791976	23.47764218	17.19958199	17.51913408	17.79692683
Other Material Handling Equipment	1000	39.59218057	40.83956946	6.437556755	6.4375568	6.65786673	6.878176713	7.098486692	7.318796671	7.53910665	7.759416628	7.979726607
Other Material Handling Equipment	9999	44.18915083	45.57993468	27.60061802	27.600618	29.1449529	29.97977619	30.81459949	31.64942279	32.4842461	8.075201545	8.200513288
Pavers	0050	9.771381896	9.709122578	9.540029153	9.5400292	9.26311676	9.077455817	8.627092522	7.822524548	7.566370387	7.092542194	6.384371238
Pavers	0120	17.30149575	16.59844215	16.04731725	16.047317	15.4220605	15.16675588	13.35578858	12.52654616	12.03624578	11.33110187	9.617982918
Pavers	0175	21.63426627	20.0686895	18.94900056	18.949001	16.6472823	15.3752631	13.14169726	12.27130427	11.00791789	10.01950627	7.520700862
Pavers	0250	10.0969098	9.421182462	9.330092592	9.3300926	9.24325668	8.860334668	7.980631084	7.301657814	6.430295006	5.960944443	4.827291555
Pavers	0500	17.2386577	15.97941704	13.76196757	13.761968	13.0875524	11.89252611	11.23272559	11.0207011	10.49229168	10.05774273	8.582596756
Pavers	0750	31.42856589	31.9515337	32.46195182	32.461952	33.445139	33.91790804	34.37812741	16.28615328	16.24471925	16.37762674	2.740065723
Paving Equipment	0050	5.812182364	5.750536002	5.522985409	5.5229854	5.10909528	4.561035221	3.806971706	3.667640601	2.829196075	2.484459715	2.360498889
Paving Equipment	0120	17.18527333	16.03426601	15.46756344	15.467563	14.2605221	13.06667636	10.72169825	10.09941623	8.983191197	7.748040082	6.345590732
Paving Equipment	0175	15.29962012	14.27277468	13.27552265	13.275523	11.9520612	10.98972777	9.539710962	8.314407655	7.447999468	6.780753164	6.1806454
Paving Equipment	0250	16.49843789	16.22722137	14.82045197	14.820452	13.901799	13.19610457	10.99138017	10.96033027	9.573278202	8.032841705	7.046522062
Paving Equipment	0500	22.35631301	20.61571566	19.97459953	19.9746	20.1429595	18.6871106	13.39629162	12.16504472	11.98649956	11.12073791	7.503093686

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ARB OFFROAD2011 PM EMISSION RATES

Equipment Type	HorsepowerBin	BasePM grams/hr										
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Paving Equipment	0750	24.42520839	19.16069686	19.48335528	19.483355	20.0992749	17.3979823	17.649698	15.26534436	13.67300129	11.68555975	8.274862433
Paving Equipment	1000	64.21905869	64.70146905	33.071831	33.071831	34.133322	34.64879743	10.77423263	10.97113561	11.16471481	11.35497021	11.54190183
Rollers	0050	6.846538061	6.703468457	6.517184978	6.517185	6.33706939	6.06676906	5.458674996	5.057700417	4.748501073	4.321457086	3.706228109
Rollers	0120	17.39482696	16.57920799	15.72136587	15.721366	14.6755129	13.87428228	11.51648953	10.45911123	9.508714803	8.742726957	7.30684379
Rollers	0175	13.7720828	12.98318834	12.10087217	12.100872	11.1726786	10.26761832	8.603681501	7.629261409	6.688435626	6.083796432	4.867937544
Rollers	0250	19.27864245	17.02071885	14.96766359	14.967664	14.0175587	12.76651546	9.565176472	8.309791364	7.978891791	7.658503937	6.496299929
Rollers	0500	34.90089909	30.99646522	30.44164822	30.441648	27.9795458	22.683135	19.38719354	14.3551889	14.1716117	14.02602584	12.8520317
Rollers	0750	61.4267973	61.99304409	62.55359433	62.553594	47.0697248	47.44066567	9.194228353	9.315468081	9.43367288	9.54884275	9.66097769
Rough Terrain Forklifts	0050	9.051337911	8.622516715	8.285469202	8.2854692	7.88683327	7.094521596	6.824786966	6.285304518	5.762309669	5.69197142	4.010375769
Rough Terrain Forklifts	0120	13.15271797	11.62647146	10.22697305	10.226973	8.5004899	7.246571043	5.591281236	4.879227347	4.307597533	3.88481721	3.18786925
Rough Terrain Forklifts	0175	9.825836019	8.216015017	7.649669489	7.6496695	6.76623102	6.140641258	5.042717353	4.488650515	3.863695105	3.168439203	2.594861282
Rough Terrain Forklifts	0250	26.68342542	23.46155317	22.6309653	22.630965	23.144964	23.4020262	22.70519042	22.66194426	22.18245498	11.75962207	1.578695807
Rough Terrain Forklifts	0500	25.71544474	21.1328755	21.34403109	21.344031	21.7683361	21.99407029	14.37101738	14.46384155	12.97765408	1.340748441	1.352575039
Rough Terrain Forklifts	0750	198.7425758	200.0846683	201.4267608	201.42676	204.110946	205.4530383	206.7951308	208.1372233	209.4793158	2.270743974	2.290733782
Rubber Tired Dozers	0050	14.32139699	14.27305268	14.41065503	14.410655	14.5586549	14.58888068	14.59703372	14.59897555	14.59891853	14.59885824	14.60337167
Rubber Tired Dozers	0120	27.13369114	27.4202984	27.6369845	27.636984	27.899625	27.1973336	26.79525199	26.81306315	26.00854132	25.62637727	24.64586312
Rubber Tired Dozers	0175	33.09366288	33.19837062	33.29670471	33.296705	33.4745535	32.29133831	31.59294294	30.54684975	29.87484016	29.88378976	29.05143825
Rubber Tired Dozers	0250	33.19312518	32.9392488	32.73256109	32.732561	32.9664549	32.64804727	32.72473148	32.76584907	32.23676677	31.26892978	26.73680589
Rubber Tired Dozers	0500	56.19119065	54.55898129	53.11113054	53.111131	52.4813526	51.44330958	47.78804049	45.95540452	44.21350948	43.29361427	40.22451537
Rubber Tired Dozers	0750	63.19077789	63.43442248	63.67287065	63.672871	64.1341776	60.06217557	57.2688347	57.27284311	57.27655346	57.27995229	57.28302462
Rubber Tired Loaders	0050	10.91636782	10.51161491	10.32218424	10.322184	10.1510834	9.876538573	9.515313393	8.477296227	8.017185674	7.22461655	6.53370071
Rubber Tired Loaders	0120	20.90719725	20.47013648	19.604293	19.604293	18.4663216	17.63900582	15.96210484	14.65349486	13.41718786	12.18297532	10.63962483
Rubber Tired Loaders	0175	20.60057503	20.06461671	19.22797682	19.227977	18.1558031	17.08223315	15.23424605	14.02119039	12.89620053	11.84872965	9.761012431
Rubber Tired Loaders	0250	14.75149118	14.63605889	14.00150291	14.001503	13.5064477	12.8518534	11.14206638	10.28995326	9.457816519	8.600928912	7.266034762
Rubber Tired Loaders	0500	24.39516712	24.26623327	23.47225558	23.472256	23.0053501	22.0183791	19.67196108	17.99518145	16.31732366	14.97015522	12.27462631
Rubber Tired Loaders	0750	43.74181229	43.33318074	41.19470627	41.194706	39.9820265	39.55339348	33.66920356	28.83198227	27.89736178	25.45120821	22.29789292
Rubber Tired Loaders	1000	58.70266764	58.43253754	59.04864329	59.048643	59.9042633	58.08578312	52.82066348	50.63509078	50.56001233	50.67761423	41.3177225
Rubber Tired Loaders	9999	97.35630208	99.23307651	101.0324609	101.03246	103.884091	89.44817598	60.18730619	60.33736646	60.58566311	60.81967064	61.03833888
Scrapers	0050	15.24228736	15.43294152	15.61669256	15.616693	15.9450482	16.08864674	16.22661098	16.35894092	16.48563657	16.60669794	14.6959102
Scrapers	0120	21.11328143	21.29327775	21.40613765	21.406138	22.0912404	22.41313053	22.38210782	22.13437715	21.53261933	21.5420022	20.67949944
Scrapers	0175	35.93893041	35.20538679	34.00359271	34.003593	33.1400265	31.39329983	28.50486474	27.30870939	26.02001279	24.07980233	21.6951501
Scrapers	0250	46.67490312	45.91359169	44.7918783	44.791878	44.2647224	42.87606787	38.85140804	35.93988797	34.38625157	32.04441415	28.50429412
Scrapers	0500	49.41753623	48.78890171	47.76266785	47.762668	46.8768109	45.38922013	41.16910146	38.58281341	36.09818414	33.91101746	27.98986278
Scrapers	0750	57.07799783	55.96315108	53.68998506	53.689985	52.4712912	50.72529717	46.89306976	43.17809549	40.785586	38.64233113	32.26099135
Scrapers	1000	286.1426995	286.1426995	286.1426995	286.1427	286.1427	286.1426995	286.1426995	286.1426995	286.1426995	286.1426995	286.1426995
Scrapers	9999	245.1481675	249.7970411	254.4735064	254.47351	263.937123	268.7398374	273.6014204	278.5316213	223.3411531	227.3832955	150.0645582
Skid Steer Loaders	0050	6.21002789	5.420718092	4.63871923	4.6387192	3.92733687	3.514658864	2.860706118	2.446496655	2.169682127	1.830465702	1.493404277
Skid Steer Loaders	0120	7.877902029	7.059058266	6.130001598	6.1300016	5.18321156	4.582682685	3.698205363	3.21393441	2.718894923	2.406251098	1.965831652
Skid Steer Loaders	0175	13.5914196	11.06182439	10.6716396	10.67164	8.90167616	7.051225475	6.869540163	5.21268632	4.071341486	3.969770799	3.591793353
Skid Steer Loaders	0250	16.90328719	13.28784141	9.230992729	9.2309927	9.79146094	9.479902825	8.771037221	3.634707229	3.106614032	2.650271777	2.019195669
Skid Steer Loaders	0500	16.22173822	10.96830664	11.01613797	11.016138	3.72264427	0.881425553	0.89295505	0.903786508	0.913920029	0.923355743	0.895177699
Skid Steer Loaders	0750	18.85773586	19.13462717	19.39242254	19.392423	19.8507254	20.0512329	20.23264445	20.39496005	20.5381797	20.66230339	20.78642708
Skid Steer Loaders	1000	108.8819387	108.9629155	109.0438924	109.04389	34.6764826	35.96006363	37.33977929	38.82968167	40.44649943	42.21030697	6.792874669
Surfacing Equipment	0050	5.081481069	4.915596662	4.669323837	4.6693238	4.76662027	4.327830567	4.368160975	3.923947543	2.734097591	2.420898702	1.888405177
Surfacing Equipment	0120	11.39369238	11.0948259	10.46661335	10.466613	9.47241493	9.169451977	7.728248022	6.657893331	5.936992615	5.369085592	4.896157421
Surfacing Equipment	0175	14.35710658	13.1686281	12.5518346	12.551835	12.4981432	12.41674215	10.07407407	10.15637091	9.432610213	8.728463163	8.052853968
Surfacing Equipment	0250	13.50008808	12.35628999	10.34136549	10.341365	10.5451982	8.990936843	8.338580611	7.218305856	6.993072684	6.164792757	5.368657777
Surfacing Equipment	0500	14.67192833	14.3514545	13.71024981	13.71025	12.9807949	11.65895616	9.068615012	8.695013954	7.465594474	6.984885949	6.614106028
Surfacing Equipment	0750	20.13698463	20.30902467	19.13385866	19.133859	17.179604	16.76645017	14.51346452	14.14857104	13.79102905	11.83880628	10.13462365
Surfacing Equipment	1000	39.50891697	34.10515024	34.3815355	34.381535	34.9042827	35.15062471	35.38692964	35.61318308	29.90303924	25.07485701	25.16357295

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ARB OFFROAD2011 PM EMISSION RATES

Equipment Type	HorsepowerBin	BasePM grams/hr										
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Surfacing Equipment	9999	57.94176848	29.39310782	29.6589907	29.658991	30.3207231	30.63467767	30.93735775	31.22876339	31.50889457	31.7777513	10.82589059
Sweepers/Scrubbers	0050	10.06845875	9.898692242	9.837791486	9.8377915	9.94226465	9.684701786	8.973107164	8.201870809	7.723073387	6.969280508	5.756108216
Sweepers/Scrubbers	0120	23.25982047	22.10394119	22.04609056	22.046091	21.2661949	19.21880293	16.17545876	15.43894383	14.02361259	12.85432806	10.52854828
Sweepers/Scrubbers	0175	40.51751153	39.72089371	38.17125298	38.171253	34.2596764	33.61173818	30.66409871	29.51978014	24.36628712	20.30891817	16.7511242
Sweepers/Scrubbers	0250	26.68055915	24.49065722	24.70791386	24.707914	25.1304167	21.63354639	20.29478256	15.09404441	9.625805904	7.386984012	4.657195953
Sweepers/Scrubbers	0500	35.17880178	35.51757361	35.85634544	35.856345	36.5338891	36.77872597	36.98474568	32.52116651	32.61107205	32.7093331	32.80759416
Sweepers/Scrubbers	1000	37.37463092	38.49994309	39.62525527	39.625255	41.8758796	43.00119179	44.12650396	45.25181613	46.37712831	47.50244048	6.799321834
Tractors/Loaders/Backhoes	0050	7.579586719	7.384121555	7.003900075	7.0039001	6.62036057	6.381601293	5.586789119	5.0138594	4.384592901	4.004100528	3.352996252
Tractors/Loaders/Backhoes	0120	14.91028169	14.30224519	13.45338363	13.453384	12.4395051	11.51145119	9.716287685	8.431865752	7.307485317	6.397596475	5.182758109
Tractors/Loaders/Backhoes	0175	14.81927951	14.30945486	13.33561066	13.335611	12.1625171	11.32642795	9.656361275	8.595681887	7.624610271	6.627437107	5.463663443
Tractors/Loaders/Backhoes	0250	13.01153337	12.70887319	12.14322915	12.143229	11.3965185	10.81655688	9.792366039	8.831589403	7.926470645	7.225668132	5.905717424
Tractors/Loaders/Backhoes	0500	19.76493986	19.18800978	18.08602768	18.086028	16.5911224	15.58754711	12.93048335	11.69926137	10.28193724	9.183384079	7.813680628
Tractors/Loaders/Backhoes	0750	32.35458569	32.81678751	32.52676995	32.52677	32.330633	31.93769988	28.14797878	25.01298561	23.3901616	22.7502797	18.98806029
Tractors/Loaders/Backhoes	1000	25.60305781	26.29465863	27.03504644	27.035046	28.2011675	28.7548784	26.13230757	26.52027233	15.93237176	16.22980052	16.10759812
Tractors/Loaders/Backhoes	9999	138.7826674	134.079133	119.2865075	119.28651	117.964528	113.3274314	89.86721088	65.33169178	56.57372155	56.26826036	51.65687143
Trenchers	0050	10.23811702	10.17891584	10.04258996	10.04259	9.60941682	9.157160365	8.316036988	7.723358211	7.311693309	6.567130382	5.889033336
Trenchers	0120	24.89840869	24.03122333	23.56445655	23.564457	22.8546232	22.23017102	19.8185176	18.74239778	17.57968325	16.59483047	15.91355073
Trenchers	0175	31.52183279	31.87136311	29.58958039	29.58958	26.4220947	26.65489222	24.31329309	20.49312401	18.59514065	18.10124067	16.5146181
Trenchers	0250	32.18237985	30.48108869	28.48710911	28.487109	28.4025241	28.27085872	26.66490374	23.27733783	22.4376453	19.30471505	17.68043857
Trenchers	0500	30.28534893	30.60730916	29.02358621	29.023586	26.9728388	23.21927788	21.83879878	21.27545799	20.73532406	18.51731153	17.32884316
Trenchers	0750	21.5904835	21.91011006	19.06784735	19.067847	16.7584222	14.22526803	8.911269348	4.74193968	2.812246385	2.795040539	2.775949072
Trenchers	1000	253.6758664	255.1307487	256.5856311	256.58563	259.495396	260.9502783	262.4051606	263.860043	265.3149254	266.7698078	268.2246902

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ARB OFFROAD2011 HYDROCARBON EMISSION RATES

Equipment Type	HorsepowerBin	BaseHC grams/hr										
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Aerial Lifts	0050	4.429599202	3.624586493	3.073497451	2.9401334	2.67024261	2.483113743	2.335094458	2.202949857	2.023932504	1.901625048	1.873886709
Aerial Lifts	0120	5.518246923	4.603322903	3.850879013	3.6371885	3.07616078	2.652087113	2.321688487	2.191295873	2.099570865	1.999125402	1.915455348
Aerial Lifts	0175	7.75566908	7.32745692	6.460230894	5.7053543	4.99122427	4.794055524	3.085188554	3.164345747	3.19664942	3.138541696	2.938902263
Aerial Lifts	0250	57.98898852	58.47278285	58.61531612	58.702624	51.365023	51.43404344	51.50306385	2.978783855	3.123726716	3.268669578	3.413612439
Aerial Lifts	0500	44.86102681	22.69946806	23.00708082	23.314694	23.6223063	23.9299191	6.511891573	6.826730829	7.141570084	7.45640934	7.771248595
Bore/Drill Rigs	0050	14.30349933	13.96737311	13.60274316	13.81373	14.1781706	13.53736838	12.90261696	12.42762433	11.97521327	11.88716493	10.71193411
Bore/Drill Rigs	0120	12.63349884	11.99237125	11.11652419	11.125559	10.8567823	10.19436467	9.439862817	9.165477666	8.588103473	7.802795722	7.485335298
Bore/Drill Rigs	0175	20.81057081	19.79771486	18.9969065	18.967	18.1219525	15.95305998	13.35075376	12.86026678	11.88090779	11.13131249	9.438306586
Bore/Drill Rigs	0250	21.68429947	20.9875871	19.29159725	19.008808	18.2228724	16.36513493	14.69405656	13.54225455	13.04727432	12.66045781	11.40663401
Bore/Drill Rigs	0500	33.08207823	31.84619867	30.4333547	29.849022	28.5541095	27.06809722	23.71842111	23.60543799	21.00278166	18.50872207	17.2625552
Bore/Drill Rigs	0750	41.82471416	41.14072565	40.58304262	41.803733	39.5971554	39.51255971	31.18139604	30.18495747	27.2975842	26.48683695	23.81942936
Bore/Drill Rigs	1000	67.47115861	51.42376457	40.07374131	41.699277	44.0333719	46.02047564	47.80001977	49.36884744	50.72173606	51.84937725	22.47240582
Bore/Drill Rigs	9999	170.3263694	180.592636	189.5103611	197.07955	203.300209	208.1723322	211.6959211	213.870976	216.0460309	218.2210858	220.3961407
Cranes	0050	20.93284231	20.69346272	20.45711473	20.876193	21.2942513	21.70162014	20.7278956	20.44368172	20.82412116	21.13035402	21.350049
Cranes	0120	27.57747468	27.02906885	26.87711651	26.549437	26.1850192	25.42339404	23.53997242	21.91028607	20.89420904	19.75031027	17.41629579
Cranes	0175	29.35112184	29.07601314	28.08133373	28.242907	27.3459638	26.83801203	25.64336735	24.75339547	24.0355569	23.37379107	21.09388168
Cranes	0250	35.76882172	35.31255928	34.58276817	34.56708	34.5685348	33.4109596	31.80632196	30.80271872	29.71165346	29.50305652	27.02403429
Cranes	0500	41.1916799	40.0050294	39.21068372	38.897055	37.5569513	36.42388702	34.00291588	32.94474278	32.24396754	31.27311247	28.99427284
Cranes	0750	36.82011075	37.17848838	37.7988077	38.615547	39.460428	40.05618041	37.74982431	37.66098036	37.07550065	35.59174572	34.25182548
Cranes	1000	231.5530042	232.0836211	232.6046887	233.11622	233.619286	234.1244393	193.4082869	190.7954405	152.191221	153.4969943	154.348594
Cranes	9999	81.94076059	82.94428173	29.52938683	32.163174	34.7532069	37.29948474	39.80200784	42.26077617	44.67578973	47.04704852	49.37455255
Crawler Tractors	0050	39.59543292	38.74698364	38.28872329	38.704824	38.7969132	38.37915423	37.74076569	37.55805378	37.83421677	37.7249927	36.51616048
Crawler Tractors	0120	27.57286187	27.64943169	27.35761795	27.440161	27.2477804	27.03041551	26.11467574	25.39242697	24.23841839	23.63402126	22.21179052
Crawler Tractors	0175	33.96317138	33.96338231	33.77486965	34.077802	33.9565963	33.84032197	32.18475509	30.53759298	29.017152	27.59193668	25.15216735
Crawler Tractors	0250	33.21331324	33.25960359	33.1879086	33.451785	33.5925015	33.31745508	31.7594085	30.44323659	28.74215268	27.54431012	25.13742933
Crawler Tractors	0500	50.93878606	51.2980824	50.73363092	51.165886	51.2088443	50.63588517	47.2230142	45.16660843	43.26390397	41.08071893	36.37657951
Crawler Tractors	0750	72.25482173	71.25562667	70.3380702	71.240607	70.552597	68.54895969	64.30853337	61.66235987	60.97449803	59.31009598	51.88599582
Crawler Tractors	1000	137.0839529	138.3179717	139.4871473	140.59017	141.625459	142.5910447	143.4841299	134.9554476	124.8160185	125.675556	105.6723374
Crawler Tractors	9999	176.6711561	179.5848235	182.3410027	184.93454	187.359199	189.6074346	191.6699602	179.4877297	180.4762651	181.7413438	182.7624366
Excavators	0050	9.649167152	9.452231964	9.316082795	9.4029407	9.25916451	8.793849369	7.931576506	7.395030926	6.74947859	6.388607036	5.663449204
Excavators	0120	14.63025666	13.87665152	13.3359192	13.269733	12.6263801	11.86978641	10.46310587	9.522239044	8.744739805	8.09219582	7.097928787
Excavators	0175	20.70686852	19.57064871	18.16834188	18.004661	17.3499754	16.27526312	14.24784723	13.03471123	12.08673712	11.18183771	9.665825352
Excavators	0250	23.32927161	22.61376476	20.91804435	20.73894	19.5784938	18.42644595	15.66340461	14.27838045	13.30912777	12.29897844	10.88522759
Excavators	0500	26.88812761	26.08970443	24.91781253	25.148458	23.9691169	22.64968416	19.59262418	17.96433664	16.61702702	15.70672117	14.07160769
Excavators	0750	51.21901792	48.57919141	43.03794206	43.648294	44.4505745	40.39276559	35.78264263	34.13971024	33.04881041	31.325568	29.33127373
Excavators	1000	115.3902342	116.9443654	111.3241594	112.21141	113.300568	66.08561422	47.52571837	42.30475399	43.91185243	45.45360801	25.0055686
Excavators	9999	126.8848679	110.44521	100.0103657	104.59819	109.813773	114.7897645	71.28758724	72.68014561	76.20082412	79.57577599	39.95694935
Forklifts	0050	16.58075506	15.81548609	15.18861962	15.003247	14.3247307	13.59694139	11.87309316	10.60186051	9.51146881	8.59530815	7.812203031
Forklifts	0120	11.80206307	11.53486283	11.07974878	10.81448	10.4153328	9.877253057	8.678718564	8.075791702	7.197519085	6.716250899	6.068249366
Forklifts	0175	15.08460764	14.83478128	14.17418491	13.947176	13.6185033	13.11691898	11.96404345	11.12808509	9.730919261	8.91022532	8.018805977
Forklifts	0250	23.94924383	22.87147213	22.94079399	22.263085	21.8184569	21.08939208	17.88799413	15.58941205	13.677315	13.09894235	11.34972992
Forklifts	0500	38.14601901	35.07752601	34.85088957	33.219551	30.844564	25.92995339	23.66344661	22.95282919	19.40584407	18.8922931	15.58942112
Forklifts	1000	227.5554024	227.5554125	227.5554125	227.55541	227.555412	227.5554125	227.5554125	227.5554125	227.5554125	227.5554125	227.5554125
Graders	0050	41.0127625	41.37896659	40.92220371	41.250182	41.5271873	41.6542047	39.17660955	39.27989867	38.06521638	37.08377968	34.7341254
Graders	0120	40.03538954	40.00042732	39.66420114	39.759297	39.7780293	39.69430786	36.7998502	36.17799526	34.28608716	33.75018934	31.37203951
Graders	0175	42.95348189	42.86638124	42.62730042	42.800093	42.1256368	40.92992218	38.26726043	36.81488636	34.59069296	32.74069344	29.09855622
Graders	0250	26.06049041	26.44182234	26.92861478	27.566816	27.9170664	28.10030427	27.77001548	27.75196453	27.26476294	25.86204519	23.63971981

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ARB OFFROAD2011 HYDROCARBON EMISSION RATES

Equipment Type	HorsepowerBin	BaseHC grams/hr										
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Graders	0500	29.56602494	29.92366601	31.27120051	32.457775	33.2859297	33.80089003	33.26983205	33.52867539	32.91723544	33.30787813	32.4129787
Graders	1000	189.7940613	190.7602869	190.7602869	190.76029	190.760287	190.7602869	190.7602869	190.7602869	190.7602869	190.7602869	26.41191446
Graders	9999	283.2337916	288.9315076	294.2701849	299.13716	303.182431	308.7749882	314.1381224	319.2783935	324.2038178	328.9242947	333.2039706
None	0											
Off-Highway Tractors	0050	23.86965761	23.39419369	23.21475166	23.116026	23.0763308	22.4665655	20.36548095	18.90386159	17.98937981	16.78040232	14.24358225
Off-Highway Tractors	0120	21.56670522	20.98962287	19.64155049	19.385307	18.5347269	17.57551343	16.00592188	15.02568935	14.00488025	13.11157548	12.0006724
Off-Highway Tractors	0175	27.42006106	26.0233164	24.46559171	23.438763	22.6557712	20.80959129	18.96209648	17.36561081	16.08635435	15.62218971	13.91694722
Off-Highway Tractors	0250	33.40005485	32.9521418	31.19722241	31.31964	30.824685	29.72526607	25.74181147	23.96952054	22.05640263	19.87914691	16.47427834
Off-Highway Tractors	0500	39.85737613	36.91084472	34.71481614	35.136329	33.6115994	31.00804041	27.51449216	25.49331057	23.4176552	21.89509925	19.94263622
Off-Highway Tractors	0750	65.65244927	63.33976766	55.73391579	58.006542	56.1198521	50.1789777	41.62560501	43.6544997	41.15465856	37.74920746	38.3011936
Off-Highway Tractors	1000	373.6380795	373.638096	373.638096	373.6381	373.638096	373.638096	373.638096	373.638096	373.638096	373.638096	373.638096
Off-Highway Tractors	9999	478.5090203	481.7408037	484.9998064	487.99959	368.253586	371.5864376	374.9942104	213.0141813	216.5766796	221.6792225	226.7072364
Off-Highway Trucks	0050	15.29414354	15.07646799	15.22589776	15.325209	15.3761241	13.20727331	10.4908715	9.365202972	8.709209087	8.430755187	8.075030563
Off-Highway Trucks	0120	25.41043176	24.18507682	19.59392522	19.881022	20.2511485	18.66032219	17.61460718	17.87213976	18.09456136	15.9141345	13.56303934
Off-Highway Trucks	0175	29.67605256	28.30954392	25.83416373	25.755055	24.4809706	23.18132797	20.27857488	18.23369707	16.90390779	15.96473702	13.53538544
Off-Highway Trucks	0250	36.16075035	35.52498512	34.19052136	34.124071	33.5782206	31.58445382	27.36354951	25.74909622	23.95989552	21.93037819	18.5069241
Off-Highway Trucks	0500	51.94363463	50.07066771	47.60348293	47.057708	45.2033502	43.07618285	38.41919256	36.41536803	33.57582707	31.36247926	27.47410104
Off-Highway Trucks	0750	115.0392565	113.7537551	110.9002002	111.34793	109.864075	102.4128077	85.13571242	77.54971377	72.77838075	66.37359495	60.15238848
Off-Highway Trucks	1000	133.0368828	129.2285509	119.637384	120.17633	119.070023	113.0590477	93.75911578	93.41282165	90.84053645	85.03059053	71.66013903
Off-Highway Trucks	9999	256.7598649	251.1598428	235.7160565	237.53841	223.055846	220.198642	182.4370128	180.1760329	165.775198	151.5292377	116.88861
Other Construction Equipment	0050	16.98059102	17.23384513	16.97063231	17.102151	16.9538211	16.58662251	15.64669851	15.37096881	14.78158561	14.26333621	13.38254452
Other Construction Equipment	0120	21.42790351	21.07597028	20.50046185	20.321663	19.9865658	19.62228399	17.98410893	17.16750347	16.3785263	15.85159945	14.18542426
Other Construction Equipment	0175	32.14526448	31.19334976	30.44933249	30.542417	29.8129992	27.94164856	25.77468248	24.61735994	23.58100135	22.19950095	19.39667465
Other Construction Equipment	0250	35.54428794	33.39360098	30.68346266	30.932496	30.5071257	29.07663408	26.65441953	24.97743908	23.87715309	22.63949574	19.75596207
Other Construction Equipment	0500	47.23817568	45.90476522	42.40689051	42.977294	41.9857105	39.50390026	35.3181016	32.77032116	30.71088621	29.8730466	26.54287489
Other Construction Equipment	0750	59.52397352	58.86362201	57.94081111	59.238094	59.5682249	58.72246273	55.17812186	54.07626317	50.81180581	45.91858006	40.34800524
Other Construction Equipment	1000	82.60309159	75.29017752	63.07014288	65.055585	60.4409326	51.71356442	53.3500266	55.08868559	45.75987664	47.01873613	37.62046819
Other Construction Equipment	9999	166.801546	169.0638035	114.8103897	117.93121	120.940938	107.2899606	109.6438563	112.3881899	115.0499355	117.6349972	120.1502534
Other General Industrial Equipment	0050	15.78757214	15.42070931	15.10391047	14.958544	14.2516341	13.63035792	12.05655482	10.92901247	9.739510984	8.79095456	7.586025105
Other General Industrial Equipment	0120	17.51673142	17.06183103	16.66254417	16.136048	15.4156771	14.39531883	12.63380489	11.70807268	10.32715309	9.794439136	8.384429364
Other General Industrial Equipment	0175	24.26760701	23.6081613	22.90445054	22.244542	21.5948921	20.34733216	17.75452302	14.95015806	13.59436626	13.23025467	12.06585831
Other General Industrial Equipment	0250	33.48858139	30.80299671	29.38845715	27.177144	26.6882068	24.98608643	20.68613284	18.89841335	17.31617793	17.09098249	16.48510073
Other General Industrial Equipment	0500	40.0860381	36.96449756	36.83657033	36.484215	35.8345448	34.82889519	32.83877459	31.10801384	28.81697188	25.16202625	23.04509885
Other General Industrial Equipment	0750	53.20613508	48.42688253	45.36153568	43.132071	43.1995327	37.74099734	36.16142697	34.45847843	29.18029043	28.95790163	25.93893151
Other General Industrial Equipment	1000	82.00788639	84.27542741	86.54296482	88.810502	60.5533024	62.63983508	64.31242316	65.98501123	67.65759931	69.01228705	47.40904315
Other General Industrial Equipment	9999	103.5349959	112.4328485	121.3306966	130.22854	139.126393	148.0242409	156.922089	165.819937	33.42484259	37.83606389	42.24728519
Other Material Handling Equipment	0050	21.9685182	20.66540936	19.79708472	20.242951	20.6134536	18.86610224	15.57847193	15.4106432	15.05587027	13.44988989	13.39403214
Other Material Handling Equipment	0120	20.8960076	18.52724557	17.06415951	16.288012	16.1283773	15.32084595	13.28906445	12.11249709	11.14793811	10.50195361	8.782532882
Other Material Handling Equipment	0175	27.49322019	26.4495062	24.97669377	25.208962	24.1855841	22.81549385	18.59648903	17.32617687	15.71396391	15.29512775	13.28164763
Other Material Handling Equipment	0250	38.73764867	38.02469231	36.54033203	35.441017	35.9391572	32.6116924	26.11586266	23.86116138	19.08803331	19.09203841	17.79480559
Other Material Handling Equipment	0500	42.78527325	42.78244728	41.17550479	41.299247	42.0680085	40.9350936	37.2417058	35.50138334	34.43418564	33.71378368	30.63167601
Other Material Handling Equipment	0750	37.45916637	39.94339979	42.42763156	44.911863	47.3960951	45.47358674	42.75899167	45.07996518	36.23471413	37.82679268	39.55349773
Other Material Handling Equipment	1000	61.57691274	65.71005478	15.31330453	15.313305	17.4915807	19.66985679	21.84813292	24.02640905	26.20468518	28.38296131	30.56123744
Other Material Handling Equipment	9999	65.45146975	70.30156658	48.436795	50.787714	54.3776306	57.96754729	61.55746399	65.14738069	68.73729739	24.85432239	26.09332019
Pavers	0050	25.47898513	25.35650372	25.168817	24.723796	24.5968476	24.15495331	23.04454107	21.19058584	20.60655705	19.30476917	17.56690144

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ARB OFFROAD2011 HYDROCARBON EMISSION RATES

Equipment Type	HorsepowerBin	BaseHC grams/hr										
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Pavers	0120	20.35362136	19.47714145	18.77809868	18.858789	18.1393189	17.89505788	15.73183784	14.82041538	14.32623432	13.62892807	11.78699593
Pavers	0175	30.91283621	28.91075458	27.4411011	27.023529	24.5190144	22.88908874	19.86397218	18.69887764	17.09323787	15.89637703	12.66039298
Pavers	0250	15.57321177	15.12498969	15.22752621	15.69425	15.6425705	15.26476366	14.19127119	13.45663978	12.41563013	11.83079993	10.33329008
Pavers	0500	24.36317226	22.94190574	20.24241968	19.790978	20.2635289	18.84817518	18.46755389	18.71075855	18.50548876	18.42574472	16.92231017
Pavers	0750	38.6971357	40.81727716	42.88653979	44.904925	46.8724337	48.78906504	50.65481923	29.33224625	29.78847308	31.07639468	13.47432116
Paving Equipment	0050	11.89104068	11.69020852	11.20505478	10.459627	10.5606276	9.899669874	8.452348897	8.279904882	6.834779094	6.085811134	6.00573258
Paving Equipment	0120	19.89075541	18.58696241	17.85407115	17.60203	16.8566249	15.62610823	13.20784761	12.5331422	11.42061627	10.18625342	8.754209305
Paving Equipment	0175	20.69313745	19.47670383	18.18792452	18.000243	16.9873435	15.84336691	14.14178262	12.79271899	11.74406901	11.00794274	10.40692943
Paving Equipment	0250	25.25406526	24.94290705	23.20331577	23.501737	22.2605654	21.29041774	18.26289783	18.41339402	16.77553015	14.66134336	13.37478895
Paving Equipment	0500	34.28665201	31.90999608	31.29903437	32.005882	32.1496335	30.34234488	22.96674557	21.69369419	21.78477679	20.94002116	16.00632628
Paving Equipment	0750	44.24885364	37.43749875	38.71084599	39.961381	40.4673288	36.93703428	38.09264099	35.14739857	33.65929575	31.34572117	26.49644896
Paving Equipment	1000	120.337834	121.2528393	53.97138737	55.340341	56.6852615	58.00614892	19.26003856	20.72096258	22.15740606	23.56936899	24.95685138
Rollers	0050	15.09924392	14.89339878	14.59555391	14.68079	14.4487904	13.90205233	12.55618603	11.78890555	11.181217	10.42777527	9.166298832
Rollers	0120	20.91423579	19.99584314	18.99149571	18.818054	17.8559918	16.99728449	14.26303196	13.12708896	12.1177702	11.33315954	9.787037796
Rollers	0175	18.64835728	17.76839392	16.77929669	16.728211	15.821013	14.75519687	12.75253152	11.59633791	10.47454819	9.765365626	8.22313315
Rollers	0250	30.88318408	27.52235619	24.42656562	23.800761	23.2544326	21.55047426	16.86463202	15.35228719	15.11779747	14.79879641	13.0624865
Rollers	0500	52.74970129	46.8145356	46.35165995	45.645316	43.453299	35.98112165	31.44427372	24.62000471	24.72461654	24.79692289	23.37817584
Rollers	0750	97.9376948	98.60146382	99.25801481	73.664201	74.4151006	75.15846459	16.14661478	16.91598481	17.66667401	18.39868238	19.11200993
Rough Terrain Forklifts	0050	19.02200618	18.83982218	18.56892912	18.675753	18.1985839	16.95711772	16.83701046	15.9840083	14.99874895	14.97965149	11.06168645
Rough Terrain Forklifts	0120	14.26316935	12.71116461	11.37926692	11.020374	9.9698668	8.940250546	7.522924706	6.899483748	6.4635302	6.142674848	5.511964693
Rough Terrain Forklifts	0175	12.16867847	10.62949206	10.08160316	9.8895469	9.40314817	8.811894165	7.74367593	7.236917539	6.604387242	5.723835406	5.101336494
Rough Terrain Forklifts	0250	40.30663032	35.72917967	34.60745799	35.069079	35.5266688	35.98024551	34.85037673	34.80967957	34.06468773	19.59948061	5.326650306
Rough Terrain Forklifts	0500	41.19830791	34.94945131	35.44172332	35.957222	36.4643197	37.00660854	25.0476691	25.48553533	24.21677583	8.158854371	8.501177277
Rough Terrain Forklifts	0750	300.4042584	301.9034538	303.4026361	304.90182	306.401	307.9001827	309.3993649	310.8985471	312.3977293	12.47508337	13.00213859
Rubber Tired Dozers	0050	40.40512068	39.87521425	40.23937516	40.418664	40.5233838	40.55723462	40.5562846	40.55383655	40.54745175	40.54070018	40.55171842
Rubber Tired Dozers	0120	32.29959806	32.60017369	32.84228464	33.029733	33.1783006	32.48217326	32.10011479	32.14686395	31.29399533	30.93622115	29.81246951
Rubber Tired Dozers	0175	46.58770008	46.78902488	46.98186877	47.168676	47.3361475	45.82352674	44.9874524	43.51046251	42.64664493	42.70822957	41.83664941
Rubber Tired Dozers	0250	49.95772217	49.80750561	49.71592654	50.205695	50.7079499	50.46124508	50.81001883	51.04223512	50.15531023	48.95363935	42.17238346
Rubber Tired Dozers	0500	85.83676814	83.97510711	82.54053935	82.58309	82.7818762	81.76493246	77.1006288	74.75314019	72.4964989	71.44715022	67.53948051
Rubber Tired Dozers	0750	101.9685291	102.8903422	103.7929579	104.6764	105.540701	100.3376936	96.63883433	96.84707058	97.05080213	97.25001545	97.44469542
Rubber Tired Loaders	0050	28.60756917	27.30870986	26.68508366	26.598264	26.1539415	25.31008521	24.4234843	21.78261948	20.82797865	19.25385184	17.7295453
Rubber Tired Loaders	0120	24.10813212	23.66227634	22.72823504	22.625175	21.6871643	20.81132392	19.02941398	17.7127611	16.49364668	15.35105385	13.79055976
Rubber Tired Loaders	0175	28.84580209	28.3706455	27.36995459	27.168507	26.3410008	25.11291799	22.81933162	21.39103668	20.04731517	18.87912032	16.3428104
Rubber Tired Loaders	0250	25.46582019	25.70854067	25.1655611	25.251095	24.9286282	24.07561927	21.58815127	20.43158818	19.33189659	18.15520538	16.13330208
Rubber Tired Loaders	0500	41.39285307	41.89335818	41.41130718	41.919484	41.5716962	40.26737936	36.99314196	34.71598503	32.52058064	30.8501166	27.1165549
Rubber Tired Loaders	0750	73.28535318	74.1687231	72.717032	74.368827	72.9384401	72.61234556	64.45413975	57.7454601	56.80263994	53.72288516	49.43944249
Rubber Tired Loaders	1000	102.2147789	101.8840103	103.5710265	105.0948	106.272854	103.7667897	94.67707936	91.67616075	91.98043672	92.66234031	77.36746438
Rubber Tired Loaders	9999	178.6390372	183.8145369	188.7826545	193.44075	197.290776	170.4767694	115.0218563	116.7543596	119.4863466	122.117937	124.6485226
Scrapers	0050	44.57636271	45.26698038	45.93246702	46.572825	47.1160577	47.6302331	48.12423406	48.59806064	49.05171282	49.48519061	43.78261072
Scrapers	0120	23.92739903	24.03638649	24.17017054	24.572014	24.9594397	25.33192143	25.32719323	25.07734783	24.40860441	24.45772864	23.47181319
Scrapers	0175	50.94400183	49.9674048	48.176457	48.323348	47.3893683	45.2129775	41.3802464	39.96232903	38.35546757	35.93892926	32.8307035
Scrapers	0250	70.47556639	69.57547383	68.11464411	68.400103	67.6907363	65.85230692	60.34338061	56.43542675	54.44694898	51.28296469	46.1920272
Scrapers	0500	76.21016004	75.87745344	74.92351122	75.551519	74.7080672	73.11655749	67.52860193	64.35642331	61.28507009	58.637628	50.50152157
Scrapers	0750	88.60339371	87.99525311	85.58846418	87.201159	86.010146	84.64439758	80.08744765	75.37999001	72.49335541	70.01517326	61.01644579
Scrapers	1000	444.5242479	444.5242675	444.5242675	444.52427	444.524268	444.5242675	444.5242675	444.5242675	444.5242675	444.5242675	444.5242675
Scrapers	9999	372.2928119	381.4592242	390.5659267	399.62203	408.637431	417.6229642	426.5904671	435.5529266	358.1886083	366.0219474	257.6259655
Skid Steer Loaders	0050	11.47237339	10.1394733	8.94634804	8.6797013	8.11969383	7.625241876	6.556237743	5.94622049	5.619423805	5.099365717	4.559113297

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ARB OFFROAD2011 HYDROCARBON EMISSION RATES

Equipment Type	HorsepowerBin	BaseHC grams/hr										
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Skid Steer Loaders	0120	8.001553356	7.328019231	6.56683695	6.3488685	5.92499614	5.476561066	4.735792374	4.375844983	3.993954439	3.780846896	3.430010408
Skid Steer Loaders	0175	18.12987356	14.76744085	14.11755563	14.196274	12.2134685	9.74925622	9.598819458	8.17272186	7.455590775	7.563572416	6.858702673
Skid Steer Loaders	0250	24.18959819	19.62300649	14.55712227	15.1314	15.7223838	15.36253362	14.41514758	7.314060466	6.531482976	5.876576085	5.377945503
Skid Steer Loaders	0500	24.96809907	18.64728016	19.07614655	19.475721	8.28945679	5.322594004	5.67208273	5.997882021	6.299742907	6.57734265	4.873992814
Skid Steer Loaders	0750	20.83586122	21.95839449	23.00351082	23.971211	24.8614954	25.67436367	26.4098159	27.06785211	27.64847229	28.15167645	28.65488061
Skid Steer Loaders	1000	193.3907644	193.8161228	194.2414727	194.66682	62.1866053	65.10422608	68.12248649	71.26443191	74.5574973	78.03460464	18.34447236
Surfacing Equipment	0050	11.20609671	10.86871483	10.14145406	10.303398	10.4580242	9.428837272	9.568955329	9.112078875	5.90488264	5.121921558	4.424813608
Surfacing Equipment	0120	13.17639848	12.98769284	12.35504929	12.100083	11.7158922	11.4087423	9.82295105	8.566315468	7.698606176	7.099618049	6.647778744
Surfacing Equipment	0175	20.66087115	18.6567122	17.80024288	17.995172	17.7733813	17.68911194	14.53520542	14.67014994	13.65230946	12.67665736	11.958734
Surfacing Equipment	0250	21.79111878	20.07563006	17.29091311	17.510035	17.7431615	15.48196795	14.32953862	12.58849126	12.33812004	11.34949577	10.35710275
Surfacing Equipment	0500	22.00444785	21.92500505	21.40242868	21.742376	20.8848428	19.05926269	15.28086641	14.99542466	13.37750104	12.82575905	12.48199869
Surfacing Equipment	0750	27.07624599	27.73357156	26.62626268	27.228706	24.800612	24.5884913	21.83566057	21.74102016	21.74754731	19.86506182	18.30804283
Surfacing Equipment	1000	70.99401174	59.8190598	60.37806743	60.918534	61.440439	61.94375837	62.42846457	62.8945254	53.35716987	45.0489037	45.40833518
Surfacing Equipment	9999	101.6210441	45.47259724	46.18937827	47.555196	48.877981	50.15773209	51.3944497	52.5881338	53.7387844	54.8464015	23.36095025
Sweepers/Scrubbers	0050	24.51770731	24.05103736	23.84947363	24.38559	24.3469971	23.68071402	21.79302043	19.7654841	18.54157452	17.09731294	14.37684888
Sweepers/Scrubbers	0120	26.46340425	25.01507887	24.90546337	25.048417	24.13272	22.01991178	18.79277508	18.08423613	16.68617397	15.6481773	13.40980332
Sweepers/Scrubbers	0175	57.59057754	56.61250369	54.77204101	53.938684	49.8006208	49.07643972	45.2889786	43.97733361	37.63383945	32.86421829	28.33307882
Sweepers/Scrubbers	0250	40.94756193	38.21099612	38.83885527	39.466714	40.0744758	35.5905804	33.66248236	26.49378569	19.47730848	16.20811725	12.22471909
Sweepers/Scrubbers	0500	50.07260122	51.07592668	52.07924994	53.082573	54.0858964	54.97026688	55.80548192	49.30632955	49.67081147	50.2555965	50.84038153
Sweepers/Scrubbers	1000	41.50334091	46.06541911	50.62749549	55.189572	59.7516482	64.31372463	68.87580101	73.43787738	77.99995376	82.56203014	16.04360855
Tractors/Loaders/Backhoes	0050	17.42875049	16.91187086	15.89656112	15.666006	15.1210308	14.6337086	12.82397032	11.68865436	10.56059722	9.910074404	8.773117551
Tractors/Loaders/Backhoes	0120	16.19022878	15.62639478	14.76557816	14.544677	13.9616427	13.1382283	11.42189042	10.26989753	9.315089355	8.55571751	7.475554295
Tractors/Loaders/Backhoes	0175	20.33488513	19.86839413	18.7529461	18.732344	17.5822796	16.69648485	14.62568429	13.44833531	12.36739123	11.23013153	9.826352461
Tractors/Loaders/Backhoes	0250	21.3531562	21.19298795	20.58791561	20.616999	20.0072033	19.36892872	18.07032223	16.88946924	15.67787276	14.79963874	12.81785547
Tractors/Loaders/Backhoes	0500	32.07721914	31.73216331	30.74269453	30.946807	29.5561369	28.42174728	24.88315227	23.40408807	21.64045511	20.30681328	18.40995806
Tractors/Loaders/Backhoes	0750	50.84572153	52.529489	53.31893456	54.938521	55.0218137	55.34680854	50.2492882	46.77009757	45.07783286	44.92655031	39.82302752
Tractors/Loaders/Backhoes	1000	50.96101692	54.1684818	44.86412864	46.772521	49.2082457	51.49385495	47.90989278	49.39706768	33.76654306	35.78812764	33.77631226
Tractors/Loaders/Backhoes	9999	220.9349042	215.1250269	197.4962139	192.10788	199.072633	194.359652	163.0640584	129.0907264	118.6084579	120.4306943	114.7893547
Trenchers	0050	21.44567343	21.35047458	21.0606719	21.051121	20.4814505	19.50480361	17.53774783	16.29879485	15.50490456	14.22895763	12.9804804
Trenchers	0120	30.14145882	28.95409572	28.31573286	28.193199	27.4826019	26.75042446	23.95099804	22.70275512	21.43652212	20.40764801	19.74224912
Trenchers	0175	45.56275913	46.00724375	42.748236	42.993313	38.4496639	38.81821216	35.44110958	30.10887492	27.79462617	27.14121408	25.13704305
Trenchers	0250	50.48482481	47.88770849	45.16685595	45.621162	45.25669	45.10039141	42.64285635	38.18315111	37.06543219	32.97639974	30.64584443
Trenchers	0500	46.17045826	47.07716817	45.54198587	46.370323	44.0634434	39.58401247	38.19191762	37.9634896	37.35611539	33.85778299	32.48521705
Trenchers	0750	29.37365673	31.18709619	30.25700445	29.231186	30.7862007	29.27293199	24.1697685	20.08787797	18.03385939	16.93258433	14.62576223
Trenchers	1000	400.1529244	401.8667003	403.5804586	405.29422	407.007975	408.7217333	410.4354916	412.1492498	413.8630081	415.5767663	417.2905246

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ARB OFFROAD2011 CO2 EMISSION RATES

Equipment Type	HorsepowerBin	BaseCO2 pounds/hr										
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Aerial Lifts	0050	18.13951023	18.1395102	18.13951023	18.13951	18.13951	18.1395102	18.13951023	18.13951023	18.13951023	18.13951023	18.13951023
Aerial Lifts	0120	26.18134434	26.1813443	26.18134434	26.18134	26.181344	26.1813443	26.18134434	26.18134434	26.18134434	26.18134434	26.18134434
Aerial Lifts	0175	46.14045525	46.1404552	46.14045525	46.14046	46.140455	46.1404552	46.14045525	46.14045525	46.14045525	46.14045525	46.14045525
Aerial Lifts	0250	74.26986237	74.2698624	74.26986237	74.26986	74.269862	74.2698624	74.26986237	74.26986237	74.26986237	74.26986237	74.26986237
Aerial Lifts	0500	134.3930843	134.393084	134.3930843	134.3931	134.39308	134.393084	134.3930843	134.3930843	134.3930843	134.3930843	134.3930843
Bore/Drill Rigs	0050	26.11138481	26.1079351	25.92534264	25.91354	25.920574	25.6948731	25.6428851	25.65272088	25.67959212	25.68374231	25.43019076
Bore/Drill Rigs	0120	45.79447574	45.8390917	45.88833411	45.95931	45.954539	46.1777969	46.32641716	46.3899645	46.55225944	46.77506359	46.53869082
Bore/Drill Rigs	0175	87.25128494	87.0090611	86.87884339	86.67755	86.60876	86.5919427	86.40222175	86.40539141	86.50251806	86.63443071	86.65208641
Bore/Drill Rigs	0250	119.5853843	119.459051	118.9051929	118.7704	118.9262	118.77902	118.4188633	118.1562524	118.594457	118.8814186	119.0007298
Bore/Drill Rigs	0500	197.1540333	196.917388	197.3689412	196.9429	196.79791	197.551894	199.1778629	199.0025775	199.3234605	200.7267173	199.2053104
Bore/Drill Rigs	0750	358.4152951	358.63032	358.8708783	359.2576	359.09559	357.72906	352.3651282	352.1916193	354.2261405	354.2148998	357.2654854
Bore/Drill Rigs	1000	529.7188848	530.527102	529.8837378	529.7782	529.76779	529.755065	529.7392046	529.7188848	529.6919167	529.6543997	530.89547
Bore/Drill Rigs	9999	1537.67831	1537.67831	1537.67831	1537.678	1537.6783	1537.67831	1537.67831	1537.67831	1537.67831	1537.67831	1537.67831
Cranes	0050	14.74189084	14.7420092	14.74134408	14.74067	14.739976	14.7392716	14.73855375	14.73782176	14.73707519	14.7363136	14.73553653
Cranes	0120	29.26315753	29.2599668	29.25696892	29.25499	29.251105	29.2479689	29.26069094	29.262148	29.2626257	29.26607801	29.28011628
Cranes	0175	49.1836087	49.1801536	49.16539239	49.16379	49.161674	49.1704983	49.1555704	49.15997011	49.1615982	49.15910681	49.15433414
Cranes	0250	71.89127524	71.8900075	71.8917509	71.88995	71.881356	71.894704	71.8938839	71.88592973	71.88679487	71.87022756	71.87007956
Cranes	0500	111.0658018	111.092857	111.1209811	111.0963	111.11852	111.162479	111.2541656	111.2151901	111.1948934	111.1849994	111.153924
Cranes	0750	187.2345196	187.186679	187.1395303	187.1255	187.11417	187.107595	187.0081681	187.0073403	186.9370021	186.9221859	186.9261457
Cranes	1000	308.1369217	308.138156	308.1394372	308.1408	308.14215	308.12465	308.1068017	308.0885945	308.0700172	308.0700172	308.0700172
Cranes	9999	340.5188617	340.518862	340.5188617	340.5189	340.51886	340.518862	340.5188617	340.5188617	340.5188617	340.5188617	340.5188617
Crawler Tractors	0050	22.841491	22.8547027	22.85777552	22.86004	22.862448	22.8650279	22.8677936	22.80003919	22.7969457	22.81679869	22.81948701
Crawler Tractors	0120	43.17612826	43.1890163	43.21078793	43.21455	43.191765	43.1961324	43.19392001	43.17139404	43.12138681	43.15197466	43.17215617
Crawler Tractors	0175	73.56774015	73.5490718	73.54490646	73.54257	73.541542	73.5511105	73.57715481	73.52556109	73.5112147	73.56965997	73.54199219
Crawler Tractors	0250	100.1264849	100.093565	100.0501931	100.0576	100.05236	100.107369	100.0451071	100.0124004	99.92918419	99.90425963	99.80461244
Crawler Tractors	0500	168.9698623	169.011555	169.0820206	169.0219	169.04003	169.067056	168.8741761	168.9180539	168.6651709	168.4187198	168.326523
Crawler Tractors	0750	281.5104908	281.236178	281.1932719	281.1584	281.3017	281.056851	281.2520383	281.6620103	281.5249556	281.5340441	281.5441733
Crawler Tractors	1000	410.0227893	410.088175	410.1615658	410.2445	410.33904	410.447702	410.5739505	410.6382225	409.5860797	409.5774624	408.2869222
Crawler Tractors	9999	721.7863672	721.786367	721.7863672	721.7864	721.78637	721.786367	721.7863672	721.7863672	721.7863672	721.7863672	721.7863672
Excavators	0050	17.44984569	17.4404671	17.43912862	17.44172	17.446137	17.4429537	17.4133085	17.42561091	17.42338778	17.4329565	17.42679058
Excavators	0120	35.43957045	35.456485	35.46834793	35.47568	35.475216	35.4801033	35.51352575	35.51566021	35.54025659	35.51411379	35.49015723
Excavators	0175	64.0265333	64.0265178	64.03266988	64.03693	64.055599	64.0419863	64.03956516	64.02289515	64.03066862	64.0292567	64.02752611
Excavators	0250	95.85531502	95.8665877	95.8779243	95.87482	95.843586	95.8233809	95.70443157	95.68520236	95.7003097	95.6809443	95.77653532
Excavators	0500	143.5135444	143.601336	143.5998742	143.622	143.52628	143.613276	143.6007749	143.6360625	143.4731693	143.2737091	143.3126931
Excavators	0750	251.3022472	250.801648	250.9671967	250.9339	251.01953	251.347815	251.5542045	251.2939851	251.2640257	251.6431325	251.5285253
Excavators	1000	367.9720208	368.065141	368.1697405	368.2881	368.42306	365.426325	365.3808787	366.6094713	366.6198625	366.6311888	366.6435824
Excavators	9999	681.0789644	681.078964	681.0789644	681.079	681.07896	681.078964	681.0789644	681.0789644	681.0789644	681.0789644	681.0789644
Forklifts	0050	10.88907411	10.8890741	10.88907411	10.88907	10.889074	10.8890741	10.88907411	10.88907411	10.88907411	10.88907411	10.88907411
Forklifts	0120	18.97720628	18.9772063	18.97720628	18.97721	18.977206	18.9772063	18.97720628	18.97720628	18.97720628	18.97720628	18.97720628
Forklifts	0175	32.59101373	32.5910137	32.59101373	32.59101	32.591014	32.5910137	32.59101373	32.59101373	32.59101373	32.59101373	32.59101373
Forklifts	0250	48.14022819	48.1402282	48.14022819	48.14023	48.140228	48.1402282	48.14022819	48.14022819	48.14022819	48.14022819	48.14022819
Forklifts	0500	79.54123194	79.5412319	79.54123194	79.54123	79.541232	79.5412319	79.54123194	79.54123194	79.54123194	79.54123194	79.54123194
Forklifts	1000	202.9735369	202.973537	202.9735369	202.9735	202.97354	202.973537	202.9735369	202.9735369	202.9735369	202.9735369	202.9735369
Graders	0050	19.1636388	19.1645816	19.16563358	19.16681	19.168151	19.1696746	19.17142784	19.173467	19.17586822	19.17873735	19.1822259
Graders	0120	42.62076047	42.6189158	42.61598515	42.61142	42.60427	42.5962283	42.53145673	42.50699088	42.50707596	42.50010782	42.44625643
Graders	0175	70.98073111	70.9531338	70.91627692	70.90055	70.837819	70.7379756	70.52777078	70.43390761	70.32394767	70.28723417	70.17515287
Graders	0250	96.93080304	96.9073893	96.89642616	96.90575	96.8998	96.9198934	96.85473307	96.84327745	96.71244868	96.54480007	96.44578937
Graders	0500	137.7506208	137.704357	137.6912119	137.6841	137.58246	137.545296	137.5747618	137.5413876	137.4668074	137.4506687	137.4592988
Graders	1000	373.3175401	373.31754	373.3175401	373.3175	373.31754	373.31754	373.3175401	373.3175401	373.3175401	373.3175401	373.3175401
Graders	9999	932.9068412	932.906841	932.9068412	932.9068	932.90684	932.906841	932.9068412	932.9068412	932.9068412	932.9068412	932.9068412
None	0	0	0	0	0	0	0	0	0	0	0	0

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ARB OFFROAD2011 CO2 EMISSION RATES

Equipment Type	HorsepowerBin	BaseCO2 pounds/hr										
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Off-Highway Tractors	0050	20.87429151	20.8732369	20.85912522	20.86271	20.872571	20.8753056	20.90429996	20.91404716	20.92225282	20.94425392	20.97788802
Off-Highway Tractors	0120	37.61988314	37.5842284	37.57367916	37.5705	37.546057	37.5295906	37.43990465	37.42286162	37.43929369	37.4378328	37.49933217
Off-Highway Tractors	0175	79.19714473	79.2040865	79.22370167	79.19005	79.224283	79.1716296	79.1257415	79.12614049	79.15565827	79.15345506	79.13149189
Off-Highway Tractors	0250	106.5351158	106.518068	106.3981091	106.4012	106.40619	106.364545	106.4412526	106.4896511	106.4435133	106.5362566	106.610532
Off-Highway Tractors	0500	167.0490117	167.125542	166.9498446	166.9238	166.64836	166.451227	166.4066311	166.2609857	166.2250093	166.2273351	166.2148542
Off-Highway Tractors	0750	287.7811576	287.667166	286.8293719	286.8199	286.77324	286.531836	286.5323155	286.5281177	286.5237054	286.5964394	286.593525
Off-Highway Tractors	1000	499.7454507	499.745451	499.7454507	499.7455	499.74545	499.745451	499.7454507	499.7454507	499.7454507	499.7454507	499.7454507
Off-Highway Tractors	9999	838.7526938	839.287236	839.8473469	840.4349	841.05198	841.700848	842.3840376	869.4454064	869.6892921	870.864103	872.091345
Off-Highway Trucks	0050	13.74187747	13.7483863	13.75527515	13.76258	13.770342	13.8093544	13.81646995	13.75289783	13.75510242	13.79633719	13.80631429
Off-Highway Trucks	0120	37.62272127	37.616994	37.61663558	37.61432	37.611845	37.6091969	37.6071052	37.59445378	37.58085702	37.50999973	37.59946525
Off-Highway Trucks	0175	69.36681927	69.3297983	69.28346859	69.26474	69.256505	69.2870436	69.25641053	69.30717756	69.34721006	69.38248216	69.40891908
Off-Highway Trucks	0250	91.9134021	91.8771839	91.83364573	91.84883	91.81196	91.825646	91.90996181	91.97877653	92.07920861	92.09282325	91.97693874
Off-Highway Trucks	0500	164.4764703	164.535034	164.5243892	164.5199	164.45795	164.327479	164.4127824	164.3439171	164.0667527	164.0642245	164.159155
Off-Highway Trucks	0750	290.6050163	290.672299	290.4399309	290.3672	289.72108	289.064179	288.4205593	287.8063971	287.9199195	287.8826949	288.3889423
Off-Highway Trucks	1000	394.291318	394.205659	393.6607973	393.5796	393.36276	392.901765	391.3459365	391.2333509	391.2987953	392.2393099	392.6668196
Off-Highway Trucks	9999	784.629597	781.449274	778.3013561	778.0229	778.22542	779.097484	781.2875797	781.821065	782.57705	782.7765742	784.1663648
Other Construction Equipment	0050	20.29650159	20.3007334	20.30250767	20.30033	20.300666	20.2945659	20.29233461	20.27639205	20.28420361	20.27364912	20.27915227
Other Construction Equipment	0120	38.73193887	38.7555705	38.77887657	38.78742	38.827182	38.8243375	38.88719363	38.88392053	38.88599972	38.88166221	38.86026541
Other Construction Equipment	0175	72.33603598	72.3688207	72.37879211	72.37125	72.380852	72.3410455	72.32861765	72.3783377	72.37003372	72.36540252	72.3530302
Other Construction Equipment	0250	104.2284409	104.250139	104.1188974	104.1238	104.06979	104.035906	104.0886381	104.0933179	104.0609679	104.0605682	104.1596355
Other Construction Equipment	0500	172.3067503	172.040126	171.5478248	171.457	171.45665	171.293971	171.2481636	171.230672	171.238733	171.2874316	171.4331344
Other Construction Equipment	0750	285.2584428	285.332468	285.4086036	285.4743	285.48844	285.389703	285.3030957	285.3003416	285.1770444	285.3804437	286.1958908
Other Construction Equipment	1000	395.1344199	395.108485	395.079896	395.0482	394.97541	394.482471	394.4166477	394.4300603	394.3337146	394.207663	397.4558869
Other Construction Equipment	9999	523.4241532	523.424153	524.7650543	524.6696	524.56783	524.459096	524.3426624	524.2176796	524.0831697	523.9380002	523.7808517
Other General Industrial Equipment	0050	15.34176963	15.3417696	15.34176963	15.34177	15.34177	15.3417696	15.34176963	15.34176963	15.34176963	15.34176963	15.34176963
Other General Industrial Equipment	0120	28.57434599	28.574346	28.57434599	28.57435	28.574346	28.574346	28.57434599	28.57434599	28.57434599	28.57434599	28.57434599
Other General Industrial Equipment	0175	58.45892214	58.4589221	58.45892214	58.45892	58.458922	58.4589221	58.45892214	58.45892214	58.45892214	58.45892214	58.45892214
Other General Industrial Equipment	0250	82.17656154	82.1765615	82.17656154	82.17656	82.176562	82.1765615	82.17656154	82.17656154	82.17656154	82.17656154	82.17656154
Other General Industrial Equipment	0500	139.3428711	139.342871	139.3428711	139.3429	139.34287	139.342871	139.3428711	139.3428711	139.3428711	139.3428711	139.3428711
Other General Industrial Equipment	0750	232.6413703	232.64137	232.6413703	232.6414	232.64137	232.64137	232.6413703	232.6413703	232.6413703	232.6413703	232.6413703
Other General Industrial Equipment	1000	347.0155526	347.015553	347.0155526	347.0156	347.01555	347.015553	347.0155526	347.0155526	347.0155526	347.0155526	347.0155526
Other General Industrial Equipment	9999	784.215938	784.215938	784.215938	784.2159	784.21594	784.215938	784.215938	784.215938	784.215938	784.215938	784.215938
Other Material Handling Equipment	0050	17.98947408	17.9894741	17.98947408	17.98947	17.989474	17.9894741	17.98947408	17.98947408	17.98947408	17.98947408	17.98947408
Other Material Handling Equipment	0120	42.3972197	42.3972197	42.3972197	42.39722	42.39722	42.3972197	42.3972197	42.3972197	42.3972197	42.3972197	42.3972197
Other Material Handling Equipment	0175	65.60120045	65.6012005	65.60120045	65.6012	65.6012	65.6012005	65.60120045	65.60120045	65.60120045	65.60120045	65.60120045
Other Material Handling Equipment	0250	98.89760349	98.8976035	98.89760349	98.8976	98.897603	98.8976035	98.89760349	98.89760349	98.89760349	98.89760349	98.89760349
Other Material Handling Equipment	0500	149.7535499	149.75355	149.7535499	149.7535	149.75355	149.75355	149.7535499	149.7535499	149.7535499	149.7535499	149.7535499
Other Material Handling Equipment	0750	256.103526	256.103526	256.103526	256.1035	256.10353	256.103526	256.103526	256.103526	256.103526	256.103526	256.103526
Other Material Handling Equipment	1000	418.6867386	418.686739	418.6867386	418.6867	418.68674	418.686739	418.6867386	418.6867386	418.6867386	418.6867386	418.6867386
Other Material Handling Equipment	9999	476.2958565	476.295856	476.2958565	476.2959	476.29586	476.295856	476.2958565	476.2958565	476.2958565	476.2958565	476.2958565
Pavers	0050	20.55324227	20.5728998	20.56352866	20.56094	20.561117	20.5613088	20.54195611	20.52777853	20.52836175	20.54039992	20.53280296
Pavers	0120	37.67954389	37.741756	37.76999615	37.77059	37.742611	37.7231523	37.74760658	37.75420008	37.74459589	37.75384175	37.78149091
Pavers	0175	75.51681519	75.4425014	75.39692643	75.41044	75.435828	75.4852713	75.49992109	75.50824903	75.46519566	75.47184641	75.49804348
Pavers	0250	102.0894794	102.078424	102.0440112	102.0464	102.01987	101.896949	101.8094165	101.746285	101.7431997	101.7574576	101.7862488
Pavers	0500	154.0835992	154.544757	154.7128909	154.4402	154.4494	154.021715	154.1038543	154.2534331	154.1225347	153.9192134	154.0460974
Pavers	0750	357.510207	357.510207	357.510207	357.5102	357.51021	357.510207	357.510207	357.510207	357.510207	357.510207	357.510207
Paving Equipment	0050	15.65032991	15.6413205	15.63844449	15.63435	15.632453	15.6213782	15.63646537	15.63451565	15.62932604	15.63831707	15.64513516
Paving Equipment	0120	36.22089986	36.2117822	36.21334063	36.23772	36.23775	36.2473295	36.24053608	36.2061125	36.22618735	36.21003865	36.21351436
Paving Equipment	0175	60.33949217	60.287309	60.2856416	60.29613	60.314703	60.3353356	60.33711298	60.30752443	60.29441659	60.29398067	60.29585313
Paving Equipment	0250	87.85273042	87.91992	87.92021434	87.92052	87.885452	87.9309585	87.8991732	87.89667223	87.89654279	87.89640944	87.91886955
Paving Equipment	0500	137.3691133	137.154213	137.1466481	137.1457	137.14451	137.144312	137.0759435	137.0685551	137.0923228	137.1284381	137.1609632
Paving Equipment	0750	247.1002472	246.609839	246.6125202	246.6153	246.61822	246.621257	246.6244257	246.6277362	246.6311985	247.0656244	247.0775409
Paving Equipment	1000	343.5176005	343.517601	343.5176005	343.5176	343.5176	343.517601	343.5176005	343.5176005	343.5176005	343.5176005	343.5176005

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ARB OFFROAD2011 CO2 EMISSION RATES

Equipment Type	HorsepowerBin	BaseCO2 pounds/hr										
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Rollers	0050	17.12119742	17.1239611	17.12113156	17.11964	17.11339	17.112465	17.107752	17.1106138	17.11506493	17.11023664	17.1061846
Rollers	0120	37.58784992	37.5778629	37.5493725	37.55193	37.563235	37.5542368	37.53339017	37.53815456	37.53579176	37.5479251	37.56576268
Rollers	0175	61.86477026	61.8813108	61.90259249	61.91063	61.882925	61.8571773	61.87529463	61.89094632	61.88090837	61.87316332	61.87270035
Rollers	0250	92.11003096	92.0178205	92.0177246	92.04605	92.04846	92.0589253	92.06881036	92.06818494	92.06886169	92.08895638	92.11346988
Rollers	0500	145.9079617	145.709059	145.6914001	145.8417	146.09767	146.208326	146.4100985	146.4012683	146.4011695	146.4023804	146.5408492
Rollers	0750	224.4374928	224.437493	224.4374928	224.4375	224.43749	224.437493	224.4374928	224.4374928	224.4374928	224.4374928	224.4374928
Rough Terrain Forklifts	0050	24.2801445	24.2907318	24.29145744	24.29044	24.278074	24.2796882	24.27895958	24.27903182	24.28764596	24.2758078	24.2641867
Rough Terrain Forklifts	0120	44.49978985	44.4936436	44.49230235	44.49849	44.521187	44.5164039	44.50754627	44.50967834	44.52470206	44.53245831	44.52833157
Rough Terrain Forklifts	0175	59.73024468	59.7166107	59.71750146	59.71784	59.715654	59.7203991	59.72891972	59.72824766	59.7379856	59.74329835	59.73418124
Rough Terrain Forklifts	0250	96.56408373	96.3670039	96.32718157	96.31965	96.311972	96.3041489	96.27852178	96.26472342	96.25605175	96.45215785	96.4012777
Rough Terrain Forklifts	0500	170.6064696	170.822602	170.8134585	170.8042	170.79493	170.765076	170.2733669	170.2661769	170.0480085	170.550086	170.5499016
Rough Terrain Forklifts	0750	288.3146831	288.314683	288.3146831	288.3147	288.31468	288.314683	288.3146831	288.3146831	288.3146831	288.3146831	288.3146831
Rubber Tired Dozers	0050	20.67344292	20.6693167	20.66779628	20.6662	20.664513	20.6627375	20.66399864	20.66854827	20.67335195	20.67843156	20.6868798
Rubber Tired Dozers	0120	37.31884257	37.3229788	37.32731335	37.33186	37.336638	37.3416621	37.34695382	37.35202644	37.40064228	37.40563074	37.58006777
Rubber Tired Dozers	0175	68.12584725	68.1236404	68.1213543	68.11898	68.116528	68.1109175	68.10505959	68.10200014	68.09897852	68.09581498	68.0939098
Rubber Tired Dozers	0250	96.32674327	96.327529	96.32835862	96.32924	96.330165	96.3311501	96.33219713	96.33331183	96.37050446	96.37493101	96.34157034
Rubber Tired Dozers	0500	163.3041741	163.278482	163.1894909	163.1244	163.09684	163.087806	163.3458501	163.3219875	163.1806836	163.0589211	163.1220525
Rubber Tired Dozers	0750	265.5556982	265.551834	265.5477872	265.5435	265.53909	265.534408	265.5294823	265.5242916	265.5188144	265.5130264	265.5069002
Rubber Tired Loaders	0050	19.23810233	19.2364892	19.21752695	19.21663	19.218454	19.2392177	19.24028353	19.23842049	19.24302827	19.23756077	19.23676981
Rubber Tired Loaders	0120	35.40564945	35.4013937	35.33969194	35.34399	35.331144	35.302326	35.27875545	35.27090282	35.29390817	35.31493218	35.34033693
Rubber Tired Loaders	0175	62.18133588	62.1710954	62.16423099	62.15443	62.142052	62.1350337	62.15192826	62.15700564	62.14405371	62.17471974	62.13321314
Rubber Tired Loaders	0250	85.11998321	85.1099299	85.09278399	85.08102	85.078133	85.0863595	85.05664941	85.02955728	85.00324399	85.00423956	85.05112491
Rubber Tired Loaders	0500	131.9231574	131.867037	131.7997758	131.748	131.83339	131.594927	131.5368677	131.4121674	131.3060366	131.3215609	131.2875245
Rubber Tired Loaders	0750	241.0855815	241.427723	241.158323	241.1291	241.40111	241.465419	242.4835984	242.754493	242.9576639	243.5169556	244.2471128
Rubber Tired Loaders	1000	346.5629527	346.546024	346.5273505	346.5066	346.48357	346.457672	346.4284147	346.3556877	346.3152417	346.2353691	346.2623756
Rubber Tired Loaders	9999	627.2947185	627.294718	627.2947185	627.2947	627.29472	627.850929	627.2947185	627.247428	627.2457998	627.2440555	627.2421823
Scrapers	0050	22.14815888	22.1481589	22.14815888	22.14816	22.148159	22.1481589	22.14815888	22.14815888	22.14815888	22.14815888	22.14815888
Scrapers	0120	47.86463784	47.8628142	47.88260293	47.88222	47.880997	47.8824412	47.86214268	47.79810007	47.83629522	47.83311451	47.80693718
Scrapers	0175	93.38117281	93.3743931	93.33967349	93.33612	93.333651	93.3209897	93.29086495	93.27282852	93.26377895	93.27014545	93.25603612
Scrapers	0250	123.6986988	123.697231	123.696064	123.7011	123.69647	123.687887	123.7142216	123.6260962	123.6754874	123.6919167	123.6594534
Scrapers	0500	211.4232191	211.41975	211.4272436	211.3963	211.32035	211.318319	211.3343103	211.2390201	211.3545445	211.4857085	211.5020799
Scrapers	0750	313.2635092	313.24897	313.224725	313.2203	313.1302	313.076798	312.8906476	312.5768797	312.4040007	312.4267403	312.5125518
Scrapers	1000	525.885982	525.885982	525.885982	525.886	525.88598	525.885982	525.885982	525.885982	525.885982	525.885982	525.885982
Scrapers	9999	1087.953631	1087.95363	1087.953631	1087.954	1087.9536	1087.95363	1087.953631	1087.953631	1087.953631	1087.953631	1087.953631
Skid Steer Loaders	0050	20.53844065	20.5318884	20.52993142	20.53886	20.527763	20.536968	20.52435397	20.54379706	20.53312574	20.53394267	20.52778837
Skid Steer Loaders	0120	29.86404157	29.8499117	29.85505103	29.84136	29.835462	29.8323675	29.8157318	29.82486229	29.83341167	29.85136381	29.86485225
Skid Steer Loaders	0175	64.2375996	64.2306313	64.21815112	64.20448	63.894104	64.0002273	64.14405511	64.1490754	64.15470851	64.16107412	64.2416966
Skid Steer Loaders	0250	83.66001102	83.4703686	83.56464707	83.51804	83.465607	83.4304085	83.36144712	82.81790074	82.85154545	82.8887311	82.93007942
Skid Steer Loaders	0500	113.9274774	113.927477	113.9274774	113.9275	113.92748	113.927477	113.9274774	113.9274774	113.9274774	113.9274774	113.9274774
Skid Steer Loaders	0750	224.1166137	224.116614	224.1166137	224.1166	224.11661	224.116614	224.1166137	224.1166137	224.1166137	224.1166137	224.1166137
Skid Steer Loaders	1000	422.8615352	422.861535	422.8615352	422.8615	422.86154	422.861535	422.8615352	422.8615352	422.8615352	422.8615352	422.8615352
Surfacing Equipment	0050	13.92004164	13.9192302	13.91836516	13.91744	13.916452	13.9792438	13.9835682	14.00481428	13.99909953	14.00555646	14.00672971
Surfacing Equipment	0120	30.65429572	30.6510513	30.66349222	30.60626	30.617039	30.6862326	30.73480106	30.77564185	30.77437488	30.82564201	30.81878818
Surfacing Equipment	0175	52.03455144	52.1471961	52.1434088	52.13952	52.067252	52.0233392	51.93850492	51.93512277	51.93145724	51.92747056	51.92311783
Surfacing Equipment	0250	75.58377154	75.5166638	75.44985809	75.43526	75.426512	75.2522801	75.28428839	75.42058076	75.44721883	75.50683436	75.53050641
Surfacing Equipment	0500	124.68625	124.615831	124.6337268	124.633	124.44804	125.015801	124.7236776	125.2046977	125.2614247	125.2928568	124.9733107
Surfacing Equipment	0750	212.4704123	212.444389	212.6725639	212.6877	213.14745	213.414369	212.1293159	211.7538655	211.7077065	212.0609057	212.0571473
Surfacing Equipment	1000	282.7208453	282.726918	282.7334053	282.7404	282.74781	282.755829	282.7644855	282.7738551	281.3219563	281.2068984	281.161487
Surfacing Equipment	9999	388.5484817	388.548482	388.5484817	388.5485	388.54848	388.548482	388.5484817	388.5484817	388.5484817	388.5484817	388.5484817
Sweepers/Scrubbers	0050	20.70428933	20.7042893	20.70428933	20.70429	20.704289	20.7042893	20.70428933	20.70428933	20.70428933	20.70428933	20.70428933
Sweepers/Scrubbers	0120	40.70844058	40.7084406	40.70844058	40.70844	40.708441	40.7084406	40.70844058	40.70844058	40.70844058	40.70844058	40.70844058

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ARB OFFROAD2011 CO2 EMISSION RATES

Equipment Type	HorsepowerBin	BaseCO2 pounds/hr										
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Sweepers/Scrubbers	0175	83.5620445	83.5620445	83.5620445	83.56204	83.562045	83.5620445	83.5620445	83.5620445	83.5620445	83.5620445	83.5620445
Sweepers/Scrubbers	0250	106.4307137	106.430714	106.4307137	106.4307	106.43071	106.430714	106.4307137	106.4307137	106.4307137	106.4307137	106.4307137
Sweepers/Scrubbers	0500	158.1502142	158.150214	158.1502142	158.1502	158.15021	158.150214	158.1502142	158.1502142	158.1502142	158.1502142	158.1502142
Sweepers/Scrubbers	1000	443.3434103	443.34341	443.3434103	443.3434	443.34341	443.34341	443.3434103	443.3434103	443.3434103	443.3434103	443.3434103
Tractors/Loaders/Backhoes	0050	17.63280064	17.6535577	17.68154661	17.6972	17.702918	17.7048699	17.69966408	17.71065484	17.67723481	17.66844987	17.66010258
Tractors/Loaders/Backhoes	0120	35.4800431	35.4525111	35.39037674	35.37498	35.333862	35.2905642	35.24964412	35.20956396	35.19702765	35.18977996	35.23427281
Tractors/Loaders/Backhoes	0175	60.59587188	60.5705021	60.54098416	60.54973	60.420343	60.3544448	60.31145403	60.29490739	60.28331934	60.27669687	60.37202492
Tractors/Loaders/Backhoes	0250	86.13098834	86.1452366	86.1246392	86.07137	86.063365	86.0708157	86.13594991	86.16952695	86.12204562	86.10681023	86.0178332
Tractors/Loaders/Backhoes	0500	135.8220092	135.77308	135.4892414	135.5434	135.55912	135.09559	134.2071761	134.5294507	134.4738417	134.7083114	134.8456473
Tractors/Loaders/Backhoes	0750	239.6006154	239.537786	240.490887	240.4916	240.40347	240.331677	240.3198759	240.1856211	239.2801763	239.3182468	240.2731876
Tractors/Loaders/Backhoes	1000	372.3677335	372.341225	372.3116601	372.2785	372.24097	372.198232	372.1490888	372.0919839	372.0248114	371.9446517	371.8473352
Tractors/Loaders/Backhoes	9999	849.3702368	849.370237	849.3702368	849.3702	849.37024	849.370237	849.3702368	849.3702368	849.3702368	849.3702368	849.3702368
Trenchers	0050	25.64764155	25.6535607	25.64890545	25.64097	25.650142	25.6516748	25.64566	25.63423999	25.62331264	25.61753873	25.61739673
Trenchers	0120	47.72171945	47.6958849	47.71180132	47.70384	47.699863	47.662947	47.61443304	47.62096782	47.66516643	47.69211611	47.70179783
Trenchers	0175	82.2019769	82.2041835	82.20418348	82.20418	82.204183	82.2041835	82.20418348	82.21022062	82.21004492	82.20986131	82.20339648
Trenchers	0250	126.5975431	126.254321	126.2338559	126.227	126.21964	126.211793	126.4309089	126.2786821	126.2837204	126.3806026	126.3820016
Trenchers	0500	206.630116	206.645183	205.5737267	205.4934	206.0221	206.208757	206.4010354	206.5688293	206.1106612	206.0847553	206.0895438
Trenchers	0750	359.1103546	359.152981	359.1651312	359.1779	359.19131	359.158344	360.1579348	358.5559379	357.5323699	357.4365536	358.7677182
Trenchers	1000	495.9012549	495.901255	495.9012549	495.9013	495.90125	495.901255	495.9012549	495.9012549	495.9012549	495.9012549	495.9012549

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ARB OFFROAD CO EMISSION RATES

Equipment Type	HorsepowerBin	CO Grams/Hr (from OFFROAD2007)										
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Aerial Lifts	0050	82.4	79.7	76.9	74.6	72.4	70.4	68.5	66.7	65.3	63.7	62.9
Aerial Lifts	0120	111.0	109.9	108.9	107.9	106.9	106.0	105.2	104.5	104.0	103.4	103.1
Aerial Lifts	0175	148.4	143.7	139.7	136.3	133.3	130.9	129.1	127.7	126.8	125.8	125.3
Aerial Lifts	0250	185.8	177.5	170.4	164.7	159.6	155.7	152.9	151.0	149.6	148.3	147.5
Aerial Lifts	0500	223.1	211.2	201.2	193.1	186.0	180.6	176.8	174.2	172.5	170.8	169.8
Bore/Drill Rigs	0050	105.8	103.4	102.1	101.3	100.8	100.4	100.2	100.0	99.9	99.8	99.7
Bore/Drill Rigs	0120	214.1	212.9	212.3	211.9	211.7	211.5	211.4	211.3	211.3	211.2	211.2
Bore/Drill Rigs	0175	341.6	341.6	341.7	341.7	341.7	341.7	341.8	341.8	341.8	341.8	341.8
Bore/Drill Rigs	0250	155.7	155.4	155.2	155.2	155.2	155.2	155.2	155.3	155.3	155.3	155.3
Bore/Drill Rigs	0500	250.4	250.0	249.8	249.7	249.7	249.8	249.8	249.8	249.8	249.8	249.8
Bore/Drill Rigs	0750	494.8	494.0	493.5	493.4	493.4	493.5	493.5	493.5	493.6	493.5	493.5
Bore/Drill Rigs	1000	760.5	755.9	752.0	749.0	747.0	745.7	745.0	744.8	744.9	744.8	744.8
Bore/Drill Rigs	9999	760.5	755.9	752.0	749.0	747.0	745.7	745.0	744.8	744.9	744.8	744.8
Cranes	0050	135.0	131.0	127.2	123.6	120.3	117.2	114.5	112.0	109.8	107.7	106.0
Cranes	0120	165.4	163.9	162.6	161.3	160.1	159.0	158.0	157.0	156.2	155.4	154.7
Cranes	0175	219.2	218.5	217.8	217.2	216.8	216.3	216.0	215.7	215.5	215.3	215.2
Cranes	0250	140.7	133.6	127.7	123.0	119.4	116.6	114.3	112.3	110.6	109.1	107.8
Cranes	0500	258.1	240.0	224.3	211.4	200.9	192.3	185.2	179.1	174.0	169.8	166.4
Cranes	0750	434.5	403.9	377.6	355.8	338.1	323.7	311.7	301.4	292.8	285.8	280.0
Cranes	1000	1030.0	958.3	893.5	835.0	782.8	737.3	699.1	668.2	644.1	625.5	610.4
Cranes	9999	1625.6	1512.6	1409.3	1314.1	1227.4	1150.9	1086.5	1035.0	995.4	965.3	940.9
Crawler Tractors	0050	151.0	147.1	143.4	139.9	136.6	133.5	130.6	128.0	125.5	123.3	121.3
Crawler Tractors	0120	222.3	220.1	218.1	216.3	214.7	213.3	212.0	210.8	209.7	208.7	207.8
Crawler Tractors	0175	339.5	337.5	335.9	334.6	333.6	332.7	332.0	331.4	330.9	330.5	330.1
Crawler Tractors	0250	236.9	226.7	217.5	209.2	201.8	195.3	189.4	184.3	179.8	175.9	172.6
Crawler Tractors	0500	463.5	431.1	403.0	378.8	358.4	341.4	326.5	313.4	302.2	292.5	284.2
Crawler Tractors	0750	831.5	773.3	722.8	679.3	642.7	612.3	585.5	562.1	541.8	524.4	509.6
Crawler Tractors	1000	1320.3	1228.0	1146.7	1075.9	1015.0	963.3	916.8	875.2	838.3	805.6	776.6
Crawler Tractors	9999	1320.3	1228.0	1146.7	1075.9	1015.0	963.3	916.8	875.2	838.3	805.6	776.6
Excavators	0050	132.9	128.7	124.9	121.6	118.8	116.4	114.2	112.4	110.9	109.7	108.8
Excavators	0120	236.5	234.6	232.8	231.2	229.7	228.5	227.4	226.4	225.7	225.1	224.7
Excavators	0175	302.6	302.2	301.8	301.5	301.3	301.1	301.0	300.9	300.8	300.8	300.8
Excavators	0250	164.5	160.5	157.7	155.5	153.6	152.0	150.6	149.5	148.5	147.7	147.0
Excavators	0500	249.0	238.9	231.3	225.0	219.8	215.8	212.5	209.9	208.1	206.7	205.8
Excavators	0750	412.8	396.1	383.3	373.0	364.4	357.7	352.3	348.0	344.9	342.7	341.1
Excavators	1000	412.8	396.1	383.3	373.0	364.4	357.7	352.3	348.0	344.9	342.7	341.1
Excavators	9999	412.8	396.1	383.3	373.0	364.4	357.7	352.3	348.0	344.9	342.7	341.1
Forklifts	0050	76.4	73.8	71.4	69.2	67.7	66.4	65.3	64.3	63.4	62.2	61.8
Forklifts	0120	99.6	98.8	98.0	97.3	96.8	96.4	96.0	95.6	95.3	94.6	94.5
Forklifts	0175	149.9	150.1	150.3	150.5	150.6	150.6	150.5	150.4	150.2	149.5	149.5
Forklifts	0250	74.3	73.2	72.4	71.8	71.3	70.9	70.6	70.5	70.4	70.1	70.1
Forklifts	0500	101.6	100.1	98.9	98.2	97.5	97.0	96.6	96.4	96.3	96.0	96.0
Forklifts	1000	101.6	100.1	98.9	98.2	97.5	97.0	96.6	96.4	96.3	96.0	96.0
Graders	0050	152.4	147.8	143.5	139.6	136.0	132.8	129.9	127.4	125.1	123.2	121.5
Graders	0120	242.6	240.6	238.7	237.0	235.5	234.1	232.8	231.7	230.6	229.7	228.9
Graders	0175	333.6	332.9	332.2	331.7	331.2	330.9	330.5	330.3	330.0	329.8	329.6
Graders	0250	204.4	196.3	189.4	183.4	178.4	174.4	171.2	168.9	166.9	165.3	163.9
Graders	0500	301.0	285.1	271.7	260.2	250.4	242.2	235.4	229.9	225.1	220.9	217.4
Graders	1000	301.0	285.1	271.7	260.2	250.4	242.2	235.4	229.9	225.1	220.9	217.4
Graders	9999	301.0	285.1	271.7	260.2	250.4	242.2	235.4	229.9	225.1	220.9	217.4
None	0											
Off-Highway Tractors	0050	329.4	325.9	322.6	319.5	316.7	314.1	311.7	309.6	307.6	305.8	304.1
Off-Highway Tractors	0120	329.4	325.9	322.6	319.5	316.7	314.1	311.7	309.6	307.6	305.8	304.1

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ARB OFFROAD CO EMISSION RATES

Equipment Type	HorsepowerBin	CO Grams/Hr (from OFFROAD2007)										
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Off-Highway Tractors	0175	380.9	377.7	374.9	372.3	370.1	368.1	366.4	364.9	363.7	362.6	361.6
Off-Highway Tractors	0250	222.1	212.7	204.0	195.9	188.4	181.4	175.0	169.2	163.9	159.0	154.6
Off-Highway Tractors	0500	815.6	763.4	715.3	671.2	631.2	595.3	563.3	535.2	509.9	487.3	467.3
Off-Highway Tractors	0750	1409.1	1314.1	1226.5	1146.5	1074.1	1009.1	951.6	901.1	855.9	815.6	780.0
Off-Highway Tractors	1000	2197.0	2051.8	1917.7	1794.6	1682.8	1581.8	1491.6	1411.7	1339.3	1274.0	1215.3
Off-Highway Tractors	9999	2197.0	2051.8	1917.7	1794.6	1682.8	1581.8	1491.6	1411.7	1339.3	1274.0	1215.3
Off-Highway Trucks	0050	344.1	343.5	343.0	342.6	342.2	342.0	341.8	341.7	341.6	341.6	341.6
Off-Highway Trucks	0120	344.1	343.5	343.0	342.6	342.2	342.0	341.8	341.7	341.6	341.6	341.6
Off-Highway Trucks	0175	344.1	343.5	343.0	342.6	342.2	342.0	341.8	341.7	341.6	341.6	341.6
Off-Highway Trucks	0250	178.8	173.9	170.5	167.8	165.5	163.5	161.9	160.5	159.3	158.3	157.4
Off-Highway Trucks	0500	302.0	288.4	278.0	269.6	262.7	257.3	252.8	249.4	246.8	245.1	243.8
Off-Highway Trucks	0750	489.9	467.9	451.1	437.4	426.1	417.3	410.2	404.5	400.4	397.5	395.4
Off-Highway Trucks	1000	811.3	758.1	711.5	671.6	640.4	619.6	605.1	594.1	585.6	579.0	573.8
Off-Highway Trucks	9999	811.3	758.1	711.5	671.6	640.4	619.6	605.1	594.1	585.6	579.0	573.8
Other Construction Equipment	0050	124.1	120.2	116.5	113.5	110.8	108.4	106.2	104.2	102.7	101.7	100.8
Other Construction Equipment	0120	241.1	239.1	237.3	235.7	234.3	233.0	231.9	230.9	230.2	229.7	229.3
Other Construction Equipment	0175	266.5	266.1	265.9	265.7	265.6	265.6	265.5	265.5	265.5	265.5	265.5
Other Construction Equipment	0250	256.2	251.7	248.1	245.3	243.1	241.5	240.3	239.4	238.7	238.2	237.8
Other Construction Equipment	0500	246.0	237.2	230.2	224.9	220.6	217.4	215.0	213.2	211.9	210.9	210.1
Other Construction Equipment	0750	246.0	237.2	230.2	224.9	220.6	217.4	215.0	213.2	211.9	210.9	210.1
Other Construction Equipment	1000	246.0	237.2	230.2	224.9	220.6	217.4	215.0	213.2	211.9	210.9	210.1
Other Construction Equipment	9999	246.0	237.2	230.2	224.9	220.6	217.4	215.0	213.2	211.9	210.9	210.1
Other General Industrial Equipment	0050	129.4	124.4	119.5	115.4	111.6	108.3	105.2	102.4	100.3	97.8	96.8
Other General Industrial Equipment	0120	205.9	203.6	201.4	199.3	197.3	195.6	194.1	192.8	191.9	190.4	190.1
Other General Industrial Equipment	0175	261.0	259.9	258.9	258.1	257.4	257.1	256.9	256.9	256.9	256.0	256.3
Other General Industrial Equipment	0250	148.5	143.9	140.1	136.8	133.9	131.6	129.8	128.3	127.1	125.6	125.0
Other General Industrial Equipment	0500	306.0	288.9	274.8	263.5	254.0	246.8	242.0	238.7	236.4	233.9	232.8
Other General Industrial Equipment	0750	504.3	476.2	452.9	434.4	418.6	406.8	398.8	393.4	389.7	385.5	383.7
Other General Industrial Equipment	1000	831.8	758.5	692.2	635.5	600.3	577.5	560.7	547.9	537.2	525.8	518.3
Other General Industrial Equipment	9999	831.8	758.5	692.2	635.5	600.3	577.5	560.7	547.9	537.2	525.8	518.3
Other Material Handling Equipment	0050	179.0	172.1	165.3	159.6	154.2	149.5	145.2	141.3	138.4	134.8	133.4
Other Material Handling Equipment	0120	200.5	198.3	196.1	194.1	192.1	190.4	188.9	187.6	186.7	185.3	185.0
Other Material Handling Equipment	0175	330.6	329.3	328.0	327.0	326.1	325.6	325.3	325.3	325.3	324.1	324.5
Other Material Handling Equipment	0250	158.2	153.3	149.2	145.7	142.5	140.1	138.2	136.5	135.2	133.7	133.0
Other Material Handling Equipment	0500	220.3	208.0	197.8	189.7	182.7	177.6	174.0	171.7	170.0	168.2	167.4
Other Material Handling Equipment	0750	513.4	472.9	436.8	406.3	386.1	372.6	362.8	355.5	349.7	343.5	339.6
Other Material Handling Equipment	1000	806.5	737.7	675.8	622.9	589.5	567.6	551.5	539.4	529.4	518.7	511.8
Other Material Handling Equipment	9999	1099.6	1002.6	914.8	839.6	792.9	762.6	740.3	723.2	709.1	694.0	684.0
Pavers	0050	166.7	162.7	158.8	155.0	151.3	147.8	144.4	141.3	138.4	135.7	133.2
Pavers	0120	231.4	229.1	227.1	225.1	223.4	221.8	220.3	219.0	217.7	216.6	215.5
Pavers	0175	355.0	352.7	350.9	349.3	347.9	346.8	345.9	345.1	344.4	343.8	343.2
Pavers	0250	288.6	275.7	264.0	253.2	243.4	234.6	226.7	219.7	213.6	208.4	204.0
Pavers	0500	451.7	419.8	392.2	367.9	346.7	328.2	312.2	298.1	285.9	275.1	265.8
Pavers	0750	451.7	419.8	392.2	367.9	346.7	328.2	312.2	298.1	285.9	275.1	265.8
Paving Equipment	0050	141.6	138.1	134.7	131.4	128.2	125.1	122.1	119.3	116.7	114.3	112.1
Paving Equipment	0120	181.1	179.4	177.8	176.3	175.0	173.7	172.6	171.5	170.5	169.5	168.6
Paving Equipment	0175	277.1	275.5	274.1	273.0	272.1	271.3	270.6	270.0	269.4	268.9	268.5
Paving Equipment	0250	179.0	170.6	163.0	156.0	149.7	144.1	139.1	134.8	131.2	128.1	125.6
Paving Equipment	0500	179.0	170.6	163.0	156.0	149.7	144.1	139.1	134.8	131.2	128.1	125.6
Paving Equipment	0750	179.0	170.6	163.0	156.0	149.7	144.1	139.1	134.8	131.2	128.1	125.6
Paving Equipment	1000	179.0	170.6	163.0	156.0	149.7	144.1	139.1	134.8	131.2	128.1	125.6
Rollers	0050	135.7	131.9	128.2	124.7	121.4	118.3	115.4	112.7	110.4	108.2	106.4
Rollers	0120	185.7	184.1	182.6	181.2	179.9	178.7	177.6	176.5	175.5	174.6	173.9

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ARB OFFROAD CO EMISSION RATES

Equipment Type	HorsepowerBin	CO Grams/Hr (from OFFROAD2007)										
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Rollers	0175	281.9	280.9	280.1	279.4	278.8	278.2	277.8	277.4	277.1	276.8	276.6
Rollers	0250	185.1	176.2	168.5	162.1	157.0	153.0	149.8	147.3	145.1	143.1	141.5
Rollers	0500	306.2	286.3	268.7	253.6	241.1	230.8	222.2	215.0	208.8	203.5	199.0
Rollers	0750	306.2	286.3	268.7	253.6	241.1	230.8	222.2	215.0	208.8	203.5	199.0
Rough Terrain Forklifts	0050	177.1	171.1	165.5	160.9	156.7	152.9	149.3	146.1	143.7	142.0	140.6
Rough Terrain Forklifts	0120	197.7	196.0	194.5	193.0	191.7	190.5	189.4	188.4	187.7	187.2	186.8
Rough Terrain Forklifts	0175	329.3	328.8	328.4	328.1	327.9	327.8	327.7	327.7	327.6	327.6	327.6
Rough Terrain Forklifts	0250	176.6	172.2	168.5	165.4	162.8	160.6	158.8	157.3	156.0	155.0	154.1
Rough Terrain Forklifts	0500	271.3	259.1	249.3	241.9	235.9	231.3	228.0	225.5	223.7	222.3	221.1
Rough Terrain Forklifts	0750	271.3	259.1	249.3	241.9	235.9	231.3	228.0	225.5	223.7	222.3	221.1
Rubber Tired Dozers	0050	271.3	259.1	249.3	241.9	235.9	231.3	228.0	225.5	223.7	222.3	221.1
Rubber Tired Dozers	0120	271.3	259.1	249.3	241.9	235.9	231.3	228.0	225.5	223.7	222.3	221.1
Rubber Tired Dozers	0175	386.5	383.3	380.3	377.7	375.2	373.1	371.2	369.6	368.2	366.9	365.9
Rubber Tired Dozers	0250	323.1	309.9	297.5	285.9	275.1	265.0	255.7	247.2	239.3	232.1	225.6
Rubber Tired Dozers	0500	690.6	645.6	603.7	565.1	529.7	497.7	468.8	443.2	420.7	400.4	382.3
Rubber Tired Dozers	0750	1040.9	972.9	909.8	851.5	798.2	749.8	706.3	667.7	633.7	603.1	575.8
Rubber Tired Loaders	0050	170.1	164.9	160.1	155.7	151.7	148.1	144.9	142.0	139.6	137.4	135.5
Rubber Tired Loaders	0120	189.7	188.1	186.7	185.3	184.1	183.0	182.0	181.0	180.2	179.5	178.8
Rubber Tired Loaders	0175	284.9	284.3	283.7	283.3	282.9	282.5	282.2	281.9	281.7	281.5	281.3
Rubber Tired Loaders	0250	174.0	167.0	161.1	156.1	152.1	149.1	146.7	144.8	143.2	141.8	140.6
Rubber Tired Loaders	0500	306.3	290.0	275.9	263.7	253.6	245.3	238.3	232.4	227.3	223.0	219.2
Rubber Tired Loaders	0750	627.8	594.4	565.3	540.4	519.5	502.5	488.1	476.1	465.8	456.9	449.2
Rubber Tired Loaders	1000	889.1	836.1	788.5	745.5	707.0	672.8	643.0	617.8	597.2	581.0	567.7
Rubber Tired Loaders	9999	889.1	836.1	788.5	745.5	707.0	672.8	643.0	617.8	597.2	581.0	567.7
Scrapers	0050	317.7	314.6	311.8	309.3	307.0	304.9	303.0	301.2	299.6	298.1	296.8
Scrapers	0120	317.7	314.6	311.8	309.3	307.0	304.9	303.0	301.2	299.6	298.1	296.8
Scrapers	0175	415.0	412.7	410.8	409.2	407.8	406.7	405.8	405.0	404.3	403.6	403.1
Scrapers	0250	303.8	290.6	278.6	267.8	257.9	249.1	241.3	234.5	228.6	223.7	219.6
Scrapers	0500	589.7	549.4	515.0	484.7	458.3	435.4	415.5	398.3	383.3	370.3	359.0
Scrapers	0750	1019.6	949.8	890.2	837.8	792.1	752.5	718.1	688.2	662.3	639.8	620.3
Scrapers	1000	1019.6	949.8	890.2	837.8	792.1	752.5	718.1	688.2	662.3	639.8	620.3
Scrapers	9999	1019.6	949.8	890.2	837.8	792.1	752.5	718.1	688.2	662.3	639.8	620.3
Skid Steer Loaders	0050	105.6	102.5	99.5	96.9	94.7	93.2	92.2	91.5	90.9	90.5	90.2
Skid Steer Loaders	0120	125.5	124.5	123.6	122.8	122.1	121.7	121.5	121.3	121.1	121.0	120.9
Skid Steer Loaders	0175	125.5	124.5	123.6	122.8	122.1	121.7	121.5	121.3	121.1	121.0	120.9
Skid Steer Loaders	0250	125.5	124.5	123.6	122.8	122.1	121.7	121.5	121.3	121.1	121.0	120.9
Skid Steer Loaders	0500	125.5	124.5	123.6	122.8	122.1	121.7	121.5	121.3	121.1	121.0	120.9
Skid Steer Loaders	0750	125.5	124.5	123.6	122.8	122.1	121.7	121.5	121.3	121.1	121.0	120.9
Skid Steer Loaders	1000	125.5	124.5	123.6	122.8	122.1	121.7	121.5	121.3	121.1	121.0	120.9
Surfacing Equipment	0050	65.3	63.6	61.9	60.4	58.9	57.5	56.2	55.0	54.0	53.0	52.1
Surfacing Equipment	0120	192.6	191.0	189.5	188.1	186.8	185.6	184.5	183.5	182.5	181.6	180.8
Surfacing Equipment	0175	215.0	214.3	213.7	213.2	212.7	212.3	212.0	211.6	211.3	211.1	210.9
Surfacing Equipment	0250	159.9	153.0	146.7	141.3	136.6	132.7	129.5	126.9	124.8	123.1	121.6
Surfacing Equipment	0500	309.0	291.0	275.2	261.1	248.7	237.9	228.8	221.0	214.3	208.6	203.6
Surfacing Equipment	0750	485.0	456.8	431.9	409.8	390.3	373.3	359.0	346.8	336.3	327.3	319.4
Surfacing Equipment	1000	485.0	456.8	431.9	409.8	390.3	373.3	359.0	346.8	336.3	327.3	319.4
Surfacing Equipment	9999	485.0	456.8	431.9	409.8	390.3	373.3	359.0	346.8	336.3	327.3	319.4
Sweepers/Scrubbers	0050	161.8	155.7	150.2	145.1	140.4	137.3	135.1	133.3	131.4	128.6	127.3
Sweepers/Scrubbers	0120	236.0	233.6	231.5	229.6	227.7	226.7	226.0	225.5	224.8	223.3	222.7
Sweepers/Scrubbers	0175	363.2	362.9	362.9	363.1	363.3	363.7	364.2	364.5	364.5	362.9	362.7
Sweepers/Scrubbers	0250	156.1	153.4	151.0	149.1	147.7	146.6	146.0	145.4	144.9	144.1	144.0
Sweepers/Scrubbers	0500	156.1	153.4	151.0	149.1	147.7	146.6	146.0	145.4	144.9	144.1	144.0
Sweepers/Scrubbers	1000	156.1	153.4	151.0	149.1	147.7	146.6	146.0	145.4	144.9	144.1	144.0

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ARB OFFROAD CO EMISSION RATES

Equipment Type	HorsepowerBin	CO Grams/Hr (from OFFROAD2007)										
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Tractors/Loaders/Backhoes	0050	149.7	144.9	140.6	136.8	133.6	130.9	128.6	126.7	125.1	123.9	123.0
Tractors/Loaders/Backhoes	0120	161.2	159.9	158.7	157.7	156.8	156.0	155.3	154.7	154.2	153.8	153.6
Tractors/Loaders/Backhoes	0175	265.8	265.6	265.4	265.2	265.1	265.0	264.9	264.8	264.7	264.7	264.7
Tractors/Loaders/Backhoes	0250	170.2	166.1	163.5	161.6	160.1	158.9	157.8	156.9	156.1	155.4	154.9
Tractors/Loaders/Backhoes	0500	349.7	337.4	328.4	321.3	315.6	310.8	306.9	303.7	301.0	298.9	297.4
Tractors/Loaders/Backhoes	0750	524.6	506.1	492.6	481.9	473.4	466.3	460.3	455.6	451.6	448.5	446.1
Tractors/Loaders/Backhoes	1000	524.6	506.1	492.6	481.9	473.4	466.3	460.3	455.6	451.6	448.5	446.1
Tractors/Loaders/Backhoes	9999	524.6	506.1	492.6	481.9	473.4	466.3	460.3	455.6	451.6	448.5	446.1
Trenchers	0050	189.2	185.0	180.8	176.7	172.7	168.9	165.2	161.6	158.3	155.2	152.2
Trenchers	0120	214.4	212.2	210.2	208.4	206.8	205.2	203.8	202.5	201.3	200.2	199.2
Trenchers	0175	394.0	391.2	388.8	386.7	385.0	383.5	382.3	381.2	380.3	379.6	378.9
Trenchers	0250	336.4	321.5	307.7	295.2	283.8	273.4	264.0	255.5	248.0	241.5	235.8
Trenchers	0500	635.6	590.2	550.0	514.7	484.3	457.3	433.6	412.9	394.9	379.2	365.5
Trenchers	0750	1199.4	1113.6	1037.6	971.0	913.6	862.6	817.9	778.8	744.7	715.1	689.3
Trenchers	1000	1199.4	1113.6	1037.6	971.0	913.6	862.6	817.9	778.8	744.7	715.1	689.3
	1000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ARB OFFROAD EMISSION RATES

Equipment Type	HorsepowerBin	SO2 Grams/Hr (from OFFROAD2007)										
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Aerial Lifts	0050	0.11490235	0.11490236	0.11490240	0.11490239	0.11490233	0.11490238	0.11490235	0.11490237	0.11490234	0.11490237	0.11490236
Aerial Lifts	0120	0.20239342	0.20239326	0.20239331	0.20239346	0.20239330	0.20239341	0.20239341	0.20239344	0.20239343	0.20239336	0.20239333
Aerial Lifts	0175	0.45053483	0.45053475	0.45053487	0.45053505	0.45053481	0.45053491	0.45053475	0.45053479	0.45053491	0.45053485	0.45053494
Aerial Lifts	0250	0.69867625	0.69867624	0.69867644	0.69867664	0.69867633	0.69867642	0.69867610	0.69867614	0.69867640	0.69867634	0.69867655
Aerial Lifts	0500	0.94681766	0.94681773	0.94681800	0.94681822	0.94681784	0.94681792	0.94681744	0.94681749	0.94681789	0.94681783	0.94681816
Bore/Drill Rigs	0050	0.18183077	0.18183077	0.18183081	0.18183081	0.18183078	0.18183079	0.18183078	0.18183079	0.18183079	0.18183080	0.18183073
Bore/Drill Rigs	0120	0.40998632	0.40998671	0.40998649	0.40998669	0.40998659	0.40998663	0.40998637	0.40998666	0.40998672	0.40998666	0.40998650
Bore/Drill Rigs	0175	0.71936406	0.71936419	0.71936425	0.71936385	0.71936433	0.71936429	0.71936417	0.71936418	0.71936423	0.71936432	0.71936421
Bore/Drill Rigs	0250	0.95915226	0.95915177	0.95915226	0.95915246	0.95915231	0.95915265	0.95915199	0.95915252	0.95915212	0.95915247	0.95915227
Bore/Drill Rigs	0500	1.38475043	1.38475035	1.38475047	1.38475036	1.38475031	1.38475041	1.38475039	1.38475032	1.38475035	1.38475063	1.38475018
Bore/Drill Rigs	0750	2.80276565	2.80276683	2.80276623	2.80276475	2.80276579	2.80276519	2.80276595	2.80276579	2.80276589	2.80276644	2.80276563
Bore/Drill Rigs	1000	4.22986140	4.22986225	4.22986001	4.22986216	4.22986033	4.22986108	4.22986030	4.22986088	4.22986074	4.22986192	4.22985962
Bore/Drill Rigs	9999	4.22986140	4.22986225	4.22986001	4.22986216	4.22986033	4.22986108	4.22986030	4.22986088	4.22986074	4.22986192	4.22985962
Cranes	0050	0.13584044	0.13584051	0.13584044	0.13584050	0.13584042	0.13584044	0.13584045	0.13584046	0.13584049	0.13584044	0.13584048
Cranes	0120	0.26659124	0.26659131	0.26659130	0.26659123	0.26659126	0.26659130	0.26659133	0.26659132	0.26659126	0.26659131	0.26659120
Cranes	0175	0.40968590	0.40968602	0.40968589	0.40968585	0.40968592	0.40968585	0.40968598	0.40968592	0.40968587	0.40968593	0.40968577
Cranes	0250	0.57191044	0.57191054	0.57191050	0.57191035	0.57191040	0.57191055	0.57191042	0.57191049	0.57191057	0.57191033	0.57191029
Cranes	0500	0.80111933	0.80111910	0.80111880	0.80111890	0.80111937	0.80111894	0.80111941	0.80111945	0.80111928	0.80112000	0.80111885
Cranes	0750	1.38086914	1.38086914	1.38086927	1.38086890	1.38086921	1.38086898	1.38086897	1.38086883	1.38086923	1.38086880	1.38086926
Cranes	1000	2.90179087	2.90178998	2.90179240	2.90179027	2.90179051	2.90178995	2.90178998	2.90179092	2.90179059	2.90179026	2.90178968
Cranes	9999	4.42271261	4.42271083	4.42271553	4.42271164	4.42271181	4.42271092	4.42271100	4.42271301	4.42271194	4.42271171	4.42271010
Crawler Tractors	0050	0.14575851	0.14575852	0.14575851	0.14575852	0.14575851	0.14575848	0.14575848	0.14575845	0.14575851	0.14575851	0.14575849
Crawler Tractors	0120	0.34985516	0.34985515	0.34985519	0.34985510	0.34985512	0.34985527	0.34985515	0.34985529	0.34985528	0.34985508	0.34985536
Crawler Tractors	0175	0.61794987	0.61794965	0.61794974	0.61794966	0.61794977	0.61794979	0.61794968	0.61794996	0.61795014	0.61795003	0.61794989
Crawler Tractors	0250	0.84712326	0.84712330	0.84712352	0.84712311	0.84712333	0.84712325	0.84712325	0.84712309	0.84712305	0.84712335	0.84712338
Crawler Tractors	0500	1.15309420	1.15309437	1.15309431	1.15309385	1.15309426	1.15309406	1.15309415	1.15309416	1.15309422	1.15309421	1.15309406
Crawler Tractors	0750	2.11741649	2.11741527	2.11741567	2.11741619	2.11741609	2.11741457	2.11741734	2.11741585	2.11741648	2.11741556	2.11741672
Crawler Tractors	1000	2.99875981	2.99875732	2.99875731	2.99875889	2.99875716	2.99875774	2.99875875	2.99875746	2.99875821	2.99875802	2.99875937
Crawler Tractors	9999	2.99875981	2.99875732	2.99875731	2.99875889	2.99875716	2.99875774	2.99875875	2.99875746	2.99875821	2.99875802	2.99875937
Excavators	0050	0.14656662	0.14656667	0.14656655	0.14656663	0.14656660	0.14656659	0.14656656	0.14656658	0.14656665	0.14656664	0.14656666
Excavators	0120	0.39138711	0.39138724	0.39138712	0.39138725	0.39138719	0.39138716	0.39138725	0.39138720	0.39138716	0.39138699	0.39138725
Excavators	0175	0.57223018	0.57223009	0.57223021	0.57223042	0.57223032	0.57223025	0.57223047	0.57223025	0.57223019	0.57223024	0.57223032
Excavators	0250	0.80914081	0.80914120	0.80914116	0.80914062	0.80914108	0.80914068	0.80914074	0.80914108	0.80914062	0.80914095	0.80914111
Excavators	0500	1.03969237	1.03969198	1.03969199	1.03969329	1.03969345	1.03969191	1.03969244	1.03969185	1.03969211	1.03969188	1.03969260
Excavators	0750	1.76531297	1.76531318	1.76531285	1.76531280	1.76531380	1.76531352	1.76531370	1.76531283	1.76531396	1.76531438	1.76531325
Excavators	1000	1.76531297	1.76531318	1.76531285	1.76531280	1.76531380	1.76531352	1.76531370	1.76531283	1.76531396	1.76531438	1.76531325
Excavators	9999	1.76531297	1.76531318	1.76531285	1.76531280	1.76531380	1.76531352	1.76531370	1.76531283	1.76531396	1.76531438	1.76531325
Forklifts	0050	0.08595638	0.08595637	0.08595640	0.08595639	0.08595639	0.08595636	0.08595641	0.08595636	0.08595639	0.08595633	0.08595635
Forklifts	0120	0.16599458	0.16599455	0.16599458	0.16599454	0.16599457	0.16599456	0.16599462	0.16599453	0.16599454	0.16599458	0.16599456
Forklifts	0175	0.28582751	0.28582746	0.28582738	0.28582748	0.28582733	0.28582727	0.28582724	0.28582725	0.28582727	0.28582726	0.28582732
Forklifts	0250	0.39325244	0.39325233	0.39325243	0.39325235	0.39325252	0.39325239	0.39325259	0.39325252	0.39325241	0.39325246	0.39325238
Forklifts	0500	0.49365744	0.49365715	0.49365747	0.49365748	0.49365736	0.49365724	0.49365726	0.49365722	0.49365741	0.49365743	0.49365719
Forklifts	1000	0.49365744	0.49365715	0.49365747	0.49365748	0.49365736	0.49365724	0.49365726	0.49365722	0.49365741	0.49365743	0.49365719
Graders	0050	0.16133350	0.16133350	0.16133352	0.16133348	0.16133349	0.16133348	0.16133350	0.16133347	0.16133352	0.16133346	0.16133350
Graders	0120	0.39852022	0.39852033	0.39852031	0.39852020	0.39852016	0.39852051	0.39852005	0.39852040	0.39852034	0.39852022	0.39852022
Graders	0175	0.63188946	0.63188955	0.63188976	0.63188940	0.63188961	0.63188960	0.63188925	0.63188924	0.63188981	0.63188967	0.63188986
Graders	0250	0.87762423	0.87762434	0.87762419	0.87762428	0.87762454	0.87762432	0.87762425	0.87762413	0.87762435	0.87762410	0.87762437
Graders	0500	1.02078311	1.02078273	1.02078302	1.02078260	1.02078308	1.02078267	1.02078307	1.02078283	1.02078260	1.02078254	1.02078294
Graders	1000	1.02078311	1.02078273	1.02078302	1.02078260	1.02078308	1.02078267	1.02078307	1.02078283	1.02078260	1.02078254	1.02078294
Graders	9999	1.02078311	1.02078273	1.02078302	1.02078260	1.02078308	1.02078267	1.02078307	1.02078283	1.02078260	1.02078254	1.02078294
None	0											

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ARB OFFROAD EMISSION RATES

Equipment Type	HorsepowerBin	SO2 Grams/Hr (from OFFROAD2007)										
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Off-Highway Tractors	0050	0.49831710	0.49831716	0.49831701	0.49831714	0.49831703	0.49831708	0.49831688	0.49831707	0.49831714	0.49831714	0.49831709
Off-Highway Tractors	0120	0.49831710	0.49831716	0.49831701	0.49831714	0.49831703	0.49831708	0.49831688	0.49831707	0.49831714	0.49831714	0.49831709
Off-Highway Tractors	0175	0.66501228	0.66501214	0.66501221	0.66501225	0.66501222	0.66501218	0.66501216	0.66501207	0.66501220	0.66501213	0.66501239
Off-Highway Tractors	0250	0.66501208	0.66501199	0.66501210	0.66501217	0.66501196	0.66501227	0.66501222	0.66501209	0.66501239	0.66501241	0.66501237
Off-Highway Tractors	0500	1.62689178	1.62689168	1.62689208	1.62689235	1.62689131	1.62689185	1.62689159	1.62689228	1.62689176	1.62689213	1.62689173
Off-Highway Tractors	0750	2.58877148	2.58877137	2.58877207	2.58877253	2.58877066	2.58877143	2.58877095	2.58877247	2.58877113	2.58877185	2.58877109
Off-Highway Tractors	1000	3.71045019	3.71044868	3.71044787	3.71044932	3.71044917	3.71044924	3.71044883	3.71044858	3.71045097	3.71044956	3.71045037
Off-Highway Tractors	9999	3.71045019	3.71044868	3.71044787	3.71044932	3.71044917	3.71044924	3.71044883	3.71044858	3.71045097	3.71044956	3.71045037
Off-Highway Trucks	0050	0.63783623	0.63783611	0.63783622	0.63783613	0.63783625	0.63783607	0.63783619	0.63783612	0.63783604	0.63783612	0.63783626
Off-Highway Trucks	0120	0.63783623	0.63783611	0.63783622	0.63783613	0.63783625	0.63783607	0.63783619	0.63783612	0.63783604	0.63783612	0.63783626
Off-Highway Trucks	0175	0.63783623	0.63783611	0.63783622	0.63783613	0.63783625	0.63783607	0.63783619	0.63783612	0.63783604	0.63783612	0.63783626
Off-Highway Trucks	0250	0.84923313	0.84923342	0.84923343	0.84923348	0.84923307	0.84923335	0.84923311	0.84923348	0.84923335	0.84923342	0.84923332
Off-Highway Trucks	0500	1.21138493	1.21138485	1.21138482	1.21138467	1.21138467	1.21138493	1.21138446	1.21138457	1.21138474	1.21138496	1.21138477
Off-Highway Trucks	0750	2.01284893	2.01284910	2.01284850	2.01284819	2.01284847	2.01284855	2.01284818	2.01284772	2.01284812	2.01284754	2.01284773
Off-Highway Trucks	1000	2.84664801	2.84664939	2.84664937	2.84664958	2.84664882	2.84665017	2.84664804	2.84664762	2.84665042	2.84664862	2.84664726
Off-Highway Trucks	9999	2.84664801	2.84664939	2.84664937	2.84664958	2.84664882	2.84665017	2.84664804	2.84664762	2.84665042	2.84664862	2.84664726
Other Construction Equipment	0050	0.16397837	0.16397834	0.16397827	0.16397835	0.16397829	0.16397835	0.16397827	0.16397832	0.16397834	0.16397835	0.16397832
Other Construction Equipment	0120	0.42985254	0.42985274	0.42985259	0.42985275	0.42985265	0.42985277	0.42985255	0.42985249	0.42985268	0.42985249	0.42985241
Other Construction Equipment	0175	0.54313604	0.54313592	0.54313598	0.54313590	0.54313605	0.54313589	0.54313609	0.54313595	0.54313592	0.54313601	0.54313591
Other Construction Equipment	0250	0.83701476	0.83701473	0.83701455	0.83701455	0.83701483	0.83701456	0.83701486	0.83701462	0.83701439	0.83701480	0.83701494
Other Construction Equipment	0500	1.13089348	1.13089354	1.13089312	1.13089321	1.13089360	1.13089323	1.13089363	1.13089329	1.13089286	1.13089360	1.13089397
Other Construction Equipment	0750	1.13089348	1.13089354	1.13089312	1.13089321	1.13089360	1.13089323	1.13089363	1.13089329	1.13089286	1.13089360	1.13089397
Other Construction Equipment	1000	1.13089348	1.13089354	1.13089312	1.13089321	1.13089360	1.13089323	1.13089363	1.13089329	1.13089286	1.13089360	1.13089397
Other Construction Equipment	9999	1.13089348	1.13089354	1.13089312	1.13089321	1.13089360	1.13089323	1.13089363	1.13089329	1.13089286	1.13089360	1.13089397
Other General Industrial Equipment	0050	0.12739177	0.12739174	0.12739175	0.12739174	0.12739175	0.12739175	0.12739175	0.12739175	0.12739176	0.12739174	0.12739176
Other General Industrial Equipment	0120	0.32978925	0.32978908	0.32978919	0.32978909	0.32978919	0.32978916	0.32978918	0.32978913	0.32978908	0.32978912	0.32978920
Other General Industrial Equipment	0175	0.48916766	0.48916754	0.48916740	0.48916760	0.48916763	0.48916759	0.48916784	0.48916738	0.48916761	0.48916737	0.48916761
Other General Industrial Equipment	0250	0.69135693	0.69135669	0.69135701	0.69135692	0.69135667	0.69135692	0.69135652	0.69135704	0.69135691	0.69135674	0.69135668
Other General Industrial Equipment	0500	1.18059392	1.18059354	1.18059348	1.18059385	1.18059393	1.18059356	1.18059390	1.18059387	1.18059386	1.18059372	1.18059401
Other General Industrial Equipment	0750	1.99330634	1.99330628	1.99330596	1.99330635	1.99330542	1.99330564	1.99330559	1.99330540	1.99330597	1.99330512	1.99330674
Other General Industrial Equipment	1000	2.54991633	2.54991590	2.54991581	2.54991661	2.54991599	2.54991689	2.54991551	2.54991636	2.54991666	2.54991641	2.54991670
Other General Industrial Equipment	9999	2.54991633	2.54991590	2.54991581	2.54991661	2.54991599	2.54991689	2.54991551	2.54991636	2.54991666	2.54991641	2.54991670
Other Material Handling Equipment	0050	0.17771663	0.17771661	0.17771667	0.17771661	0.17771657	0.17771661	0.17771672	0.17771655	0.17771664	0.17771664	0.17771659
Other Material Handling Equipment	0120	0.32252274	0.32252285	0.32252283	0.32252269	0.32252283	0.32252279	0.32252277	0.32252272	0.32252271	0.32252280	0.32252276
Other Material Handling Equipment	0175	0.62248984	0.62249011	0.62248968	0.62249006	0.62248977	0.62248966	0.62248989	0.62248952	0.62248974	0.62248961	0.62248943
Other Material Handling Equipment	0250	0.73944231	0.73944242	0.73944235	0.73944211	0.73944252	0.73944231	0.73944241	0.73944262	0.73944249	0.73944259	0.73944260
Other Material Handling Equipment	0500	0.85238156	0.85238136	0.85238149	0.85238169	0.85238165	0.85238154	0.85238152	0.85238160	0.85238147	0.85238172	0.85238151
Other Material Handling Equipment	0750	1.66746462	1.66746409	1.66746450	1.66746490	1.66746444	1.66746427	1.66746488	1.66746424	1.66746489	1.66746468	1.66746487
Other Material Handling Equipment	1000	2.48254767	2.48254682	2.48254751	2.48254811	2.48254724	2.48254700	2.48254824	2.48254688	2.48254831	2.48254765	2.48254823
Other Material Handling Equipment	9999	3.29763073	3.29762955	3.29763053	3.29763132	3.29763003	3.29762972	3.29763159	3.29762952	3.29763174	3.29763061	3.29763159
Pavers	0050	0.16397830	0.16397830	0.16397831	0.16397828	0.16397834	0.16397831	0.16397834	0.16397829	0.16397830	0.16397833	0.16397830
Pavers	0120	0.36785462	0.36785448	0.36785461	0.36785474	0.36785460	0.36785488	0.36785477	0.36785456	0.36785464	0.36785459	0.36785468
Pavers	0175	0.65414184	0.65414183	0.65414215	0.65414205	0.65414173	0.65414192	0.65414179	0.65414175	0.65414166	0.65414216	0.65414210
Pavers	0250	0.99112368	0.99112360	0.99112407	0.99112387	0.99112446	0.99112441	0.99112357	0.99112402	0.99112415	0.99112368	0.99112379
Pavers	0500	1.03751705	1.03751677	1.03751711	1.03751711	1.03751725	1.03751708	1.03751689	1.03751698	1.03751731	1.03751723	1.03751698
Pavers	0750	1.03751705	1.03751677	1.03751711	1.03751711	1.03751725	1.03751708	1.03751689	1.03751698	1.03751731	1.03751723	1.03751698
Paving Equipment	0050	0.14017497	0.14017499	0.14017499	0.14017499	0.14017497	0.14017500	0.14017500	0.14017501	0.14017492	0.14017501	0.14017501
Paving Equipment	0120	0.28972380	0.28972388	0.28972376	0.28972382	0.28972382	0.28972384	0.28972380	0.28972388	0.28972375	0.28972378	0.28972375
Paving Equipment	0175	0.51512857	0.51512860	0.51512838	0.51512849	0.51512865	0.51512860	0.51512872	0.51512871	0.51512851	0.51512857	0.51512876
Paving Equipment	0250	0.62357685	0.62357687	0.62357681	0.62357650	0.62357668	0.62357693	0.62357666	0.62357675	0.62357669	0.62357702	0.62357679

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ARB OFFROAD EMISSION RATES

Equipment Type	HorsepowerBin	SO2 Grams/Hr (from OFFROAD2007)										
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Paving Equipment	0500	0.62357685	0.62357687	0.62357681	0.62357650	0.62357668	0.62357693	0.62357666	0.62357675	0.62357669	0.62357702	0.62357679
Paving Equipment	0750	0.62357685	0.62357687	0.62357681	0.62357650	0.62357668	0.62357693	0.62357666	0.62357675	0.62357669	0.62357702	0.62357679
Paving Equipment	1000	0.62357685	0.62357687	0.62357681	0.62357650	0.62357668	0.62357693	0.62357666	0.62357675	0.62357669	0.62357702	0.62357679
Rollers	0050	0.15222361	0.15222356	0.15222357	0.15222355	0.15222356	0.15222358	0.15222353	0.15222356	0.15222362	0.15222355	0.15222365
Rollers	0120	0.31358972	0.31358970	0.31358966	0.31358956	0.31358964	0.31358979	0.31358985	0.31358965	0.31358965	0.31358964	0.31358953
Rollers	0175	0.55144863	0.55144854	0.55144851	0.55144867	0.55144847	0.55144873	0.55144870	0.55144864	0.55144865	0.55144871	0.55144870
Rollers	0250	0.78062195	0.78062193	0.78062184	0.78062204	0.78062187	0.78062213	0.78062200	0.78062201	0.78062201	0.78062197	0.78062196
Rollers	0500	0.97459668	0.97459645	0.97459644	0.97459633	0.97459644	0.97459627	0.97459662	0.97459652	0.97459657	0.97459654	0.97459656
Rollers	0750	0.97459668	0.97459645	0.97459644	0.97459633	0.97459644	0.97459627	0.97459662	0.97459652	0.97459657	0.97459654	0.97459656
Rough Terrain Forklifts	0050	0.19836091	0.19836089	0.19836089	0.19836085	0.19836088	0.19836091	0.19836087	0.19836087	0.19836091	0.19836089	0.19836078
Rough Terrain Forklifts	0120	0.33198916	0.33198907	0.33198913	0.33198912	0.33198906	0.33198912	0.33198914	0.33198907	0.33198918	0.33198914	0.33198912
Rough Terrain Forklifts	0175	0.63687716	0.63687747	0.63687719	0.63687715	0.63687700	0.63687722	0.63687713	0.63687705	0.63687707	0.63687724	0.63687723
Rough Terrain Forklifts	0250	0.87091032	0.87091056	0.87091052	0.87091035	0.87091026	0.87091044	0.87091025	0.87091037	0.87091029	0.87091015	0.87091065
Rough Terrain Forklifts	0500	1.14126865	1.14126903	1.14126923	1.14126863	1.14126888	1.14126882	1.14126924	1.14126799	1.14126908	1.14126857	1.14126869
Rough Terrain Forklifts	0750	1.14126865	1.14126903	1.14126923	1.14126863	1.14126888	1.14126882	1.14126924	1.14126799	1.14126908	1.14126857	1.14126869
Rubber Tired Dozers	0050	1.14126865	1.14126903	1.14126923	1.14126863	1.14126888	1.14126882	1.14126924	1.14126799	1.14126908	1.14126857	1.14126869
Rubber Tired Dozers	0120	1.14126865	1.14126903	1.14126923	1.14126863	1.14126888	1.14126882	1.14126924	1.14126799	1.14126908	1.14126857	1.14126869
Rubber Tired Dozers	0175	0.66021629	0.66021623	0.66021643	0.66021638	0.66021644	0.66021623	0.66021651	0.66021650	0.66021648	0.66021645	0.66021642
Rubber Tired Dozers	0250	0.93562180	0.93562087	0.93562103	0.93562049	0.93562091	0.93562104	0.93562134	0.93562108	0.93562091	0.93562111	0.93562094
Rubber Tired Dozers	0500	1.17819501	1.17819581	1.17819563	1.17819549	1.17819549	1.17819526	1.17819525	1.17819546	1.17819586	1.17819525	1.17819510
Rubber Tired Dozers	0750	1.81714034	1.81713901	1.81714017	1.81713993	1.81714051	1.81714020	1.81713945	1.81714107	1.81713965	1.81714044	1.81714020
Rubber Tired Loaders	0050	0.18249192	0.18249197	0.18249199	0.18249197	0.18249194	0.18249203	0.18249199	0.18249200	0.18249199	0.18249202	0.18249201
Rubber Tired Loaders	0120	0.31318975	0.31318981	0.31318978	0.31318976	0.31318980	0.31318980	0.31318977	0.31318983	0.31318973	0.31318967	0.31318978
Rubber Tired Loaders	0175	0.54211273	0.54211274	0.54211271	0.54211275	0.54211287	0.54211263	0.54211277	0.54211295	0.54211271	0.54211291	0.54211279
Rubber Tired Loaders	0250	0.75964816	0.75964884	0.75964834	0.75964807	0.75964809	0.75964881	0.75964890	0.75964868	0.75964898	0.75964864	0.75964883
Rubber Tired Loaders	0500	1.05425117	1.05425092	1.05425133	1.05425113	1.05425111	1.05425133	1.05425117	1.05425084	1.05425130	1.05425103	1.05425128
Rubber Tired Loaders	0750	2.21238449	2.21238501	2.21238490	2.21238448	2.21238486	2.21238433	2.21238543	2.21238443	2.21238514	2.21238476	2.21238530
Rubber Tired Loaders	1000	2.70608228	2.70608233	2.70608273	2.70608321	2.70608192	2.70608284	2.70608199	2.70608273	2.70608220	2.70608137	2.70608209
Rubber Tired Loaders	9999	2.70608228	2.70608233	2.70608273	2.70608321	2.70608192	2.70608284	2.70608199	2.70608273	2.70608220	2.70608137	2.70608209
Scrapers	0050	2.70608228	2.70608233	2.70608273	2.70608321	2.70608192	2.70608284	2.70608199	2.70608273	2.70608220	2.70608137	2.70608209
Scrapers	0120	0.49918354	0.49918377	0.49918374	0.49918368	0.49918373	0.49918375	0.49918358	0.49918342	0.49918373	0.49918374	0.49918389
Scrapers	0175	0.75504456	0.75504446	0.75504461	0.75504435	0.75504513	0.75504459	0.75504475	0.75504469	0.75504459	0.75504455	0.75504488
Scrapers	0250	1.06811174	1.06811235	1.06811170	1.06811211	1.06811201	1.06811131	1.06811179	1.06811188	1.06811204	1.06811186	1.06811150
Scrapers	0500	1.42976521	1.42976516	1.42976531	1.42976584	1.42976538	1.42976530	1.42976557	1.42976527	1.42976549	1.42976503	1.42976563
Scrapers	0750	2.53020273	2.53020278	2.53020404	2.53020326	2.53020361	2.53020246	2.53020318	2.53020400	2.53020184	2.53020350	2.53020240
Scrapers	1000	2.53020273	2.53020278	2.53020404	2.53020326	2.53020361	2.53020246	2.53020318	2.53020400	2.53020184	2.53020350	2.53020240
Scrapers	9999	2.53020273	2.53020278	2.53020404	2.53020326	2.53020361	2.53020246	2.53020318	2.53020400	2.53020184	2.53020350	2.53020240
Skid Steer Loaders	0050	0.14950534	0.14950533	0.14950530	0.14950531	0.14950530	0.14950531	0.14950534	0.14950532	0.14950532	0.14950529	0.14950533
Skid Steer Loaders	0120	0.22732586	0.22732586	0.22732585	0.22732594	0.22732590	0.22732593	0.22732589	0.22732588	0.22732586	0.22732591	0.22732587
Skid Steer Loaders	0175	0.22732586	0.22732586	0.22732585	0.22732594	0.22732590	0.22732593	0.22732589	0.22732588	0.22732586	0.22732591	0.22732587
Skid Steer Loaders	0250	0.22732586	0.22732586	0.22732585	0.22732594	0.22732590	0.22732593	0.22732589	0.22732588	0.22732586	0.22732591	0.22732587
Skid Steer Loaders	0500	0.22732586	0.22732586	0.22732585	0.22732594	0.22732590	0.22732593	0.22732589	0.22732588	0.22732586	0.22732591	0.22732587
Skid Steer Loaders	0750	0.22732586	0.22732586	0.22732585	0.22732594	0.22732590	0.22732593	0.22732589	0.22732588	0.22732586	0.22732591	0.22732587
Skid Steer Loaders	1000	0.22732586	0.22732586	0.22732585	0.22732594	0.22732590	0.22732593	0.22732589	0.22732588	0.22732586	0.22732591	0.22732587
Surfacing Equipment	0050	0.08265034	0.08265033	0.08265037	0.08265037	0.08265035	0.08265032	0.08265036	0.08265034	0.08265036	0.08265035	0.08265035
Surfacing Equipment	0120	0.33898886	0.33898875	0.33898897	0.33898892	0.33898882	0.33898884	0.33898891	0.33898893	0.33898885	0.33898894	0.33898892
Surfacing Equipment	0175	0.43737341	0.43737343	0.43737343	0.43737343	0.43737346	0.43737333	0.43737328	0.43737349	0.43737322	0.43737339	0.43737347
Surfacing Equipment	0250	0.68771205	0.68771215	0.68771223	0.68771218	0.68771197	0.68771209	0.68771215	0.68771217	0.68771202	0.68771216	0.68771208
Surfacing Equipment	0500	0.98396762	0.98396782	0.98396766	0.98396775	0.98396776	0.98396763	0.98396750	0.98396749	0.98396742	0.98396756	0.98396754
Surfacing Equipment	0750	1.58137723	1.58137688	1.58137621	1.58137717	1.58137610	1.58137722	1.58137673	1.58137650	1.58137690	1.58137625	1.58137683
Surfacing Equipment	1000	1.58137723	1.58137688	1.58137621	1.58137717	1.58137610	1.58137722	1.58137673	1.58137650	1.58137690	1.58137625	1.58137683

CALIFORNIA HIGH SPEED RAIL
FRESNO TO BAKERSFIELD
CONSTRUCTION ANALYSIS
ARB OFFROAD EMISSION RATES

Equipment Type	HorsepowerBin	SO2 Grams/Hr (from OFFROAD2007)										
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Surfacing Equipment	9999	1.58137723	1.58137688	1.58137621	1.58137717	1.58137610	1.58137722	1.58137673	1.58137650	1.58137690	1.58137625	1.58137683
Sweepers/Scrubbers	0050	0.18484293	0.18484290	0.18484297	0.18484291	0.18484300	0.18484295	0.18484295	0.18484292	0.18484298	0.18484295	0.18484291
Sweepers/Scrubbers	0120	0.39892039	0.39892011	0.39892031	0.39892033	0.39892030	0.39892036	0.39892021	0.39892043	0.39892011	0.39892029	0.39892028
Sweepers/Scrubbers	0175	0.70874937	0.70874954	0.70874973	0.70874933	0.70874969	0.70874964	0.70874995	0.70874982	0.70874933	0.70874990	0.70874972
Sweepers/Scrubbers	0250	0.82614980	0.82614964	0.82614972	0.82614990	0.82615000	0.82614992	0.82614988	0.82614980	0.82614969	0.82614995	0.82614976
Sweepers/Scrubbers	0500	0.82614980	0.82614964	0.82614972	0.82614990	0.82615000	0.82614992	0.82614988	0.82614980	0.82614969	0.82614995	0.82614976
Sweepers/Scrubbers	1000	0.82614980	0.82614964	0.82614972	0.82614990	0.82615000	0.82614992	0.82614988	0.82614980	0.82614969	0.82614995	0.82614976
Tractors/Loaders/Backhoes	0050	0.17779014	0.17779013	0.17779006	0.17779004	0.17779016	0.17779009	0.17779008	0.17779011	0.17779004	0.17779004	0.17779015
Tractors/Loaders/Backhoes	0120	0.27499097	0.27499104	0.27499096	0.27499106	0.27499109	0.27499099	0.27499099	0.27499097	0.27499102	0.27499099	0.27499095
Tractors/Loaders/Backhoes	0175	0.51698309	0.51698305	0.51698311	0.51698310	0.51698322	0.51698313	0.51698318	0.51698308	0.51698308	0.51698302	0.51698312
Tractors/Loaders/Backhoes	0250	0.87570544	0.87570647	0.87570619	0.87570598	0.87570585	0.87570614	0.87570636	0.87570590	0.87570606	0.87570584	0.87570598
Tractors/Loaders/Backhoes	0500	1.75844614	1.75844551	1.75844648	1.75844593	1.75844556	1.75844629	1.75844562	1.75844578	1.75844607	1.75844574	1.75844586
Tractors/Loaders/Backhoes	0750	2.63766793	2.63766806	2.63766914	2.63766827	2.63766940	2.63766747	2.63766683	2.63766695	2.63766962	2.63766784	2.63766862
Tractors/Loaders/Backhoes	1000	2.63766793	2.63766806	2.63766914	2.63766827	2.63766940	2.63766747	2.63766683	2.63766695	2.63766962	2.63766784	2.63766862
Tractors/Loaders/Backhoes	9999	2.63766793	2.63766806	2.63766914	2.63766827	2.63766940	2.63766747	2.63766683	2.63766695	2.63766962	2.63766784	2.63766862
Trenchers	0050	0.19285082	0.19285080	0.19285082	0.19285089	0.19285086	0.19285073	0.19285085	0.19285087	0.19285085	0.19285080	0.19285085
Trenchers	0120	0.34498877	0.34498869	0.34498868	0.34498869	0.34498877	0.34498871	0.34498868	0.34498867	0.34498865	0.34498876	0.34498868
Trenchers	0175	0.73375170	0.73375149	0.73375148	0.73375147	0.73375150	0.73375146	0.73375137	0.73375129	0.73375124	0.73375171	0.73375150
Trenchers	0250	1.13659584	1.13659531	1.13659501	1.13659508	1.13659513	1.13659603	1.13659593	1.13659480	1.13659527	1.13659558	1.13659595
Trenchers	0500	1.38475050	1.38475007	1.38475002	1.38475088	1.38475045	1.38474994	1.38475002	1.38475020	1.38475050	1.38475091	1.38475076
Trenchers	0750	2.67419719	2.67419652	2.67419898	2.67419734	2.67419870	2.67419871	2.67419825	2.67419692	2.67419782	2.67419796	2.67419826
Trenchers	1000	2.67419719	2.67419652	2.67419898	2.67419734	2.67419870	2.67419871	2.67419825	2.67419692	2.67419782	2.67419796	2.67419826

Workers Speed 40 mph

	TOG	CO	Nox	CO2	SO2	PM10	PM2.5
	g/mi	g/mi	g/mi	g/mi	g/mi	g/mi	g/mi
2012	0.09656	2.522438	0.264815	328.7174	0.004006	0.047424	0.020168
2013	0.081886	2.212078	0.23027	318.8053	0.004004	0.047088	0.019869
2014	0.06899	1.942896	0.200799	309.4859	0.004	0.046841	0.019652
2015	0.0579	1.707781	0.175392	298.1768	0.004004	0.046665	0.019498
2016	0.048874	1.512932	0.154346	287.0625	0.004002	0.046549	0.019399
2017	0.040488	1.340008	0.136061	275.6587	0.004	0.046465	0.019329
2018	0.034008	1.202106	0.121532	265.4547	0.004007	0.046415	0.019289
2019	0.029455	1.096878	0.110244	256.0369	0.004007	0.046384	0.019264
2020	0.02669	1.018649	0.10158	246.0061	0.004006	0.046371	0.019253
2021	0.024985	0.959605	0.095048	242.0172	0.004004	0.046369	0.019251
2022	0.023492	0.908304	0.089422	238.4876	0.004004	0.046369	0.019252
2023	0.022148	0.862839	0.084542	235.3576	0.004003	0.04637	0.019253
2024	0.021021	0.827567	0.080535	232.5841	0.004006	0.046372	0.019255
2025	0.020153	0.797742	0.077193	230.2225	0.004006	0.04638	0.019263

Delivery Speed 40 mph

	TOG	CO	Nox	CO2	SO2	PM10	PM2.5
	g/mi	g/mi	g/mi	g/mi	g/mi	g/mi	g/mi
2012	0.11744	3.25896	0.458779	505.8436	0.006004	0.047098	0.0199
2013	0.108911	3.070034	0.425973	497.5273	0.00601	0.046951	0.019767
2014	0.100625	2.880553	0.394217	489.1044	0.006015	0.046834	0.019662
2015	0.092239	2.681782	0.362044	476.9424	0.00603	0.046742	0.01958
2016	0.084216	2.487493	0.331012	464.2928	0.006034	0.046671	0.019517
2017	0.076817	2.306112	0.302515	449.9357	0.006038	0.046618	0.01947
2018	0.069994	2.134686	0.276054	436.302	0.006054	0.046576	0.019433
2019	0.063419	1.975404	0.252372	423.1559	0.006057	0.046538	0.019401
2020	0.057581	1.833087	0.231354	408.3589	0.00606	0.046508	0.019375
2021	0.051647	1.686255	0.211498	403.0941	0.006059	0.04648	0.019352
2022	0.045677	1.544822	0.192921	398.2876	0.00606	0.046454	0.01933
2023	0.042439	1.452557	0.178953	393.8993	0.006061	0.046434	0.019313
2024	0.039592	1.373436	0.166778	389.8355	0.006068	0.046419	0.019299
2025	0.037231	1.306897	0.156124	386.2966	0.006069	0.046411	0.019291

Loading Speed 35 mph

	TOG	CO	Nox	CO2	SO2	PM10	PM2.5
	g/mi	g/mi	g/mi	g/mi	g/mi	g/mi	g/mi
2012	0.493135	2.642309	8.504738	1412.19	0.013654	0.362488	0.27401
2013	0.423479	2.233661	7.64295	1404.204	0.013644	0.314716	0.230063
2014	0.31675	1.699175	6.73743	1398.011	0.013651	0.242574	0.163695
2015	0.268281	1.390229	5.659704	1378.864	0.013602	0.206856	0.130836
2016	0.241871	1.200435	4.83978	1362.252	0.013575	0.191559	0.116765
2017	0.221842	1.064548	4.205076	1339.108	0.013553	0.178783	0.105012
2018	0.212573	0.981507	3.725273	1315.48	0.013528	0.173464	0.10012
2019	0.202957	0.910141	3.330506	1292.512	0.013508	0.168739	0.095773
2020	0.19223	0.836983	2.747439	1262.485	0.013487	0.162275	0.089827
2021	0.186942	0.799416	2.164691	1260.298	0.013463	0.156426	0.084447
2022	0.187464	0.788396	1.869223	1258.915	0.013447	0.155516	0.083609
2023	0.17126	0.719317	1.538538	1256.031	0.013416	0.152853	0.081159
2024	0.170893	0.708967	1.539476	1255.986	0.013415	0.153039	0.08133
2025	0.170728	0.70191	1.540006	1256.009	0.013415	0.153195	0.081474

Fraction of BNSF Alternative

ALTERNATIVE	Mobilization	Demolition	Land Clearing	Earth Moving	Road Crossing	Track at Grade	Track Elevated	Elevated Structures	Demobiliza	Fresno Station	Bakersfield Station	HMF Phas & 3	HMF Tracl Phase 3	MOWF	MOWF Tr	PPSS	SPSS	TPSS	Concrete Batch Plar	Kings-Tulare Station		
BNSF Alternative	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Allensworth Bypass	1.00	0.99	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Bakersfield Hybrid	1.00	0.91	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Bakersfield South	1.00	0.84	1.00	1.00	0.94	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Corcoran Bypass	1.00	0.99	1.00	1.00	1.06	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Corcoran Elevated	1.00	0.96	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Hanford West Bypass 1	1.00	0.99	1.00	1.00	1.03	0.98	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Hanford West Bypass 1 (Modified)	1.00	0.99	1.00	1.00	0.96	0.98	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Hanford West Bypass 2	1.00	0.99	1.00	1.00	1.00	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Hanford West Bypass 2 (Modified)	1.00	0.99	1.00	1.00	0.95	0.98	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Wasco-Shafter Bypass	1.00	0.95	1.00	1.00	1.08	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
CO																					**TOTAL**	**Compared to BNSF Alternative**
BNSF Alternative	6.32	1.59	18.70	104.50	251.42	2.72	4.36	116.13	4.28	12.30	12.13	3.57	1.59	7.02	0.50	30.30	13.75	24.14	0.00	11.79	**627.1**	**100%**
Allensworth Bypass	6.32	1.57	18.70	104.50	246.76	2.72	4.36	116.15	4.28	12.30	12.13	3.57	1.59	7.02	0.50	30.30	13.75	24.14	0.00	11.79	**622.5**	**99%**
Bakersfield Hybrid	6.32	1.45	18.70	104.50	249.09	2.72	4.36	116.16	4.28	12.30	12.13	3.57	1.59	7.02	0.50	30.30	13.75	24.14	0.00	11.79	**624.7**	**100%**
Bakersfield South	6.32	1.34	18.70	104.50	235.12	2.73	4.38	116.54	4.28	12.30	12.13	3.57	1.59	7.02	0.50	30.30	13.75	24.14	0.00	11.79	**611.0**	**97%**
Corcoran Bypass	6.32	1.57	18.70	104.50	265.39	2.72	4.36	116.10	4.28	12.30	12.13	3.57	1.59	7.02	0.50	30.30	13.75	24.14	0.00	11.79	**641.0**	**102%**
Corcoran Elevated	6.32	1.53	18.70	104.50	249.09	2.72	4.36	116.04	4.28	12.30	12.13	3.57	1.59	7.02	0.50	30.30	13.75	24.14	0.00	11.79	**624.6**	**100%**
Hanford West Bypass 1	6.32	1.58	18.70	104.50	258.40	2.67	4.27	113.86	4.28	12.30	12.13	3.57	1.59	7.02	0.50	30.30	13.75	24.14	0.00	11.79	**631.7**	**101%**
Hanford West Bypass 1 (Modified)	6.32	1.58	18.70	104.50	242.11	2.67	4.28	113.88	4.28	12.30	12.13	3.57	1.59	7.02	0.50	30.30	13.75	24.14	0.00	11.79	**615.4**	**98%**
Hanford West Bypass 2	6.32	1.57	18.70	104.50	251.42	2.68	4.30	114.54	4.28	12.30	12.13	3.57	1.59	7.02	0.50	30.30	13.75	24.14	0.00	11.79	**625.4**	**100%**
Hanford West Bypass 2 (Modified)	6.32	1.57	18.70	104.50	239.78	2.67	4.28	113.96	4.28	12.30	12.13	3.57	1.59	7.02	0.50	30.30	13.75	24.14	0.00	11.79	**613.2**	**98%**
Wasco-Shafter Bypass	6.32	1.51	18.70	104.50	272.37	2.70	4.32	115.09	4.28	12.30	12.13	3.57	1.59	7.02	0.50	30.30	13.75	24.14	0.00	11.79	**646.9**	**103%**
NOx																					**TOTAL**	**Compared to BNSF Alternative**
BNSF Alternative	10.34	0.99	34.82	169.94	279.82	8.54	10.75	227.51	6.54	17.06	15.55	5.04	2.14	10.05	0.66	49.76	22.77	40.47	0.00	14.12	**926.9**	**100%**
Allensworth Bypass	10.34	0.98	34.82	169.94	274.64	8.54	10.75	227.54	6.54	17.06	15.55	5.04	2.14	10.05	0.66	49.76	22.77	40.47	0.00	14.12	**921.7**	**99%**
Bakersfield Hybrid	10.34	0.90	34.82	169.94	277.23	8.54	10.75	227.57	6.54	17.06	15.55	5.04	2.14	10.05	0.66	49.76	22.77	40.47	0.00	14.12	**924.3**	**100%**
Bakersfield South	10.34	0.84	34.82	169.94	261.68	8.57	10.79	228.30	6.54	17.06	15.55	5.04	2.14	10.05	0.66	49.76	22.77	40.47	0.00	14.12	**909.4**	**98%**
Corcoran Bypass	10.34	0.98	34.82	169.94	295.37	8.54	10.75	227.45	6.54	17.06	15.55	5.04	2.14	10.05	0.66	49.76	22.77	40.47	0.00	14.12	**942.3**	**102%**
Corcoran Elevated	10.34	0.95	34.82	169.94	277.23	8.53	10.74	227.34	6.54	17.06	15.55	5.04	2.14	10.05	0.66	49.76	22.77	40.47	0.00	14.12	**924.1**	**100%**
Hanford West Bypass 1	10.34	0.98	34.82	169.94	287.59	8.37	10.54	223.07	6.54	17.06	15.55	5.04	2.14	10.05	0.66	49.76	22.77	40.47	0.00	14.12	**929.8**	**100%**
Hanford West Bypass 1 (Modified)	10.34	0.98	34.82	169.94	269.46	8.37	10.54	223.10	6.54	17.06	15.55	5.04	2.14	10.05	0.66	49.76	22.77	40.47	0.00	14.12	**911.7**	**98%**
Hanford West Bypass 2	10.34	0.98	34.82	169.94	279.82	8.42	10.60	224.39	6.54	17.06	15.55	5.04	2.14	10.05	0.66	49.76	22.77	40.47	0.00	14.12	**923.5**	**100%**
Hanford West Bypass 2 (Modified)	10.34	0.98	34.82	169.94	266.87	8.38	10.55	223.27	6.54	17.06	15.55	5.04	2.14	10.05	0.66	49.76	22.77	40.47	0.00	14.12	**909.3**	**98%**
Wasco-Shafter Bypass	10.34	0.94	34.82	169.94	303.14	8.46	10.65	225.47	6.54	17.06	15.55	5.04	2.14	10.05	0.66	49.76	22.77	40.47	0.00	14.12	**947.9**	**102%**
VOC																					**TOTAL**	**Compared to BNSF Alternative**
BNSF Alternative	0.85	0.22	2.38	6.41	12.29	0.46	0.55	7.35	0.35	0.55	0.50	0.26	0.17	0.50	0.03	2.59	0.97	1.71	0.00	0.41	**38.6**	**100%**
Allensworth Bypass	0.85	0.22	2.38	6.41	12.06	0.46	0.55	7.35	0.35	0.55	0.50	0.26	0.17	0.50	0.03	2.59	0.97	1.71	0.00	0.41	**38.3**	**99%**
Bakersfield Hybrid	0.85	0.20	2.38	6.41	12.18	0.46	0.55	7.35	0.35	0.55	0.50	0.26	0.17	0.50	0.03	2.59	0.97	1.71	0.00	0.41	**38.4**	**100%**
Bakersfield South	0.85	0.19	2.38	6.41	11.49	0.46	0.55	7.38	0.35	0.55	0.50	0.26	0.17	0.50	0.03	2.59	0.97	1.71	0.00	0.41	**37.7**	**98%**
Corcoran Bypass	0.85	0.22	2.38	6.41	12.97	0.46	0.55	7.35	0.35	0.55	0.50	0.26	0.17	0.50	0.03	2.59	0.97	1.71	0.00	0.41	**39.2**	**102%**
Corcoran Elevated	0.85	0.21	2.38	6.41	12.18	0.46	0.55	7.34	0.35	0.55	0.50	0.26	0.17	0.50	0.03	2.59	0.97	1.71	0.00	0.41	**38.4**	**100%**
Hanford West Bypass 1	0.85	0.22	2.38	6.41	12.63	0.45	0.54	7.21	0.35	0.55	0.50	0.26	0.17	0.50	0.03	2.59	0.97	1.71	0.00	0.41	**38.7**	**100%**
Hanford West Bypass 1 (Modified)	0.85	0.22	2.38	6.41	11.83	0.45	0.54	7.21	0.35	0.55	0.50	0.26	0.17	0.50	0.03	2.59	0.97	1.71	0.00	0.41	**37.9**	**98%**
Hanford West Bypass 2	0.85	0.22	2.38	6.41	12.29	0.45	0.54	7.25	0.35	0.55	0.50	0.26	0.17	0.50	0.03	2.59	0.97	1.71	0.00	0.41	**38.4**	**100%**
Hanford West Bypass 2 (Modified)	0.85	0.22	2.38	6.41	11.72	0.45	0.54	7.21	0.35	0.55	0.50	0.26	0.17	0.50	0.03	2.59	0.97	1.71	0.00	0.41	**37.8**	**98%**
Wasco-Shafter Bypass	0.85	0.21	2.38	6.41	13.31	0.46	0.55	7.28	0.35	0.55	0.50	0.26	0.17	0.50	0.03	2.59	0.97	1.71	0.00	0.41	**39.5**	**102%**
PM10																					**TOTAL**	**Compared to BNSF Alternative**
BNSF Alternative	2.36	12.61	13.54	31.81	14.10	0.30	0.38	5.90	0.51	8.22	7.61	0.27	0.16	0.46	0.03	2.46	0.92	1.62	6.68	8.12	**118.1**	**100%**
Allensworth Bypass	2.36	12.49	13.54	31.81	13.84	0.30	0.38	5.90	0.51	8.22	7.61	0.27	0.16	0.46	0.03	2.46	0.92	1.62	6.68	8.12	**117.7**	**100%**
Bakersfield Hybrid	2.36	11.47	13.54	31.81	13.97	0.30	0.38	5.90	0.51	8.22	7.61	0.27	0.16	0.46	0.03	2.46	0.92	1.62	6.68	8.12	**116.8**	**99%**
Bakersfield South	2.36	10.64	13.54	31.81	13.19	0.30	0.38	5.92	0.51	8.22	7.61	0.27	0.16	0.46	0.03	2.46	0.92	1.62	6.68	8.12	**115.2**	**98%**
Corcoran Bypass	2.36	12.45	13.54	31.81	14.88	0.30	0.38	5.90	0.51	8.22	7.61	0.27	0.16	0.46	0.03	2.46	0.92	1.62	6.68	8.12	**118.7**	**101%**
Corcoran Elevated	2.36	12.12	13.54	31.81	13.97	0.30	0.38	5.90	0.51	8.22	7.61	0.27	0.16	0.46	0.03	2.46	0.92	1.62	6.68	8.12	**117.4**	**99%**
Hanford West Bypass 1	2.36	12.53	13.54	31.81	14.49	0.29	0.37	5.78	0.51	8.22	7.61	0.27	0.16	0.46	0.03	2.46	0.92	1.62	6.68	8.12	**118.2**	**100%**
Hanford West Bypass 1 (Modified)	2.36	12.52	13.54	31.81	13.58	0.29	0.37	5.79	0.51	8.22	7.61	0.27	0.16	0.46	0.03	2.46	0.92	1.62	6.68	8.12	**117.3**	**99%**
Hanford West Bypass 2	2.36	12.49	13.54	31.81	14.10	0.30	0.37	5.82	0.51	8.22	7.61	0.27	0.16	0.46	0.03	2.46	0.92	1.62	6.68	8.12	**117.8**	**100%**
Hanford West Bypass 2 (Modified)	2.36	12.45	13.54	31.81	13.45	0.29	0.37	5.79	0.51	8.22	7.61	0.27	0.16	0.46	0.03	2.46	0.92	1.62	6.68	8.12	**117.1**	**99%**
Wasco-Shafter Bypass	2.36	11.95	13.54	31.81	15.28	0.30	0.38	5.85	0.51	8.22	7.61	0.27	0.16	0.46	0.03	2.46	0.92	1.62	6.68	8.12	**118.5**	**100%**
PM2.5																					**TOTAL**	**Compared to BNSF Alternative**
BNSF Alternative	0.65	1.35	1.52	3.87	7.49	0.26	0.32	4.39	0.21	0.33	0.29	0.16	0.11	0.31	0.02	1.67	0.63	1.12	6.68	0.24	**31.6**	**100%**
Allensworth Bypass	0.65	1.34	1.52	3.87	7.35	0.26	0.32	4.39	0.21	0.33	0.29	0.16	0.11	0.31	0.02	1.67	0.63	1.12	6.68	0.24	**31.5**	**100%**
Bakersfield Hybrid	0.65	1.23	1.52	3.87	7.42	0.26	0.32	4.39	0.21	0.33	0.29	0.16	0.11	0.31	0.02	1.67	0.63	1.12	6.68	0.24	**31.4**	**99%**
Bakersfield South	0.65	1.14	1.52	3.87	7.00	0.26	0.32	4.41	0.21	0.33	0.29	0.16	0.11	0.31	0.02	1.67	0.63	1.12	6.68	0.24	**30.9**	**98%**
Corcoran Bypass	0.65	1.33	1.52	3.87	7.91	0.26	0.32	4.39	0.21	0.33	0.29	0.16	0.11	0.31	0.02	1.67	0.63	1.12	6.68	0.24	**32.0**	**101%**
Corcoran Elevated	0.65	1.30	1.52	3.87	7.42	0.26	0.32	4.39	0.21	0.33	0.29	0.16	0.11	0.31	0.02	1.67	0.63	1.12	6.68	0.24	**31.5**	**100%**
Hanford West Bypass 1	0.65	1.34	1.52	3.87	7.70	0.25	0.31	4.30	0.21	0.33	0.29	0.16	0.11	0.31	0.02	1.67	0.63	1.12	6.68	0.24	**31.7**	**100%**
Hanford West Bypass 1 (Modified)	0.65	1.34	1.52	3.87	7.21	0.25	0.31	4.30	0.21	0.33	0.29	0.16	0.11	0.31	0.02	1.67	0.63	1.12	6.68	0.24	**31.2**	**99%**
Hanford West Bypass 2	0.65	1.34	1.52	3.87	7.49	0.26	0.32	4.33	0.21	0.33	0.29	0.16	0.11	0.31	0.02	1.67	0.63	1.12	6.68	0.24	**31.5**	**100%**
Hanford West Bypass 2 (Modified)	0.65	1.33	1.52	3.87	7.14	0.26	0.31	4.31	0.21	0.33	0.29	0.16	0.11	0.31	0.02	1.67	0.63	1.12	6.68	0.24	**31.2**	**99%**
Wasco-Shafter Bypass	0.65	1.28	1.52	3.87	8.11	0.26	0.32	4.35	0.21	0.33	0.29	0.16	0.11	0.31	0.02	1.67	0.63	1.12	6.68	0.24	**32.1**	**102%**
SO2																						

SUMMARY OF RANGES FOR ALL POLLUTANTS	
97%	**Min of BNSF Alternative**
103%	**Max of BNSF Alternative**

																					TOTAL	Compared to BNSF Alternative
BNSF Alternative	0.02	0.01	0.05	0.15	0.30	0.01	0.01	0.22	0.01	0.01	0.01	0.01	0.00	0.01	0.00	0.05	0.02	0.03	0.00	0.01	**0.9**	**100%**
Allensworth Bypass	0.02	0.01	0.05	0.15	0.29	0.01	0.01	0.22	0.01	0.01	0.01	0.01	0.00	0.01	0.00	0.05	0.02	0.03	0.00	0.01	**0.9**	**99%**
Bakersfield Hybrid	0.02	0.01	0.05	0.15	0.30	0.01	0.01	0.22	0.01	0.01	0.01	0.01	0.00	0.01	0.00	0.05	0.02	0.03	0.00	0.01	**0.9**	**100%**
Bakersfield South	0.02	0.01	0.05	0.15	0.28	0.01	0.01	0.22	0.01	0.01	0.01	0.01	0.00	0.01	0.00	0.05	0.02	0.03	0.00	0.01	**0.9**	**98%**
Corcoran Bypass	0.02	0.01	0.05	0.15	0.32	0.01	0.01	0.22	0.01	0.01	0.01	0.01	0.00	0.01	0.00	0.05	0.02	0.03	0.00	0.01	**0.9**	**102%**
Corcoran Elevated	0.02	0.01	0.05	0.15	0.30	0.01	0.01	0.22	0.01	0.01	0.01	0.01	0.00	0.01	0.00	0.05	0.02	0.03	0.00	0.01	**0.9**	**100%**
Hanford West Bypass 1	0.02	0.01	0.05	0.15	0.31	0.01	0.01	0.22	0.01	0.01	0.01	0.01	0.00	0.01	0.00	0.05	0.02	0.03	0.00	0.01	**0.9**	**100%**
Hanford West Bypass 1 (Modified)	0.02	0.01	0.05	0.15	0.29	0.01	0.01	0.22	0.01	0.01	0.01	0.01	0.00	0.01	0.00	0.05	0.02	0.03	0.00	0.01	**0.9**	**98%**
Hanford West Bypass 2	0.02	0.01	0.05	0.15	0.30	0.01	0.01	0.22	0.01	0.01	0.01	0.01	0.00	0.01	0.00	0.05	0.02	0.03	0.00	0.01	**0.9**	**100%**
Hanford West Bypass 2 (Modified)	0.02	0.01	0.05	0.15	0.29	0.01	0.01	0.22	0.01	0.01	0.01	0.01	0.00	0.01	0.00	0.05	0.02	0.03	0.00	0.01	**0.9**	**98%**
Wasco-Shafter Bypass	0.02	0.01	0.05	0.15	0.33	0.01	0.01	0.22	0.01	0.01	0.01	0.01	0.00	0.01	0.00	0.05	0.02	0.03	0.00	0.01	**1.0**	**102%**

CO2																					TOTAL	Compared to BNSF Alternative
BNSF Alternative	814.60	616.24	2761.08	7107.12	15399.32	786.90	895.54	8113.82	335.84	492.42	468.80	277.62	254.39	599.59	36.60	2541.86	945.13	1623.38	0.00	463.32	**44533.6**	**100%**
Allensworth Bypass	814.60	610.28	2761.08	7107.12	15114.15	787.00	895.66	8114.87	335.84	492.42	468.80	277.62	254.39	599.59	36.60	2541.86	945.13	1623.38	0.00	463.32	**44243.7**	**99%**
Bakersfield Hybrid	814.60	560.58	2761.08	7107.12	15256.73	787.10	895.76	8115.84	335.84	492.42	468.80	277.62	254.39	599.59	36.60	2541.86	945.13	1623.38	0.00	463.32	**44337.8**	**100%**
Bakersfield South	814.60	520.16	2761.08	7107.12	14401.22	789.65	898.67	8142.17	335.84	492.42	468.80	277.62	254.39	599.59	36.60	2541.86	945.13	1623.38	0.00	463.32	**43473.6**	**98%**
Corcoran Bypass	814.60	608.29	2761.08	7107.12	16254.84	786.71	895.32	8111.84	335.84	492.42	468.80	277.62	254.39	599.59	36.60	2541.86	945.13	1623.38	0.00	463.32	**45378.8**	**102%**
Corcoran Elevated	814.60	592.39	2761.08	7107.12	15256.73	786.30	894.85	8107.60	335.84	492.42	468.80	277.62	254.39	599.59	36.60	2541.86	945.13	1623.38	0.00	463.32	**44359.6**	**100%**
Hanford West Bypass 1	814.60	612.26	2761.08	7107.12	15827.08	771.53	878.05	7955.36	335.84	492.42	468.80	277.62	254.39	599.59	36.60	2541.86	945.13	1623.38	0.00	463.32	**44766.0**	**101%**
Hanford West Bypass 1 (Modified)	814.60	611.60	2761.08	7107.12	14828.97	771.66	878.19	7956.66	335.84	492.42	468.80	277.62	254.39	599.59	36.60	2541.86	945.13	1623.38	0.00	463.32	**43768.8**	**98%**
Hanford West Bypass 2	814.60	610.28	2761.08	7107.12	15399.32	776.11	883.26	8002.56	335.84	492.42	468.80	277.62	254.39	599.59	36.60	2541.86	945.13	1623.38	0.00	463.32	**44393.3**	**100%**
Hanford West Bypass 2 (Modified)	814.60	608.29	2761.08	7107.12	14686.39	772.22	878.84	7962.48	335.84	492.42	468.80	277.62	254.39	599.59	36.60	2541.86	945.13	1623.38	0.00	463.32	**43630.0**	**98%**
Wasco-Shafter Bypass	814.60	583.77	2761.08	7107.12	16682.60	779.86	887.53	8041.22	335.84	492.42	468.80	277.62	254.39	599.59	36.60	2541.86	945.13	1623.38	0.00	463.32	**45696.7**	**103%**

Appendix B

Operational Emissions

Summary of Operational Emissions (2035) - 50% Scenario[1]

Activities	Unmitigated Operational Emisions (tons/ year)						
	VOC	CO	NOx	PM_{10}	$PM_{2.5}$	SO_2	CO_2e
Indirect Emissions							
Changes in VMT emissions	-100.9	-2,539.9	-243.4	-149.7	-62.1	-13.7	-739,091
Changes in airplane emissions	-2.3	-31	-24	-0.44	-0.43	-2.9	-22,220
Changes in power plant emissions	8.5	86.3	65.5	12.4	11.4	7.3	217,755
Direct Emissions							
Station operation[2]	2.2	144	15.2	10.7	4.5	0.8	79,748
HMF onsite emissions	0.56	9.0	3.5	0.13	0.12	0.47	19,498
HMF offsite mobile source emissions	0.24	12	1.8	1.02	0.44	0.07	7,030
MOWF offsite emissions	0.06	4	0.4	0.3	0.13	0.02	2,193
Fugitive dust from train operations	N/A	N/A	N/A	29	4.3	N/A	N/A
Total	**-92**	**-2,315**	**-181**	**-97**	**-42**	**-7.9**	**-435,087**

Summary of Operational Emissions (2035) - 83% Scenario[1]

Activities	Unmitigated Operational Emisions (tons/ year)						
	VOC	CO	NOx	PM_{10}	$PM_{2.5}$	SO_2	CO_2e
Indirect Emissions							
Changes in VMT emissions	-67.3	-1,693.0	-162.2	-99.8	-41.4	-9.1	-492,665
Changes in airplane emissions	-1.5	-21	-16	-0.29	-0.29	-1.9	-14,888
Changes in power plant emissions	5.7	57.6	43.7	8.3	8.0	4.9	145,910
Direct Emissions							
Station operation[2]	2.2	144	15.2	10.7	4.5	0.8	79,748
HMF onsite emissions	0.56	9.0	3.5	0.13	0.12	0.47	19,498
HMF offsite mobile source emissions	0.24	12	1.8	1.02	0.44	0.07	7,030
MOWF offsite emissions	0.06	4	0.4	0.30	0.13	0.02	2,193
Fugitive dust from train operations	N/A	N/A	N/A	29	4.3	N/A	N/A
Total	**-60**	**-1,486**	**-114**	**-51**	**-24**	**-4.8**	**-253,174**

1. 50% and 83% Scenarios refer to the price of a high speed train ticket costing 50% and 83% of an airfare ticket, respectively.
2. The operation contains indirect GHG emissions associated with energy use, water use, and solid waste.

Fresno Station: Operational Emissions

Operational VMT Emissions

Emission Source	Number of Round Trips per Day	Round Trip Distance (miles)	Emissions (tpy)							
			ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2	CH_4
Operational Year 2035										
Employees [2,3]	35	40	0.005	0.357	0.033	0.002	0.027	0.011	193	0.004
Passengers by Shuttle / Bus [4]	35	40	0.006	0.148	0.222	0.004	0.025	0.010	268	0.000
Passengers by Car [5]	5,800	40	0.840	58.829	5.507	0.327	4.387	1.867	31,802	0.700
2035 Total	**--**	**--**	**0.85**	**59.33**	**5.76**	**0.33**	**4.44**	**1.89**	**32,262.12**	**0.70**

Notes:

1. 400 passengers would arrive at the station via biking or walking which would not generate air emissions. (Technical Memorandum: Station Area Parking Guidance, created by Bryan Porter and Nick Brand, 06/09/2010)
2. No. of employess is based on the number of employee for the Merced station (40) ratioed by daily boarding. There were 7,600 daily boardings at Merced station and 8,400 daily boarding at Fresno station.
3. Assumed percentage of employees that carpool: 20%
4. 700 passengers travel by bus to board at the station (Technical Memorandum: Station Area Parking Guidance, created by Bryan Porter and Nick Brand, 06/09/2010). Each bus is expected to hold 40 people (Swathi Korpu, Personal Communication).
5. Passenger arrive by vehicle (kiss and ride, vehicle, rental cars or taxis) was provided by transportation consultants. (Swathi Korpu, Personal Communication)
6. An equal number of people are anticipated to alight from the station per day as board per day. All except autos dropping off passengers are assumed to be one-way trips, thus there is one roundtrip for a boarding and alighting pair.

Vehicle Emission Factors

Vehicle Type	Vehicle Emission Factor (g/mile) [1]							
	ROG	CO	NOx	SOx	PM_{10} [2]	$PM_{2.5}$ [2]	CO_2	CH_4
Operational Year 2035								
Passenger	0.009	0.630	0.059	0.004	0.047	0.020	340.699	0.008
Shuttle / Bus [3]	0.010	0.262	0.395	0.008	0.045	0.018	475.062	0.001

Notes:
1. Emission factors are from EMFAC2011-LDV for passenger vehicles (50% LDA-All and 50% of the average of LDT1-All and LDT2-All) traveling at 35 mph. Temperaure of 65 F (annual average for Fresno 5 NE station, Western Regional Climate Center) and RH of 41% was used.
2. Emission factors for PM_{10} and $PM_{2.5}$ include contributions from exhaust, brake-wear, and tire-wear.
3. Emission factos are from EMFAC2011-web and EMFAC2011-PL for urban buses (UBUS-GAS) traveling at 35 mph. All buses and shuttles coming to the Fresno station in 2035 will be natural gas powered. The bus emission factors were determined using only 2023 - 2035 model years based on a 12-year usable life span for city buses (FTA, *Useful Life of Transit Buses and Vans* , April 2007).

Operational Area Source Emissions

Emission Source	Emissions (tpy) [1]						
	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2
Operational Year 2035							
Natural Gas Usage	0.010	0.120	0.150	0.000	0.000	0.000	176
Landscaping	0.010	0.140	0.000	0.000	0.000	0.000	0
Emergency Generator	0.034	0.617	0.118	0.002	0.005	0.005	134.341
2035 Total	**0.054**	**0.877**	**0.268**	**0.002**	**0.005**	**0.005**	**310.971**

Notes:
1. Emissions calculated in URBEMIS2007 using the General Light Industry land use category.

Operational Indirect Emissions (Electricity)

Emission Source	Building Size (sqft)	Electricity Usage Rate (kWh/sqft/year) [1]	Emissions (tpy)		
			CO_2	CH_4	N_2O
Operational Year 2035					
Station Buildings [2]	75,000	13.55	346	0.014	0.003
2035 Total	**--**	**--**	**346**	**0.014**	**0.003**

Notes:
1. Electricity Usage Rate from Table A9-11-A (CEQA Handbook, 1993). The Station Buildings are considered 'Retail'.
2. Station building size was provided in memomrandum by Bob Lagomarsino (URS) (March 31, 2011)

Electricity Emission Factors

	Emission Factor (lb/MWh) [1, 2]		
	CO_2	CH_4	N_2O
Purchased Electricity	681.01	0.0283	0.00623

Notes:
1. Emission factors from U.S. EPA eGRID2010 Version 1.0 (2007 data) for the WECC California subregion.
2. Emission factors are not available for future years. As a result, the available emission factors were applied to 2035 operations.

Operational Indirect Emissions (Water and Wastewater)

Source	Volume[4] (million gallons/year)	Indirect Electricity[1] (kWhr/million gallons)	Emission Factor Electricity[2] CO_2e (lb/kwhr)	Direct Emissions[3] CO_2e (Metric Tons/year)	Indirect Emissions CO_2e (Metric Tons/year)	Total Emissions CO_2e (Metric Tons/year)
Operational Year 2035						
Fresno Station Water	15.33	3500	0.6835356	--	16.64	16.64
Fresno Station Wastewater	8.43	1911	0.6835356	2.18106E-06	5.00	5.00
2035 Total	**--**	**--**	**--**	**--**	**--**	21.63

Notes:
1. Electricity consupmtion is based on average for Northern California.
2. Electricity emission factor is based on the average for the state.
3. Direct emissons assume the wastewater is 100% aerobic and only emits nitrogen at a rate of 8.3445×10^{-10} N_2O per million gallons.
4. The water volume is based on data from the Public Utilities analysis.

Operational Indirect Emissions (Solid Waste)

Source	Volume[3] (short tons/year)	Emission Factors[1] (Metric ton per		Emissions (Metric tons)		Total Emissions[2] CO_2e (Metric
		CO_2	CH_4	CO_2	CH_4	
Operational Year 2035						

Fresno Station Waste	412.45	0.207663449	0.010297457	85.65	4.25	174.84
2035 Total	**--**	**--**	**--**	**--**	**--**	174.84

Notes:

1. The landfill is assumed to have a land fill gas capture system and combustion of land fill gas. The capture efficiency is assumed to be 75% and the distruction efficiency is assumed to be 98%.

2. To obtain the total emissions as carbon dioxide equivalents (CO_2e), the individual GHG emissions are multiplied by their global warming potential (GWP). The GWP for CO_2 is 1 and for CH_4 is 21.

3. Volume assumes a rate of 1.3 tons generated per year per employee at the HMF facility and 0.48 tons/day, 1.13 tons/day, and 1.3 tons/day for the Kings/Tulare, Fresno, and Bakersfield stations respectively.

2035 Total Operational Emissions

Emission Source	Emissions (tpy) [1]									
	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e	CO_2	CH4	N2O
Operational VMT	0.851	59.334	5.763	0.333	4.439	1.888	32,276.922	32,262.122	0.705	--
Area Source	0.054	0.877	0.268	0.002	0.005	0.005	310.971	310.971	--	--
Indirect Electricity	--	--	--	--	--	--	347.32142	346	0.014	0.003
Indirect Water and Wastewater	--	--	--	--	--	--	23.84			
Indirect Solid Waste	--	--	--	--	--	--	192.73			
Total	**0.90**	**60.21**	**6.03**	**0.33**	**4.44**	**1.89**	**33,152**	**32,919.13**	**0.72**	**0.00**
							30,074.80			

Kings/ Tulare Regional (KTR) Station: Operational Emissions

Operational VMT Emissions

Emission Source	Number of Round Trips per Day	Round Trip Distance (miles)	Emissions (tpy)							
			ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2	CH_4
Operational Year 2035										
Employees [2,3]	14	40	0.002	0.146	0.015	0.001	0.010	0.004	75	0.002
Passengers by Shuttle / Bus [4]	15	40	0.002	0.067	0.103	0.002	0.011	0.004	115	0.000
Passengers by Car [5]	2,200	40	0.363	23.642	2.487	0.124	1.664	0.708	12,059	0.266
2035 Total	**--**	**--**	**0.368**	**23.855**	**2.606**	**0.127**	**1.685**	**0.717**	**12,249**	**0.267**

Notes:

1. 200 passengers would arrive at the station via biking or walking which would not generate air emissions. (Technical Memorandum: Station Area Parking Guidance, created by Bryan Porter and Nick Brand, 06/09/2010)

2. No. of employess is based on the number of employee for the Merced station (40) ratioed by daily boarding. There were 7,600 daily boardings at Merced station and 3,300 daily boarding at the KTR station

3. Assumed percentage of employees that carpool: 20%

4. 300 passengers travel by bus to board at the station (Technical Memorandum: Station Area Parking Guidance, created by Bryan Porter and Nick Brand, 06/09/2010). Each bus is expected to hold 40 people (Swathi Korpu, Personal Communication).

5. Passenger arrive by vehicle (kiss and ride, vehicle, rental cars or taxis) was provided by transportation consultants. (Swathi Korpu, Personal Communication)

6. An equal number of people are anticipated to alight from the station per day as board per day. All except autos dropping off passengers are assumed to be one-way trips, thus there is one roundtrip for a boarding and alighting pair.

Vehicle Emission Factors

Vehicle Type	Vehicle Emission Factor (g/mile) [1]							
	ROG	CO	NOx	SOx	PM_{10} [2]	$PM_{2.5}$ [2]	CO_2	CH_4
Operational Year 2035								
Passenger	0.010	0.668	0.070	0.004	0.047	0.020	340.607	0.008
Shuttle / Bus [3]	0.010	0.276	0.428	0.008	0.045	0.018	475.062	0.001

Notes:

1. Emission factors are from EMFAC2011-LDV for passenger vehicles (50% LDA-All and 50% of the average of LDT1-All and LDT2-All) traveling at 35 mph. Temperaure of 62 F (annual average for Hanford station, Western Regional Climate Center) and RH of 41% was used.

2. Emission factors for PM_{10} and $PM_{2.5}$ include contributions from exhaust, brake-wear, and tire-wear.

3. Emission factos are from EMFAC2011-web and EMFAC2011-PL for urban buses (UBUS-GAS) traveling at 35 mph. All buses and shuttles coming to the KTR station in 2035 will be natural gas powered. The bus emission factors were determined using only 2023 - 2035 model years based on a 12-year usable life span for city buses (FTA, Useful Life of Transit Buses and Vans, April 2007).

Operational Area Source Emissions

Emission Source	Emissions (tpy) [1]						
	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2
Operational Year 2035							
Natural Gas Usage	0.010	0.120	0.150	0.000	0.000	0.000	176
Landscaping	0.010	0.140	0.000	0.000	0.000	0.000	0
Emergency Generator	0.034	0.617	0.118	0.002	0.005	0.005	134.341
2035 Total	**0.054**	**0.877**	**0.268**	**0.002**	**0.005**	**0.005**	**310.971**

Notes:

1. Emissions calculated in URBEMIS2007 using the General Light Industry land use category.

Operational Indirect Emissions

Emission Source	Building Size (sqft)	Electricity Usage Rate (kWh/sqft/year) [1]	Emissions (tpy)		
			CO_2	CH_4	N_2O
Operational Year 2035					
Station Buildings [2]	40,000	13.55	185	0.008	0.002
2035 Total	**--**	**--**	**185**	**0.008**	**0.002**

Notes:

1. Electricity Usage Rate from Table A9-11-A (CEQA Handbook, 1993). The Station Buildings are considered 'Retail'.
2. Station building size was provided in memomrandum by Bob Lagomarsino (URS) (March 31, 2011)

Electricity Emission Factors

	Emission Factor (lb/MWh) [1, 2]		
	CO_2	CH_4	N_2O
Purchased Electricity	681.01	0.0283	0.00623

Notes:

1. Emission factors from U.S. EPA eGRID2010 Version 1.0 (2007 data) for the WECC California subregion.
2. Emission factors are not available for future years. As a result, the available emission factors were applied to 2035 operations.

Operational Indirect Emissions (Water and Wastewater)

Source	Volume[4] (million gallons/year)	Indirect Electricity[1] (kWhr/million gallons)	Emission Factor Electricity[2] CO_2e (lb/kwhr)	Direct Emissions[3] CO_2e (Metric Tons/year)	Indirect Emissions CO_2e (Metric Tons/year)	Total Emissions CO_2e (Metric Tons/year)
Operational Year 2035						
Kings/Tulare Station Water	18.07	3500	0.6835356	--	19.61	19.61
Kings/Tulare Station Wastewater	9.86	1911	0.6835356	2.55165E-06	5.84	5.84
2035 Total	**--**	**--**	**--**	**--**	**--**	25.45

Notes:

1. Electricity consupmtion is based on average for Northern California.
2. Electricity emission factor is based on the average for the state.
3. Direct emissons assume the wastewater is 100% aerobic and only emits nitrogen at a rate of 8.3445×10^{-10} N_2O per million gallons.
4. The water volume is based on data from the Public Utilities analysis.

Operational Indirect Emissions (Solid Waste)

Source	Volume[3] (short tons/year)	Emission Factors[1] (Metric ton per		Emissions (Metric tons)		Emissions[2] CO_2e (Metric
		CO_2	CH_4	CO_2	CH_4	
Operational Year 2035						
Kings/Tulare Station Waste	175.2	0.207663449	0.010297457	36.38	1.80	74.27
2035 Total	**--**	**--**	**--**	**--**	**--**	74.27

Notes:

1. The landfill is assumed to have a land fill gas capture system and combustion of land fill gas. The capture efficiency is assumed to be 75% and the distruction efficiency is assumed to be 98%.

2. To obtain the total emissions as carbon dioxide equivalents (CO_2e), the individual GHG emissions are multiplied by their global warming potential (GWP). The GWP for CO_2 is 1 and for CH_4 is 21.

3. Volume assumes a rate of 1.3 tons generated per year per employee at the HMF facility and 0.48 tons/day, 1.13 tons/day, and 1.3 tons/day for the Kings/Tulare, Fresno, and Bakersfield stations respectively.

2035 Total Operational Emissions

Emission Source	Emissions (tpy) [1]									
	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e	CO_2	CH4	N2O
Operational VMT	0.368	23.855	2.606	0.127	1.685	0.717	12,254.25	12,248.640	0.267	--
Area Source	0.054	0.877	0.268	0.002	0.005	0.005	310.97	310.971	--	--
Indirect Electricity	--	--	--	--	--	--	185.24	185	0.008	0.002
Indirect Water and Wastewater	--	--	--	--	--	--	28.05	--	--	--
Indirect Solid Waste	--	--	--	--	--	--	81.87	--	--	--
Total	**0.42**	**24.73**	**2.87**	**0.13**	**1.69**	**0.72**	**12,860**	**12,744.16**	**0.28**	**0.00**

11666.74596

Bakersfield Station: Operational Emissions

Operational VMT Emissions

Emission Source	Number of Round Trips per Day	Round Trip Distance (miles)	Emissions (tpy)							
			ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2	CH_4
Operational Year 2035										
Employees [2,3]	38	40	0.005	0.376	0.037	0.002	0.029	0.012	211	0.004
Passengers by Shuttle / Bus [4]	45	40	0.007	0.197	0.302	0.005	0.033	0.013	344	0.001
Passengers by Car [5]	5,900	40	0.831	57.778	5.650	0.332	4.463	1.899	32,349	0.641
2035 Total	**--**	**--**	**0.843**	**58.351**	**5.989**	**0.340**	**4.524**	**1.924**	**32,904**	**0.646**

Notes:

1. 500 passengers would arrive at the station via biking or walking which would not generate air emissions. (Technical Memorandum: Station Area Parking Guidance, created by Bryan Porter and Nick Brand, 06/09/2010)
2. No. of employess is based on the number of employee for the Merced station (40) ratioed by daily boarding. There were 7,600 daily boardings at Merced station and 9,200 daily boarding at the Bakersfield station
3. Assumed percentage of employees that carpool: 20%
4. 900 passengers travel by bus to board at the station (Technical Memorandum: Station Area Parking Guidance, created by Bryan Porter and Nick Brand, 06/09/2010). Each bus is expected to hold 40 people (Swathi Korpu, Personal Communication).
5. Passenger arrive by vehicle (kiss and ride, vehicle, rental cars or taxis) was provided by transportation consultants. (Swathi Korpu, Personal Communication)
6. An equal number of people are anticipated to alight from the station per day as board per day. All except autos dropping off passengers are assumed to be one-way trips, thus there is one roundtrip for a boarding and alighting pair.

Vehicle Emission Factors

Vehicle Type	Vehicle Emission Factor (g/mile) [1]							
	ROG	CO	NOx	SOx	PM_{10} [2]	$PM_{2.5}$ [2]	CO_2	CH_4
Operational Year 2035								
Passenger	0.009	0.609	0.060	0.004	0.047	0.020	340.690	0.007
Shuttle / Bus [3]	0.010	0.272	0.417	0.008	0.045	0.018	475.062	0.001

Notes:

1. Emission factors are from EMFAC2011-LDV for passenger vehicles (50% LDA-All and 50% of the average of LDT1-All and LDT2-All) traveling at 35 mph. Temperaure of 64 F (annual average for Bakersfield station, Western Regional Climate Center) and RH of 33% was used.
2. Emission factors for PM_{10} and $PM_{2.5}$ include contributions from exhaust, brake-wear, and tire-wear.
3. Emission factos are from EMFAC2011-web and EMFAC2011-PL for urban buses (UBUS-GAS) traveling at 35 mph. All buses and shuttles coming to the Bakersfield station in 2035 will be natural gas powered. The bus emission factors were determined using only 2023 - 2035 model years based on a 12-year usable life span for city buses (FTA, Useful Life of Transit Buses and Vans, April 2007).

Operational Area Source Emissions

Emission Source	Emissions (tpy) [1]						
	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2
Operational Year 2035							
Natural Gas Usage	0.010	0.120	0.150	0.000	0.000	0.000	176
Landscaping	0.010	0.140	0.000	0.000	0.000	0.000	0
Emergency Generator	0.034	0.617	0.118	0.002	0.005	0.005	134.341
2035 Total	**0.054**	**0.877**	**0.268**	**0.002**	**0.005**	**0.005**	**310.971**

Notes:

1. Emissions calculated in URBEMIS2007 using the General Light Industry land use category.

Operational Indirect Emissions

Emission Source	Building Size (sqft)	Electricity Usage Rate (kWh/sqft/year) [1]	Emissions (tpy)		
			CO_2	CH_4	N_2O
Operational Year 2035					
Station Buildings [2]	56,000	13.55	258	0.011	0.002
2035 Total	**--**	**--**	**258**	**0.011**	**0.002**

Notes:

1. Electricity Usage Rate from Table A9-11-A (CEQA Handbook, 1993). The Station Buildings are considered 'Retail'.
2. Station building size was provided in memomrandum by Bob Lagomarsino (URS) (March 31, 2011)

Electricity Emission Factors

	Emission Factor (lb/MWh) [1, 2]		
	CO_2	CH_4	N_2O
Purchased Electricity	681.01	0.0283	0.00623

Notes:

1. Emission factors from U.S. EPA eGRID2010 Version 1.0 (2007 data) for the WECC California subregion.
2. Emission factors are not available for future years. As a result, the available emission factors were applied to 2035 operations.

Operational Indirect Emissions (Water and Wastewater)

Source	Volume[4] (million gallons/year)	Indirect Electricity[1] (kWhr/million gallons)	Emission Factor Electricity[2] CO_2e (lb/kwhr)	Direct Emissions[3] CO_2e (Metric Tons/year)	Indirect Emissions CO_2e (Metric Tons/year)	Total Emissions CO_2e (Metric Tons/year)
Operational Year 2035						
Bakersfield Station Water	16.79	3500	0.6835356	--	18.22	18.22
Bakersfield Station Wastewater	9.23	1911	0.6835356	2.38878E-06	5.47	5.47
2035 Total	**--**	**--**	**--**	**--**	**--**	23.69

Notes:

1. Electricity consupmtion is based on average for Northern California.
2. Electricity emission factor is based on the average for the state.
3. Direct emissons assume the wastewater is 100% aerobic and only emits nitrogen at a rate of 8.3445×10^{-10} N_2O per million gallons.
4. The water volume is based on data from the Public Utilities analysis.

Operational Indirect Emissions (Solid Waste)

Source	Volume[3] (short tons/year)	Emission Factors[1] (Metric ton per short ton of waste)		Emissions (Metric tons)		Total Emissions[2] CO_2e (Metric Tons/year)
		CO_2	CH_4	CO_2	CH_4	
Operational Year 2035						
Bakersfield Station Waste	474.5	0.207663449	0.010297457	98.54	4.89	201.15
2035 Total	**--**	**--**	**--**	**--**	**--**	201.15

Notes:

1. The landfill is assumed to have a land fill gas capture system and combustion of land fill gas. The capture efficiency is assumed to be 75% and the distruction efficiency is assumed to be 98%.

2. To obtain the total emissions as carbon dioxide equivalents (CO_2e), the individual GHG emissions are multiplied by their global warming potential (GWP). The GWP for CO_2 is 1 and for CH_4 is 21.

3. Volume assumes a rate of 1.3 tons generated per year per employee at the HMF facility and 0.48 tons/day, 1.13 tons/day, and 1.3 tons/day for the Kings/Tulare, Fresno, and Bakersfield stations respectively.

2035 Total Operational Emissions

Emission Source	Emissions (tpy) [1]									
	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2e	CO_2	CH4	N2O
Operational VMT	0.843	58.351	5.989	0.340	4.524	1.924	32,917.194	32,903.636	0.646	--
Area Source	0.054	0.877	0.268	0.002	0.005	0.005	310.971	310.971	--	--
Indirect Electricity	--	--	--	--	--	--	259.333	258	0.011	0.002
Indirect Water and Wastewater	--	--	--	--	--	--	26.115	--	--	--
Indirect Solid Waste	--	--	--	--	--	--	221.72	--	--	--
Total	**0.90**	**59.23**	**6.26**	**0.34**	**4.53**	**1.93**	**33,735**	**33,472.98**	**0.66**	**0.00**

30604.18419

Regional Vehicle Miles Traveled - 50% Scenario[3]

County [1]	No Build VMT	Build VMT	Change in Emissions with HST (Tons/Day)							Change in Emissions with HST (Tons/Year) [2]						
	Total Traffic	Total Traffic	ROG	CO	NOx	PM_{10}	$PM_{2.5}$	CO_2	SO_2	ROG	CO	NOx	PM_{10}	$PM_{2.5}$	CO_2	SO_2
Fresno County	27,368,000	24,364,000	-0.10	-2.60	-0.25	-0.15	-0.06	-753	-0.01	-37.54	-949.29	-91.15	-55.98	-23.21	-274,715	-5.13
Kings County	3,137,000	2,663,000	-0.02	-0.39	-0.04	-0.02	-0.01	-118	0.00	-6.21	-142.38	-14.53	-8.81	-3.64	-42,994	-0.81
Tulare County	10,112,000	9,649,000	-0.02	-0.39	-0.04	-0.02	-0.01	-114	0.00	-5.89	-141.86	-14.16	-8.61	-3.56	-41,705	-0.79
Kern County	39,240,000	35,149,000	-0.14	-3.58	-0.34	-0.21	-0.09	-1040	-0.02	-51.29	-1,306.33	-123.51	-76.32	-31.69	-379,677	-6.98
Regional Total	**79,857,000**	**71,825,000**	**-0.277**	**-6.96**	**-0.67**	**-0.41**	**-0.17**	**-2025**	**-0.04**	**-100.93**	**-2,539.85**	**-243.35**	**-149.73**	**-62.10**	**-739,091**	**-13.71**

Regional Vehicle Miles Traveled - 83% Scenario[3]

County [1]	No Build VMT	Build VMT	Change in Emissions with HST (Tons/Day)							Change in Emissions with HST (Tons/Year) [2]						
	Total Traffic	Total Traffic	ROG	CO	NOx	PM_{10}	$PM_{2.5}$	CO_2	SO_2	ROG	CO	NOx	PM_{10}	$PM_{2.5}$	CO_2	SO_2
Fresno	27,368,000	27,368,000	-0.07	-1.73	-0.17	-0.10	-0.04	-502	-0.01	-25.02	-632.65	-60.75	-37.31	-15.47	-183,082	-3.42
Kern	3,137,000	3,137,000	-0.01	-0.26	-0.03	-0.02	-0.01	-79	0.00	-4.14	-94.92	-9.68	-5.88	-2.43	-28,663	-0.54
Kings	10,112,000	10,112,000	-0.01	-0.26	-0.03	-0.02	-0.01	-76	0.00	-3.93	-94.68	-9.45	-5.75	-2.38	-27,834	-0.53
Tulare	39,240,000	39,240,000	-0.09	-2.39	-0.23	-0.14	-0.06	-693	-0.01	-34.19	-870.78	-82.33	-50.88	-21.12	-253,087	-4.65
Regional Total	**79,857,000**	**79,857,000**	**-0.184**	**-4.64**	**-0.44**	**-0.27**	**-0.11**	**-1350**	**-0.03**	**-67.28**	**-1,693.02**	**-162.21**	**-99.81**	**-41.40**	**-492,665**	**-9.14**

Notes:

1. VMT analysis was provided by Cambridge Systematics
2. Annualization factor (365) was used, based on conversation between Alice Lovegrove (Parsons Brinkerhoff) and Avanti Tamhane (URS)
3. 50% and 83% Scenarios refer to the price of a high speed train ticket costing 50% and 83% of an airfare ticket, respectively.

Regional Aircraft Travel - 50% Scenario[3]

Origin [1]	No. of Flights	Change in Emission Burdens due to HST (Tons/Day)							Change in Emission Burdens due to HST (Tons/Year) [2]						
	Removed	ROG	CO	NOx	PM_{10}	$PM_{2.5}$	CO_2	SO_2	ROG	CO	NOx	PM_{10}	$PM_{2.5}$	CO_2	SO_2
San Joaquin	-7	-0.006	-0.084	-0.066	-0.001	-0.001	-60.877	-0.008	-2.3	-30.6	-24.2	-0.4	-0.4	-22220.0	-2.9

Regional Aircraft Travel - 83% Scenario[3]

Origin [1]	No. of Flights	Change in Emission Burdens due to HST (Tons/Day)							Change in Emission Burdens due to HST (Tons/Year) [2]						
	Removed	ROG	CO	NOx	PM_{10}	$PM_{2.5}$	CO_2	SO_2	ROG	CO	NOx	PM_{10}	$PM_{2.5}$	CO_2	SO_2
San Joaquin	-5	-0.004	-0.056	-0.044	-0.001	-0.001	-40.788	-0.005	-1.5	-20.5	-16.2	-0.3	-0.3	-14887.7	-1.9

Notes:

1. VMT analysis was done in EDMS, provided by PMT
2. Annualization factor (365) was used, based on conversation between Alice Lovegrove (Parsons Brinkerhoff) and Avanti Tamhane (URS)
3. 50% and 83% Scenarios refer to the price of a high speed train ticket costing 50% and 83% of an airfare ticket, respectively.

Regional Electricity - 50% Scenario[4]

Electricity required [1]		Change in Emissions due to HST (Tons/Day)							Change in Emissions due to HST (Tons/Year)						
Area	(GWH per day)	HC	CO	NO_x	PM_{10}	$PM_{2.5}$	CO_2	SO_2	HC	CO	NO_x	PM_{10}	$PM_{2.5}$	CO_2	SO_2
Statewide	13.17	0.17	1.69	1.28	0.24	0.22	4,262.66	0.14	61.0	616.0	468.0	88.0	81.0	1,555,870	52.0
Regional [2]	1.84	0.02	0.24	0.18	0.03	0.03	596.59	0.02	8.5	86.3	65.5	12.4	11.4	217,755	7.3

Regional Electricity - 83% Scenario[4]

Electricity required [1]		Change in Emissions due to HST (Tons/Day)							Change in Emissions due to HST (Tons/Year)						
Area	(GWH per day)	HC	CO	NO_x	PM_{10}	$PM_{2.5}$	CO_2	SO_2	HC	CO	NO_x	PM_{10}	$PM_{2.5}$	CO_2	SO_2
Statewide	8.78	0.11	1.13	0.85	0.16	0.15	2,854.07	0.10	40.0	411.0	312.0	59.0	54.0	1,041,737	35.0
Regional [2]	1.22	0.02	0.16	0.12	0.02	0.02	399.75	0.01	5.7	57.6	43.7	8.3	8.0	145,910	4.9

Notes:

1. VMT analysis was done in EDMS, provided by PMT
2. Regional analysis is based on ratioing the total power requirements for the entire HST alignment and the lengths of the entire alignment, and the Fresno to Bakersfield alignment

Total length of HST = 830 miles

Length of Fresno to Bakersfield Alignmen 114 miles

3. Annualization factor (365) was used, based on conversation between Alice Lovegrove (Parsons Brinkerhoff) and Avanti Tamhane (URS)
4. 50% and 83% Scenarios refer to the price of a high speed train ticket costing 50% and 83% of an airfare ticket, respectively.

Maintenance-of-Way (MOWF) : Offsite Emissions

Data Assumptions / Inputs

	# / period	VMT (RT)	Average Speed (mph)
Employees (# / day) [1]	400	40	35
Working Days per Yr	365		

Notes:

1. The number of employees and speed for trucks and patrol vehicles is based on information from the PMT Technical Memorandum (TM 5.1), Drawing No. TM 5.1-A

Offsite MOWF Emissions

Emission Source	Emissions (tpy)							
	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2	CH_4
Passenger Vehicles	0.06	3.92	0.38	0.02	0.30	0.13	2193.16	0.04
Total Emissions	**0.06**	**3.92**	**0.38**	**0.02**	**0.30**	**0.13**	**2,193**	**0.04**

Vehicle Emission Factors

	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2	CH_4
Passenger Vehicles (g/mile) [1]	0.01	0.61	0.06	0.00	0.05	0.02	340.69	0.01

Notes:

1. The MOWF will be located at the Shafter-West HMF site, which is in Kern County. Emission factors are from EMFAC2011-LDV for passenger vehicles (50% LDA-All and 50% of the average of LDT1-All and LDT2-All). Temperaure of 64 F (annual average for Bakersfield station, Western Regional Climate Center) and RH of 33% was used.

Heavy Maintenance Facility (HMF): Onsite Emissions

Switch Locomotive Horsepower and Load Factors [1]

Notch	Horsepower	Percent Horsepower in Use	Percent Time in Notch	Actual Percent Time in Use	Engine Horsepower	Equivalent Horsepower Used in Analysis	Load Factors
Idle	13	0.3%	38.0%	100.0%	7	7	0.3%
Dynamic Brake	128	3.4%	12.5%	20.2%	68	14	--
1	211	5.6%	6.5%	10.5%	112	12	--
2	457	12.1%	6.5%	10.5%	242	25	--
3	928	24.6%	5.2%	8.4%	492	41	--
4	1,084	28.7%	4.4%	7.1%	575	41	--
5	1,666	44.2%	3.8%	6.1%	883	54	--
6	2,375	62.9%	3.9%	6.3%	1,259	79	--
7	3,182	84.3%	3.0%	4.8%	1,687	82	--
8	3,773	100.0%	16.2%	26.1%	2,000	523	--
Total for Moving Locomotives	--	--	100%	100%	--	877	0.44

Notes:

1. Data was prepared by Parsons Brinckerhoff in July 2011 and was provided in a spreadsheet called "CA HMF All EmissionsR.xls"

Onsite Operational Emission Factors

HMF Operations	Mode	Average Number of Equipment	Engine Horespower	Load Factor (%) [3]	Emission Factors (g/bhp-hr)						
					PM_{10}	$PM_{2.5}$	NOx	VOC	CO	SOx [6,8]	CO_2 [5]
Locomotive [1,2,4]	Idle	2	2,000	0.3%	0.03	0.03	1.3	0.08	1.83	0.006	672.19
	Moving	2	2,000	44.0%	0.03	0.03	1.3	0.08	1.83	0.006	672.19
Diesel Equipment [7,9]	--	6	200	60.0%	0.015	0.015	0.3	0.14	2.6	0.2	1756.33
Diesel Trucks [10,11]	--	20	--	--	0.596	0.514	11.03	1.45	3.56	0.01	1437.39
Total	--	--	--	--	--	--	--	--	--	--	--

Notes:

1. Number of trains operated in the yard (2), duration of operation in each mode, and number of pieces of diesel equipment (6) were provided by the project engineers
It is assumed that locomotive will be continously moving and/or idling for 2 hours over 24-hours period
2. The horse-power of the switching train locomotive is assumed to be 2,000 hp; horse-power of equipment was assumed to be 200 hp
3. Load factors for locomotives are weighted-average factors that were estimated for idling and moving modes based on in-use power at each notch settings (see Table AQ-1)
4. Locomotive will be purchased after 2015 and, therefore, will be subject to Tier 4 emission standards. PM Emission factors are most stringent Tier 4 federal standards for switch locomotives
that were introduced in May 2008 (73 FR 88 25098-25352, May 6, 2008) and are also povided in Table 4, Switch Locomotive Tier 4 Emission Standards on online source
http://dieselnet.com/standards/us/
5. CO2 emission factors for locomotives are based on the carbon content and fuel density
6. SOx emission factors for locomotives are based on the carbon content and fuel density
7. Equipment emission factors are Tier 4 federal standards for on-road (off-road) diesel engines that were introduced in May, 2004 (69 FR 38957-39273, 29 June, 2004) and are also
provided in Table 3, Tier 4 Emission Standards for engines up to 560 kw on online source
http://dieselnet.com/standards/us/
8. SO2 emission factor was obtained from "Technical Information and References", Table 2, Santa Barbara County Air Pollution Control District "Construction Equipment
Controlled Emission Factors" (such as loaders, graders, dozers, etc.). These emission factors reflect usage of low (0.05%) sulfur content in the fuel. http://www.sbcapcd.org/eng/tech/apcd-24.htm
9. Each piece of equipment was assumed to operate for 8 hours over 24-hours period; load factor for equipment was assumied to be 0.6
10. PM emission factors are for 2017 year for HDD vehicles from EMFAC2007 model that are sum of the running, tire wear, and break wear emissions and expressed in grams per mile
NOx, VOC and CO emission factors are for 2017 year for HDD vehicles from EMFAC2007 model

11. Number of delivery trucks and its operations were assumed to be 20 trucks per hour that will operate 8 hours over 24-hr time period

Onsite Operational Emissions

HMF Operations	Mode	Emissions (lbs/year)							Emissions (tpy) [1]						
		PM_{10}	$PM_{2.5}$	NOx	VOC	CO	SOx	CO_2	PM_{10}	$PM_{2.5}$	NOx	VOC	CO	SOx	CO_2
Locomotive [1,4]	Idle	0.665	0.645	28.8	1.770	40.600	0.14	12970	0.0003	0.0003	0.014	0.001	0.020	0.000	6
	Moving	84.7	82.2	3,670	226.0	5170.0	17.51	3094354	0.042	0.041	1.835	0.113	2.585	0.009	1547
Diesel Equipment [5,6,7]	--	69.5	67.4	1,390	649.0	12100.0	927.00	8133277	0.035	0.034	0.695	0.325	6.050	0.464	4067
Diesel Trucks [8,9]	--	104.0	89.6	1,920	253.0	621.0	1.74	25885746	0.052	0.045	0.960	0.127	0.311	0.001	12943
Indirect Water and Wastewater	--	--	--	--	--	--	--	--	--	--	--	--	--	--	24
Indirect Solid Waste	--	--	--	--	--	--	--	--	--	--	--	--	--	--	911
Total	--	**258.865**	**239.845**	**7,009**	**1129.770**	**17,932**	**946**	**37,126,346**	**0.129**	**0.120**	**3.504**	**0.565**	**8.966**	**0.473**	**19498**

Notes:

1. Emissions (lbs/year) were converted to Emissions (tpy) using the following conversion: 2,000 lbs/ton

Operational emissions from electricity consumption were considered negligible for the Heavy Maintenance Facility and were, therefore, not estimated.

Heavy Maintenance Facility (HMF): Offsite Emissions

Offsite Operational VMT Emissions

Emission Source [1]	Number of Round Trips per Day	Round Trip Distance (miles)	Emissions (tpy)							
			ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2	CH_4
Operational Year 2035										
Employees [2]	1,200	40	0.174	11.964	1.033	0.068	0.908	0.386	6,579	0.145
Deliveries	20	120	0.062	0.506	0.757	0.005	0.108	0.053	451	0.003
2035 Total	**--**	**--**	**0.24**	**12.47**	**1.79**	**0.07**	**1.02**	**0.44**	**7,030**	**0.148**

Notes:
1. Onsite diesel-fueled vehicle emissions were included with the stationary source combustion calculations.
2. Assumed percentage of employees that carpool: 20%

Vehicle Emission Factors

Vehicle Type	Vehicle Emission Factor (g/mile)							
	ROG	CO	NOx	SOx	PM_{10} [2]	$PM_{2.5}$ [2]	CO_2	CH_4
Operational Year 2035								
Passenger [1]	0.009	0.620	0.054	0.004	0.047	0.020	340.675	0.008
Delivery Truck [3]	0.064	0.524	0.784	0.005	0.112	0.055	467.161	0.003

Notes:
1. Emission factors are from EMFAC2011-LDV for passenger vehicles (50% LDA-All and 50% of the average of LDT1-All and LDT2-All) traveling at 35 mph. Temperaure of 67 F and RH of 55% was used.
2. Emission factors for PM_{10} and $PM_{2.5}$ include contributions from exhaust, brake-wear, and tire-wear.
3. Emissions factors are from EMFAC2011-PL for delivery trucks (average of LHD1-DSL and LHD2-DSL for the San Joaquin Valley Air Basin) traveling at 35 mph.

Train Wake Dust: Fugitive Dust Emissions

Train Velocity	97.0 m/s	217 mph	
	98.3 m/s	220 mph	
At grade length	91 miles		

Wind speed Profile

$$u = (1.2319)^{0.072v-4} \times (0.4575\,d^2 - 3.5496\,d + 9.1545)$$

Where:
u: the maximum wind velocity around human body near the train (m/s).
d: human-train distance (m).

v: train running speed (m/s).

EF (per event) = k x P
k is a particle size multiplier

k = 0.5 for particles < 10 um

k = 0.075 for particles < 2.5 um

$P = 58(u^* - ut^*)^2 + 25(u^* - ut^*)$
P = 0 for u* < ut*
ut* = 0.19 m/s

u(z) = (u*/0.4) ln(z/zo)

z = 288 cm
z0 = 0.01 cm

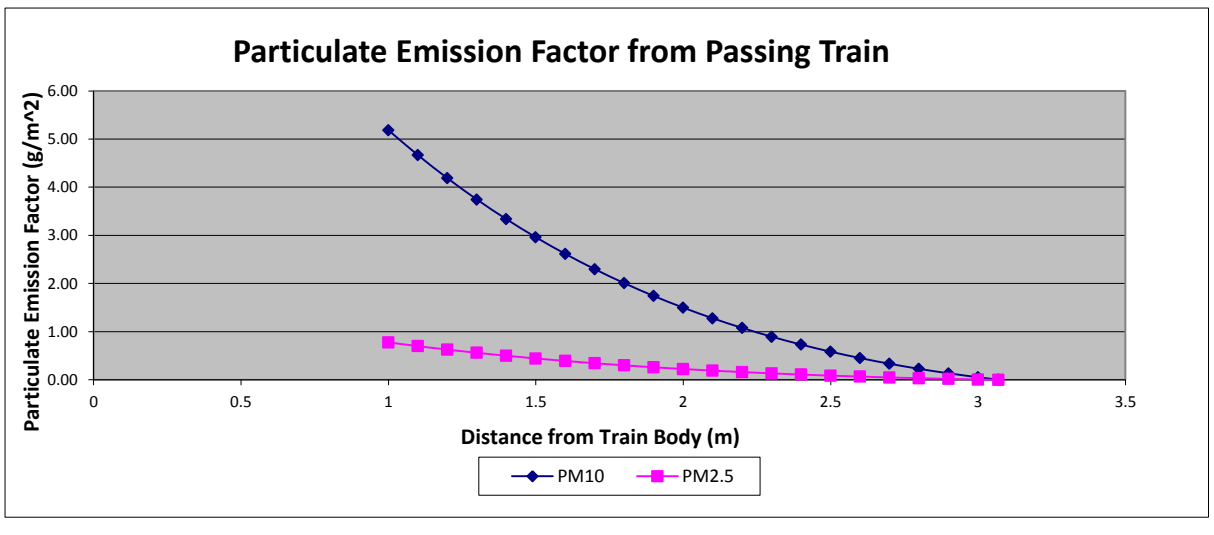
u* = Friction Velocity for the Fastest Mile (m/s)
ut* = Threshold friction velocity (m/s), 0.5 m/s (lowest number from AP42, for coal pile)
0.19 m/s based on the lowest value for disturbed desert soil

u(z) = wind speed at a certain height above the surface (cm/s)
u* = friction velocity for fastest mile. Based on disturbed desert soils (DRI Study)
z = height above the surface (288 cm), based on 1/2 of the train height (1.88 m) & embankment height (1m)
zo = surface roughness height (cm), assume 0.01 cm for the at grade right of way
0.4 is von Karman's constant, dimensionless

Input Parameters and Emissions Factors

Train-Object Distance	Wind Speed from 217 mph Train	Wind Speed from 220 mph Train	Friction Velocity	Erosion Potential	Emission Factor	
(m)	u (m/s)		u*(m/s)	P (g/m^2)	PM_{10} (g/m^2)	$PM_{2.5}$ (g/m^2)
1	11.30	11.53	0.45	10.37	5.18	0.78
1.1	10.81	11.03	0.43	9.33	4.67	0.70
1.2	10.35	10.56	0.41	8.38	4.19	0.63
1.3	9.90	10.10	0.39	7.49	3.75	0.56
1.4	9.47	9.66	0.38	6.68	3.34	0.50
1.5	9.06	9.24	0.36	5.92	2.96	0.44
1.6	8.66	8.83	0.34	5.23	2.62	0.39
1.7	8.28	8.45	0.33	4.60	2.30	0.34
1.8	7.92	8.08	0.31	4.02	2.01	0.30
1.9	7.57	7.72	0.30	3.48	1.74	0.26
2	7.24	7.39	0.29	3.00	1.50	0.22
2.1	6.93	7.07	0.28	2.56	1.28	0.19
2.2	6.63	6.77	0.26	2.16	1.08	0.16
2.3	6.36	6.48	0.25	1.79	0.90	0.13
2.4	6.09	6.22	0.24	1.46	0.73	0.11
2.5	5.85	5.97	0.23	1.17	0.58	0.09
2.6	5.62	5.74	0.22	0.90	0.45	0.07
2.7	5.41	5.53	0.22	0.67	0.33	0.05
2.8	5.22	5.33	0.21	0.46	0.23	0.03
2.9	5.05	5.15	0.20	0.27	0.14	0.02
3	4.89	4.99	0.19	0.11	0.05	0.01
3.07	4.79	4.88	0.19	0.01	0.00	0.00

Emissions		
PM_{10} Emissions	$PM_{2.5}$ Emissions	Emissions Units
3.74	0.56	grams/meter traveled
6023.03	903.45	grams/VMT (one side)
26.53	3.98	lb/miles (both sides)
28.974	4.346	Tpy (24 disturbances)



Page: 1
7/28/2010 02:49:06 PM

Urbemis 2007 Version 9.2.4

Detail Report for Annual Area Source Unmitigated Emissions (Tons/Year)

File Name: U:\5020 Air Quality\5000 Technical\5200 Emission Calculations\Building Operation Emissions\Building Operation Emissions.urb924

Project Name: HST Fresno Station Operation emissions

Project Location: San Joaquin Valley APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

AREA SOURCE EMISSION ESTIMATES (Annual Tons Per Year, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	**0.01**	**0.15**	**0.12**	**0.00**	**0.00**	**0.00**	**176.38**
Hearth							
Landscape	**0.01**	**0.00**	**0.14**	**0.00**	**0.00**	**0.00**	**0.25**
Consumer Products							
Architectural Coatings	0.00						
TOTALS (tons/year, unmitigated)	0.02	0.15	0.26	0.00	0.00	0.00	176.63

Area Source Changes to Defaults

Page: 1
6/8/2011 12:30:48 PM

Urbemis 2007 Version 9.2.4

Detail Report for Annual Area Source Unmitigated Emissions (Tons/Year)

File Name: T:\5020 Air Quality\5000 Technical_Operational\Building Operation Emissions\VTH Station Operation Emissions_v2.urb924

Project Name: HST KTR Station Operation emissions

Project Location: San Joaquin Valley APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

AREA SOURCE EMISSION ESTIMATES (Annual Tons Per Year, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	**0.01**	**0.15**	**0.12**	**0.00**	**0.00**	**0.00**	**176.38**
Hearth							
Landscape	**0.01**	**0.00**	**0.14**	**0.00**	**0.00**	**0.00**	**0.25**
Consumer Products	0.00						
Architectural Coatings	0.00						
TOTALS (tons/year, unmitigated)	0.02	0.15	0.26	0.00	0.00	0.00	176.63

Area Source Changes to Defaults

Page: 1
6/8/2011 01:32:09 PM

Urbemis 2007 Version 9.2.4

Detail Report for Annual Area Source Unmitigated Emissions (Tons/Year)

File Name: T:\5020 Air Quality\5000 Technical_Operational\Building Operation Emissions\Bakersfield Station Operation Emissions_v2.urb924

Project Name: HST Bakersfield Station Operation emissions 2009

Project Location: San Joaquin Valley APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

AREA SOURCE EMISSION ESTIMATES (Annual Tons Per Year, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	**0.01**	**0.15**	**0.12**	**0.00**	**0.00**	**0.00**	**176.38**
Hearth							
Landscape	**0.01**	**0.00**	**0.14**	**0.00**	**0.00**	**0.00**	**0.25**
Consumer Products	0.00						
Architectural Coatings	0.00						
TOTALS (tons/year, unmitigated)	0.02	0.15	0.26	0.00	0.00	0.00	176.63

Area Source Changes to Defaults

Appendix C

Microscale CO Analysis

Intersection CO Analysis - Fresno

Model: Evening - Central Valley (Wind Speed :1.0 m/s, stdev 5 deg, Stability Class 7, 31+5 F - 2.22 C)

Fresno Caline4 Model Input and Result					
Intersection	**Van Ness St./ Inyo St.**	**H St./Tulare St.**	**Van Ness Ave./Fresno St.**	**Tulare Street/F Street**	**Fresno Street/F Street**
AM/PM	PM	PM	PM	PM	PM
No Build LOS	B	D	E	F	F
Build LOS	B	E	F	F	F
Existing (vph)	841	961	1809	420	1414
Existing + Project (vph)	976	1230	2022	529	1893
Future No Build (vph)	2246	4516	3652	3199	3581
Future Plus Project (vph)	2381	4785	3865	3807	5363
Project Impact Ratio	6.01%	5.96%	5.83%	19.01%	49.76%
Caline Result - Existing (ppm)	0.4	0.4	0.6	0	0
Caline Result - Existing + Proj (ppm)	0.4	0.5	0.7	0	0
Caline Result - No Build (ppm)	0.2	0.3	0.3	0	0
Caline Result - Build (ppm)	0.2	0.3	0.4	0	0
Background CO 1hr (ppm)	3.1	3.1	3.1	3.1	3.1
Background CO 8hr (ppm)	2.34	2.34	2.34	2.34	2.34

Note: Background CO was taken from Fresno 1st Street station (second highest data from the last three years)

Intersection CO Analysis - Bakersfield

Model: Evening - Central Valley (Wind Speed :1.0 m/s, stdev 5 deg, Stability Class 7, 41+5 F - 5 C)

Bakersfield Caline4 Model Input and Result				
Intersection	**Union Ave./ California Ave.**	**Oak St./ Truxton Ave.**	**Oak St./SR 178**	**Oak St./24th**
AM/PM	PM	PM	PM	PM
No Build LOS	D	E	F	
Build LOS	D	E	F	
Existing (vph)	4267	5633	5214	4432
Existing + Project (vph)	4501	5676	5230	4642
Future No Build (vph)	6720	7495	9374	5565
Future Plus Project (vph)	6954	7528	9390	5775
Project Impact Ratio	3.48%	0.44%	0.17%	3.77%
Caline Result - Existing (ppm)	1.4	2.3	2	1.1
Caline Result - Existing + Proj (ppm)	1.4	2.3	2	1.8
Caline Result - No Build (ppm)	0.5	0.7	0.8	0.3
Caline Result - Build (ppm)	0.5	0.7	0.9	0.3
Background CO 1hr (ppm)	2.8	2.8	2.8	2.8
Background CO 8hr (ppm)	2.13	2.13	2.13	2.13

Note: Background CO was taken from Bakersfield Golden State HWY Station (second highest data from the last three years, 2007-2009)

Intersection CO Analysis - Kings-Tulare

Running Exhaust Emission Factors (EF)

Speed (mph)	2009 Emissions (g/mile)	2035 Emissions (g/mile)
27	6.004	1.185

Emfac 2007: Kings Co. Winter, 2009 (35 F, 41% RH)
Emfac 2007: Kings Co. Winter, 2035 (35 F, 41% RH)
Model: Evening - Central Valley (Wind Speed :1.0 m/s, stdev 5 deg, Stability Class 7, 35+5 F - 4.44 C)

Kings-Tulare Caline4 Model Input and Result			
Intersection	**8th Ave./SR 198 WB Ramps**	**9th Ave./SR 198 EB Ramps**	**SR 43/Lacey Blvd.**
AM/PM	PM	PM	AM
No Build LOS	B	C	E
Build LOS	B	C	F
Existing (vph)	993	922	1002
Existing + Project (vph)	1204	1038	1237
Future No Build (vph)	1384	1591	1083
Future Plus Project (vph)	1595	1707	1318
Project Impact Ratio	15.25%	7.29%	21.70%
Caline Result - Existing (ppm)	0.2	0.2	0.3
Caline Result - Existing + Proj (ppm)	0.2	0.2	0.3
Caline Result - No Build (ppm)	0	0	0
Caline Result - Build (ppm)	0	0	0
Background CO 1hr (ppm)	3.5	3.5	3.5
Background CO 8hr (ppm)	2.14	2.14	2.14

Note: Background CO was taken from Fresno Drummond Station (second highest data from the last three years, 2007-2009)

Intersection CO Analysis - Fresno HMF

Running Exhaust Emission Factors (EF)

Speed (mph)	2009 Emissions (g/mile)	2035 Emissions (g/mile)
27	5.058	1.01

Emfac 2007: Fresno Co. (SJV) Winter, 2009 (41 F, 33% RH)
Emfac 2007: Fresno Co. (SJV) Winter, 2035 (41 F, 33% RH)
Model: Evening - Central Valley (Wind Speed :1.0 m/s, stdev 5 deg, Stability Class 7, 5 C)

Fresno HMF Caline4 Model Input and Result				
Intersection	**SR 99 SB Off-Ramp/ E. American Ave.**	**SR 99 SB Off-Ramp/ E. American Ave.**	**SR 99 NB On-Ramp/ E. American Ave.**	**SR 99 NB On-Ramp/ E. American Ave.**
AM/PM	AM	PM	AM	PM
No Build LOS	B	D	C	
Build LOS	B	E	C	
Existing (vph)	409	362	97	234
Existing + Project (vph)	536	489	200	337
Future No Build (vph)	975	1,399	108	414
Future Plus Project (vph)	1,102	1,526	211	517
Project Impact Ratio	13.03%	9.08%	95.37%	24.88%
Caline Result - Existing (ppm)	0.1	0.1	0.0	0.0
Caline Result - Existing + Proj (ppm)	0.1	0.2	0.0	0.1
Caline Result - No Build (ppm)	0.0	0.0	0.0	0.0
Caline Result - Build (ppm)	0.0	0.0	0.0	0.0
Background CO 1hr (ppm)	3.5	3.5	3.5	3.5
Background CO 8hr (ppm)	2.14	2.14	2.14	2.14

Note: Background CO was taken from Fresno Drummond Station (second highest data from the last three years, 2007-2009)

Intersection CO Analysis - Wasco HMF

Running Exhaust Emission Factors (EF)

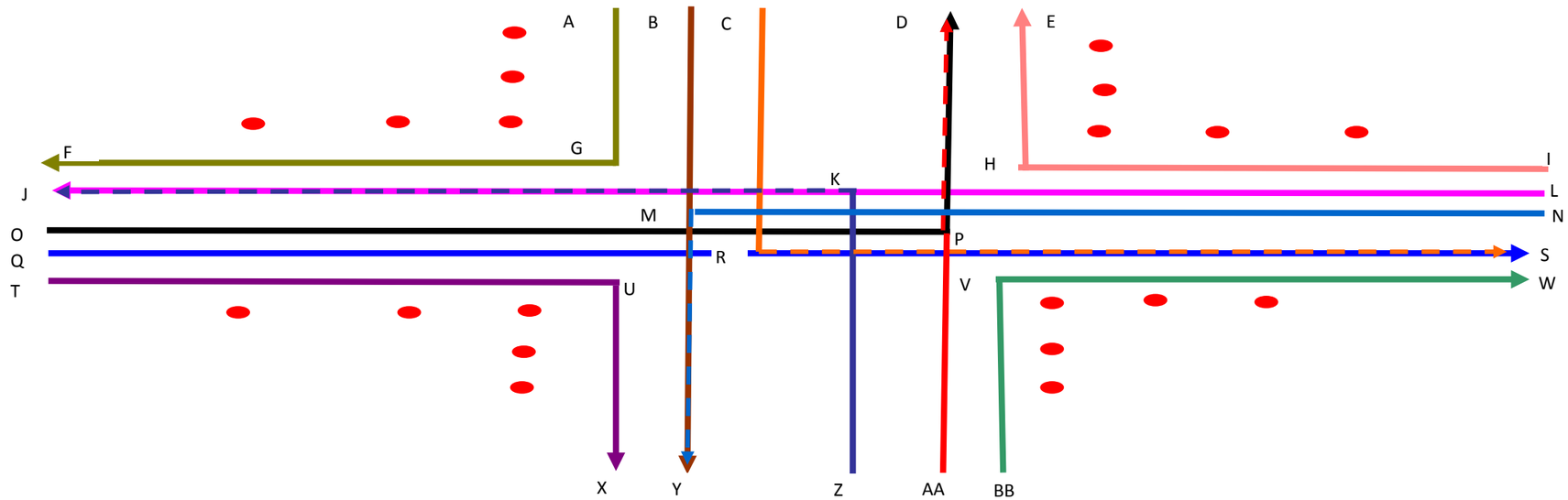
Speed (mph)	2009 Emissions (g/mile)	2035 Emissions (g/mile)
27	5.16	1.17

Emfac 2007: Kern Co. (SJV) Winter, 2009 (41 F, 33% RH)
Emfac 2007: Kern Co. (SJV) Winter, 2035 (41 F, 33% RH)
Model: Evening - Central Valley (Wind Speed :1.0 m/s, stdev 5 deg, Stability Class 7, 5 C)

Wasco Caline4 Model Input and Result			
Intersection	**SR 43/Wasco Ave.**	**SR 43/Wasco Ave.**	**Wasco Ave.-J St./6th St.**
AM/PM	AM	PM	PM
No Build LOS	B	D	C
Build LOS	B	E	C
Existing (vph)	619	787	252
Existing + Project (vph)	820	988	294
Future No Build (vph)	1,839	2,272	783
Future Plus Project (vph)	2,040	2,473	825
Project Impact Ratio	10.93%	8.85%	5.36%
Caline Result - Existing (ppm)	0.0	0.1	0.0
Caline Result - Existing + Proj (ppm)	0.1	0.1	0.0
Caline Result - No Build (ppm)	0.0	0.0	0.0
Caline Result - Build (ppm)	0.0	0.0	0.0
Background CO 1hr (ppm)	2.8	2.8	2.8
Background CO 8hr (ppm)	2.13	2.13	2.13

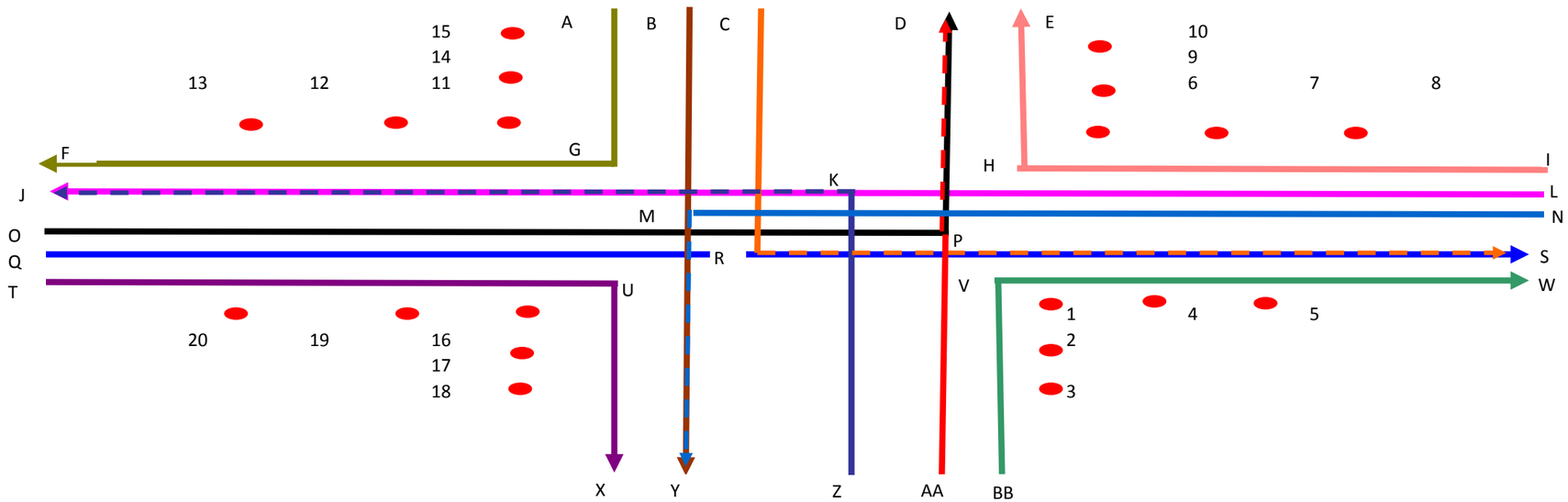
Note: Background CO was taken from Bakersfield Golden State HWY Station (second highest data from the last three years, 2007-2009)

Fresno - Van Ness St./Inyo Street



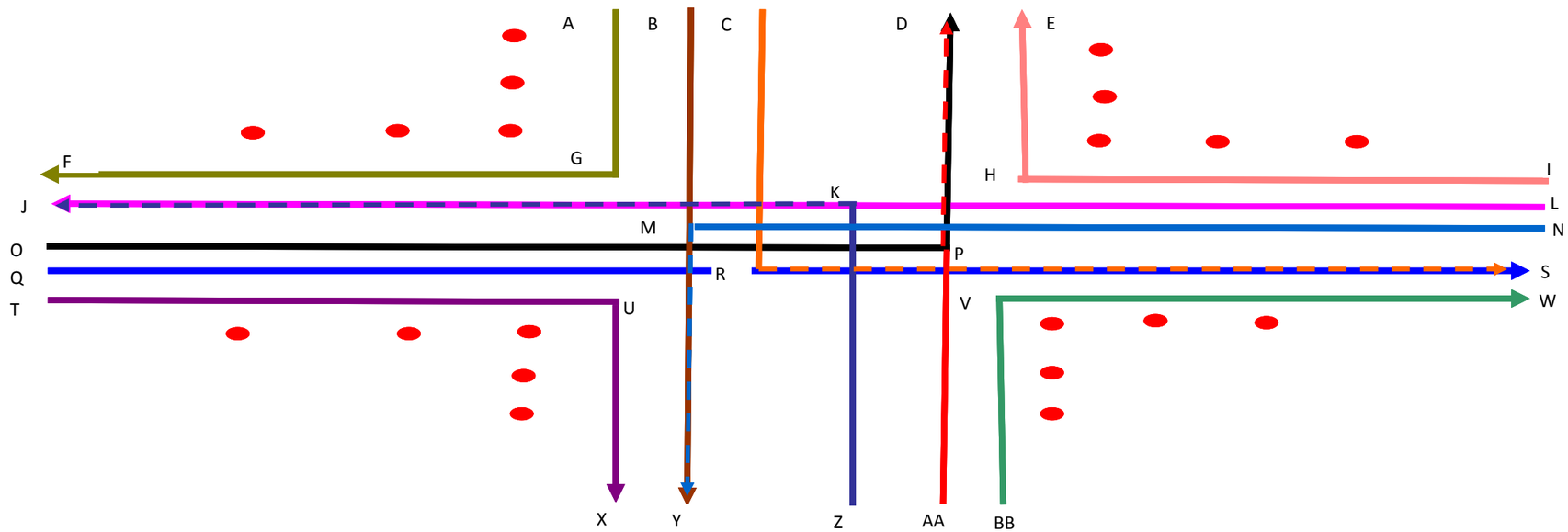
CALINE INPUT						2035				2009				Receptors		
No	Link	x1	y1	x2	y2	Rate (g/mi)	Nobuild Traffic (vph)	Rate (g/mi)	Build Traffic (vph)	Rate (g/mi)	Existing Traffic (vph)	Rate (g/mi)	Existing + Proj (vph)	Receptor No	x1	y1
1	AG	1059.11	8917.58	1123.00	8834.97	1.51	269	1.63	272	7.36	118	7.36	121	1	1085.79	8872.15
2	BM	1061.59	8919.50	1132.42	8833.86	1.51	269	1.63	272	7.36	118	7.36	121	2	1101.60	8852.68
3	CR	1064.72	8921.73	1137.94	8833.72	1.51	84	1.63	84	7.36	9	7.36	9	3	1115.36	8835.34
4	DP	1066.59	8923.05	1136.90	8839.09	1.10	310	1.30	323	5.29	192	5.29	205	4	1098.64	8821.05
5	EH	1069.00	8924.71	1136.96	8846.61	1.10	310	1.30	323	5.29	192	5.29	205	5	1078.99	8805.45
6	FG	1052.11	8774.85	1123.00	8834.97	1.14	295	1.30	296	5.41	69	5.41	70	6	1108.58	8888.28
7	HI	1136.96	8846.61	1209.34	8905.93	1.63	298	1.63	298	8.31	49	8.31	49	7	1123.85	8868.52
8	JK	1053.65	8772.87	1132.92	8839.15	1.14	295	1.30	296	5.41	69	5.41	70	8	1137.77	8851.32
9	KL	1132.92	8839.15	1211.29	8903.86	1.63	298	1.63	298	8.31	49	8.31	49	9	1154.67	8865.56
10	MY	1132.42	8833.86	1187.62	8770.20	1.10	287	1.30	292	5.17	125	5.17	129	10	1173.82	8881.35
11	MN	1132.42	8833.86	1213.30	8901.17	1.63	99	1.63	99	8.31	20	8.31	20	11	1098.83	8791.13
12	OP	1056.29	8770.06	1136.90	8839.09	1.63	74	1.63	74	8.31	47	8.31	47	12	1117.74	8807.60
13	QR	1057.96	8767.51	1137.94	8833.72	1.97	158	1.97	159	8.31	36	8.31	37	13	1134.61	8821.63
14	RS	1137.94	8833.72	1215.55	8898.08	1.14	232	1.30	232	5.41	35	5.41	35	14	1148.62	8804.62
15	TU	1060.06	8764.98	1136.20	8826.14	1.97	158	1.97	159	8.31	36	8.31	37	15	1164.82	8785.23
16	UX	1136.20	8826.14	1184.57	8767.67	1.10	287	1.30	292	5.17	125	5.17	129	16	1187.00	8865.25
17	KZ	1132.92	8839.15	1189.62	8772.16	1.51	66	1.63	67	7.36	40	7.36	41	17	1167.67	8849.21
18	PAA	1136.90	8839.09	1192.12	8774.10	1.63	238	1.86	251	7.66	161	7.66	174	18	1150.10	8835.07
19	VBB	1145.24	8835.44	1195.17	8776.20	1.63	238	1.86	251	7.66	161	7.66	174	19	1164.54	8818.33
20	VW	1145.24	8835.44	1217.57	8895.82	1.14	232	1.30	232	5.41	35	5.41	35	20	1181.16	8799.35

Fresno - Tulare Street and F Street



CALINE INPUT						2035				2009				Receptors		
No	Link	x1	y1	x2	y2	Rate (g/mi)	Nobuild Traffic (vph)	Rate (g/mi)	Build Traffic (vph)	Rate (g/mi)	Existing Traffic (vph)	Rate (g/mi)	Existing + Proj (vph)	Receptor No	x1	y1
1	AG	250366.38	68664.88	250406.35	68617.02	1.78	86	1.78	86	7.36	29	9.07	29	1	250426.53	68613.47
2	BM	250372.32	68661.15	250409.70	68615.65	1.78	86	1.78	86	7.36	29	9.07	29	2	250443.29	68599.07
3	CR	250373.75	68661.39	250414.76	68613.50	1.78	14	1.78	112	7.36	7	9.07	24	3	250458.90	68579.59
4	DP	250414.91	68618.57	250379.18	68661.29	1.10	32	1.10	96	5.17	16	5.55	29	4	250444.85	68626.89
5	EH	250414.81	68622.83	250381.31	68663.58	1.10	84	1.10	70	5.17	84	5.55	71	5	250463.76	68643.05
6	FG	250406.35	68617.02	250356.90	68574.67	1.03	86	1.03	86	5.06	29	5.17	29	6	250415.47	68628.99
7	HI	250469.05	68667.74	250414.81	68622.83	1.35	84	1.35	70	6.60	84	7.36	71	7	250430.73	68645.04
8	JK	250413.49	68617.88	250366.22	68580.67	1.03	87	1.03	79	5.06	86	5.17	79	8	250450.17	68660.96
9	KL	250467.93	68664.37	250413.49	68617.88	1.35	84	1.35	70	6.60	84	7.36	71	9	250402.34	68647.53
10	MY	250409.70	68615.65	250440.46	68579.20	1.10	150	1.10	172	5.17	40	5.55	57	10	250386.03	68666.48
11	MN	250460.43	68654.68	250409.70	68615.65	1.35	64	1.35	86	6.60	11	7.36	28	11	250400.86	68617.21
12	OP	250362.84	68574.40	250414.91	68618.57	1.35	4	1.35	68	6.60	3	7.36	16	12	250381.95	68604.01
13	QR	250365.81	68571.91	250414.76	68613.50	1.51	689	1.45	608	6.60	90	7.36	65	13	250363.05	68588.03
14	RS	250414.76	68613.50	250467.62	68656.41	1.08	703	1.06	720	5.06	97	5.17	89	14	250385.27	68632.55
65	TU	250372.04	68573.81	250414.28	68609.53	1.51	689	1.45	608	6.60	90	7.36	65	15	250368.74	68652.04
16	UX	250414.28	68609.53	250446.05	68570.25	1.10	689	1.10	608	5.17	90	5.55	65	16	250412.53	68602.19
17	KZ	250446.28	68578.99	250413.49	68617.88	1.78	3	1.78	9	7.36	2	9.07	8	17	250426.67	68585.35
18	PAA	250443.84	68583.59	250414.91	68618.57	1.78	28	1.78	28	7.36	13	9.07	13	18	250442.37	68565.82
19	VBB	250447.88	68580.85	250420.81	68613.66	1.78	28	1.78	28	7.36	13	9.07	13	19	250394.22	68588.29
20	VW	250420.81	68613.66	250474.14	68658.53	1.08	28	1.06	28	5.06	13	5.17	13	20	250375.38	6871.74

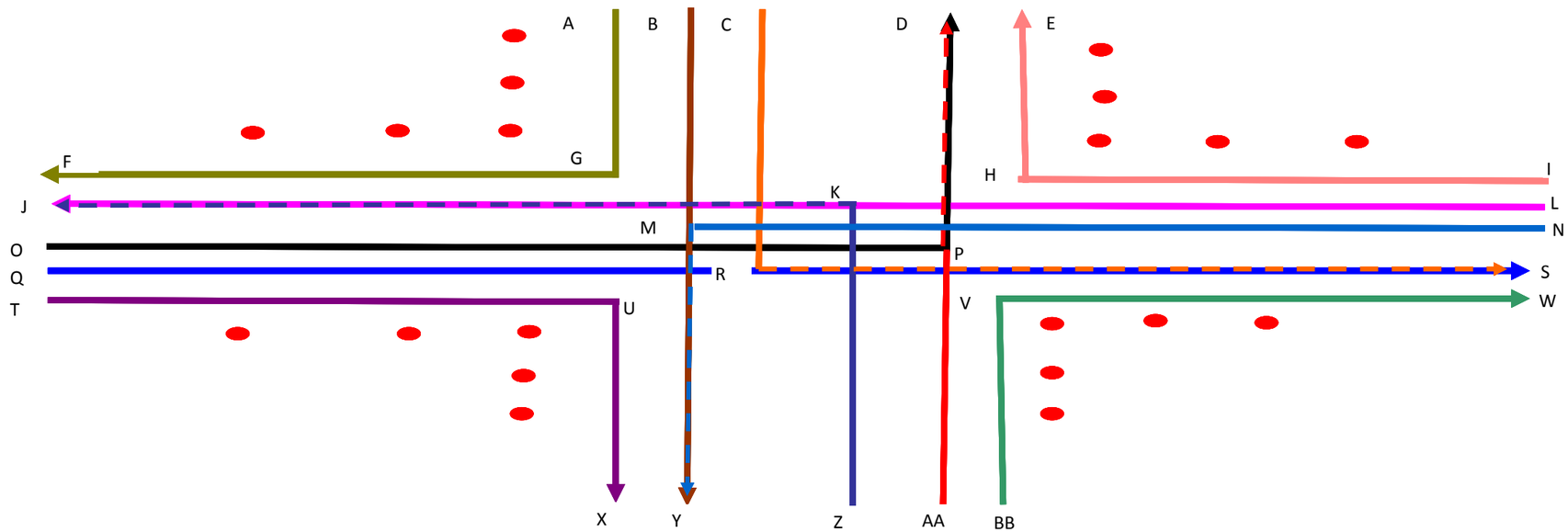
Fresno - H St./Tulare St.



CALINE INPUT						2035				2009				Receptors		
No	Link	x1	y1	x2	y2	Rate (g/mi)	Nobuild Traffic (vph)	Rate (g/mi)	Build Traffic (vph)	Rate (g/mi)	Existing Traffic (vph)	Rate (g/mi)	Existing + Proj (vph)	Receptor No	x1	y1
1	AG	576.90	923.31	659.17	828.32	1.86	310	1.97	383	9.07	101	9.07	127	1	708.01	874.59
2	BM	579.35	925.96	665.02	825.48	1.86	310	1.97	383	9.07	101	9.07	127	2	688.55	858.54
3	CR	582.01	928.40	669.51	825.58	1.78	189	1.86	250	9.07	99	9.07	99	3	671.43	844.41
4	DP	587.40	932.33	670.60	830.04	1.95	317	1.99	349	5.55	134	5.55	165	4	657.07	861.20
5	EH	589.26	933.95	669.86	838.66	1.95	317	1.99	349	5.55	134	5.55	165	5	640.76	880.29
6	FG	607.37	783.91	659.17	828.32	1.40	1020	1.03	1065	5.55	127	5.55	183	6	719.80	853.17
7	HI	669.86	838.66	742.30	897.00	1.35	470	1.35	485	9.07	73	9.07	88	7	700.52	838.61
8	JK	609.52	781.75	666.11	830.21	1.40	1020	1.03	1065	5.55	127	5.55	183	8	683.56	825.79
9	KL	666.11	830.21	744.37	894.91	1.35	470	1.35	485	9.07	73	9.07	88	9	698.67	807.30
10	MY	665.02	825.48	707.16	771.42	1.99	364	1.99	393	5.55	104	5.55	106	10	715.85	786.28
11	MN	665.02	825.48	746.69	892.93	1.35	175	1.35	175	9.07	37	9.07	37	11	621.66	863.81
12	OP	614.11	777.66	670.60	830.04	1.35	88	1.35	93	9.07	16	9.07	78	12	637.53	844.46
13	QR	615.30	775.36	669.51	825.58	1.95	456	1.45	456	9.07	51	9.07	120	13	651.50	827.43
14	RS	669.51	825.58	749.06	890.74	1.40	558	1.03	588	5.55	116	5.55	184	14	634.51	813.42
15	TU	617.00	773.50	666.08	815.43	1.95	456	1.45	456	9.07	51	9.07	120	15	615.21	797.50
16	UX	666.08	815.43	704.55	769.69	1.99	364	1.99	393	5.55	104	5.55	106	16	631.05	777.28
17	KZ	666.11	830.21	709.84	772.99	1.78	187	1.78	187	9.07	22	9.07	23	17	650.37	793.32
18	PAA	670.60	830.04	712.88	775.36	1.99	233	1.99	234	9.07	96	9.07	96	18	667.38	807.43
19	VBB	675.82	826.21	714.91	776.86	1.99	233	1.99	234	9.07	96	9.07	96	19	681.64	790.62
20	VW	675.82	826.21	751.42	888.68	1.40	558	1.03	588	5.55	116	5.55	184	20	697.85	771.52

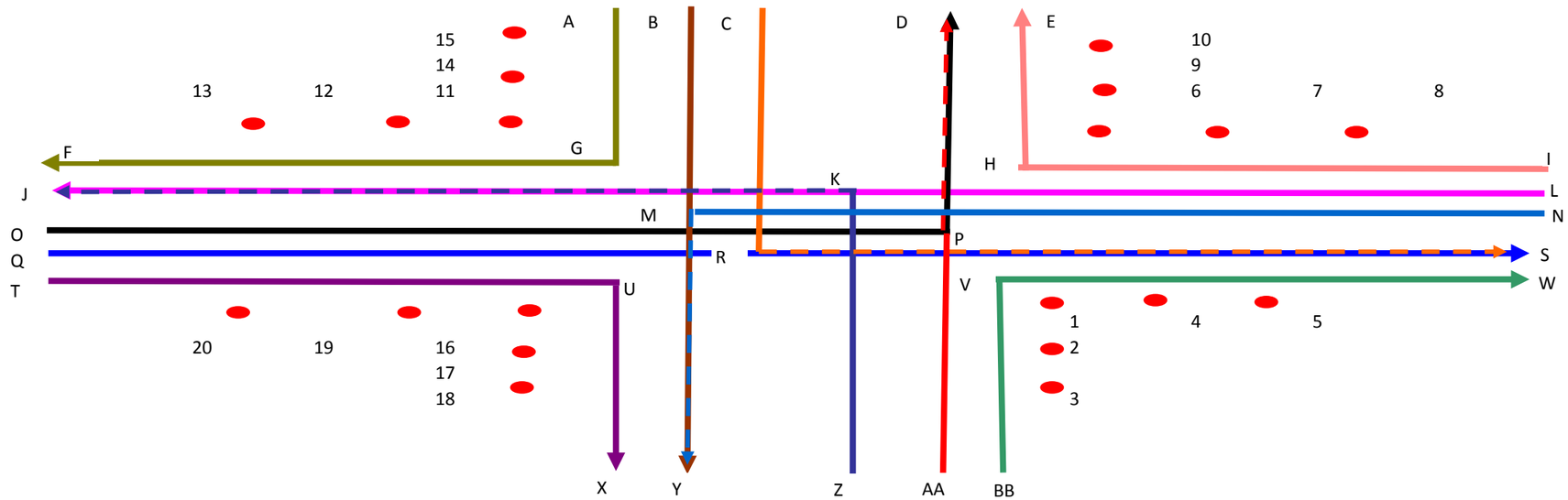
Table C-2.4
Fresno Station Van Ness Ave./Fresno St. Intersection CALINE Inputs

Fresno - Van Ness Ave./Fresno St.



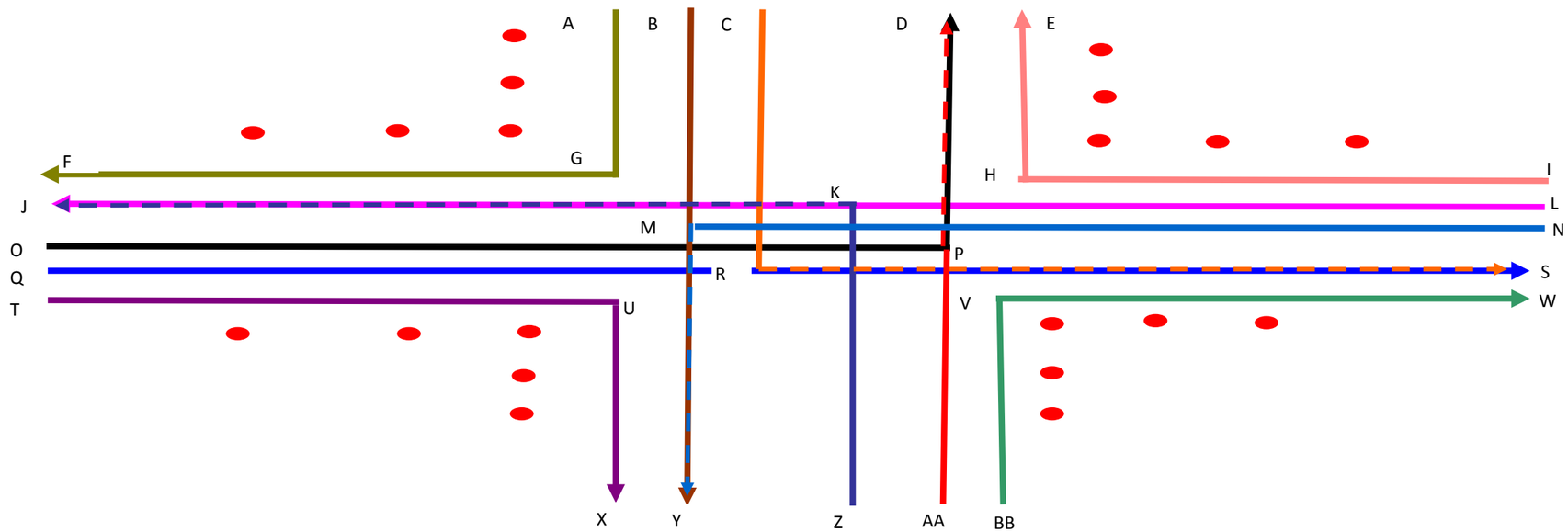
CALINE INPUT						2035				2009				Receptors		
No	Link	x1	y1	x2	y2	Rate (g/mi)	Nobuild Traffic (vph)	Rate (g/mi)	Build Traffic (vph)	Rate (g/mi)	Existing Traffic (vph)	Rate (g/mi)	Existing + Proj (vph)	No	x1	y1
1	AG	706.05	336.87	744.87	288.12	1.78	234	1.86	258	9.95	143	9.95	167	1	707.77	326.25
2	BM	709.26	338.81	754.21	284.02	1.78	234	1.86	258	9.95	143	9.95	167	2	724.03	307.20
3	CR	712.54	340.53	759.01	285.23	1.99	106	1.99	106	11.67	62	11.67	62	3	738.34	290.44
4	DP	715.82	342.30	760.77	290.01	1.23	365	1.23	407	6.00	264	6.00	306	4	721.84	275.83
5	EH	719.58	343.65	758.24	300.70	1.23	365	1.23	407	6.00	264	6.00	306	5	703.09	259.23
6	FG	702.80	251.71	744.87	288.12	1.99	718	1.99	747	6.00	277	6.00	306	6	720.63	236.51
7	HI	758.24	300.70	818.19	346.66	1.99	578	1.99	583	11.67	183	11.67	188	7	740.19	252.16
8	JK	706.09	248.78	755.68	290.51	1.99	718	1.99	747	6.00	277	6.00	306	8	757.41	265.94
9	KL	755.68	290.51	820.54	344.67	1.99	578	1.99	583	11.67	183	11.67	188	9	771.37	249.03
10	MY	754.21	284.02	806.61	222.23	1.99	299	1.95	299	11.67	151	11.67	151	10	787.23	229.81
11	MN	754.21	284.02	823.25	342.50	1.99	183	1.99	183	11.67	61	11.67	61	11	729.28	343.11
12	OP	709.10	246.30	760.77	290.01	1.99	201	1.99	285	10.98	120	10.98	204	12	745.12	323.76
13	QR	712.14	244.52	759.01	285.23	1.99	388	1.97	424	9.95	170	9.95	206	13	759.06	306.74
14	RS	759.01	285.23	826.70	340.54	1.99	445	1.99	481	6.00	214	6.00	250	14	775.65	321.21
15	TU	714.37	242.54	757.00	274.79	1.99	388	1.97	424	9.95	170	9.95	206	15	794.50	337.65
16	UX	757.00	274.79	803.50	220.29	1.99	299	1.95	299	11.67	151	11.67	151	16	831.86	314.83
17	KZ	755.68	290.51	810.31	225.28	1.99	203	1.99	203	10.98	126	11.67	126	17	809.24	303.35
18	PAA	760.77	290.01	815.31	228.39	1.86	280	1.86	280	9.95	225	9.95	225	18	789.33	293.25
19	VBB	779.55	295.12	824.94	235.87	1.86	280	1.86	280	9.95	225	9.95	225	19	803.63	276.56
20	VW	779.55	295.12	829.64	338.58	1.99	445	1.99	481	6.00	214	6.00	250	20	819.89	257.59

Fresno - Fresno Street and F Street



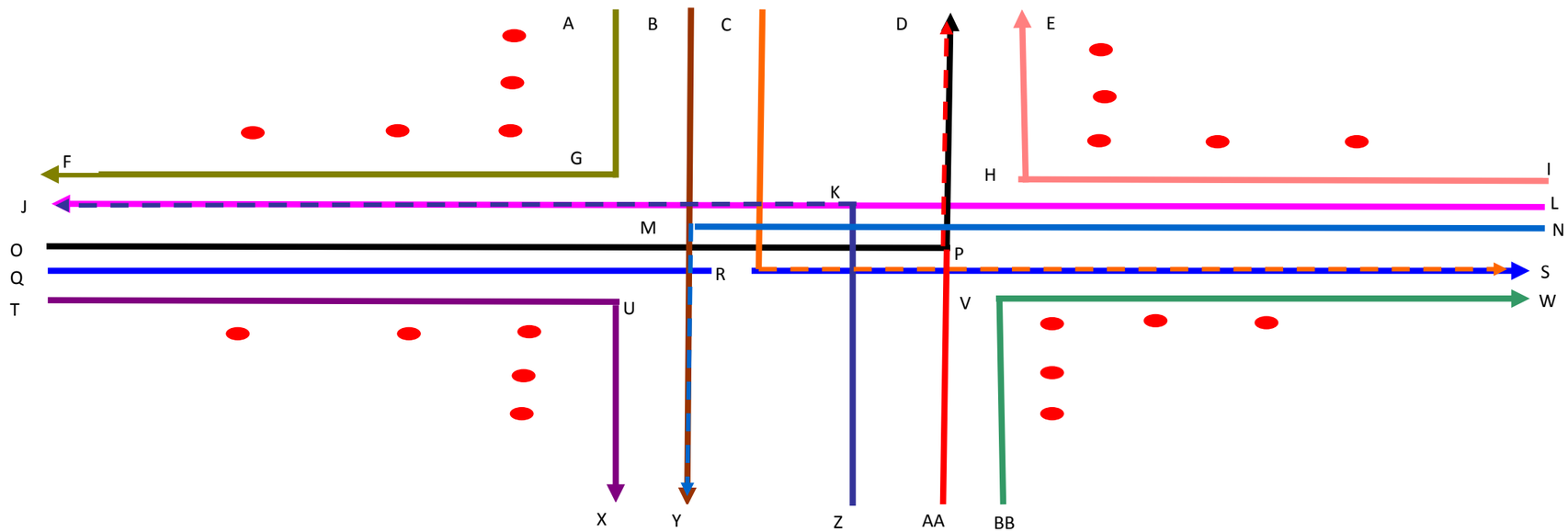
CALINE INPUT						2035				2009				Receptors		
No	Link	x1	y1	x2	y2	Rate (g/mi)	Nobuild Traffic (vph)	Rate (g/mi)	Build Traffic (vph)	Rate (g/mi)	Existing Traffic (vph)	Rate (g/mi)	Existing + Proj (vph)	Receptor No	x1	y1
1	AG	250181.53	68883.06	250211.28	68846.87	1.95	36	1.70	168	10.98	4	10.98	49	1	250243.66	68836.63
2	BM	250194.58	68873.04	250220.86	68841.45	1.95	46	1.70	115	10.98	9	10.98	9	2	250257.60	68819.67
3	CR	250197.61	68875.84	250226.89	68841.01	1.95	11	1.70	74	10.98	8	10.98	41	3	250273.52	68800.33
4	DP	250225.53	68845.27	250195.97	68883.53	1.14	89	1.06	89	6.00	89	6.00	89	4	250260.73	68855.31
5	EH	250223.91	68855.42	250195.88	68887.85	1.14	6	1.06	779	6.00	6	6.00	319	5	250279.73	68871.48
6	FG	250211.28	68846.87	250179.19	68818.22	1.01	36	1.01	168	4.96	4	4.96	49	6	250225.89	68865.84
7	HI	250256.66	68882.19	250223.91	68855.42	1.51	6	1.51	779	7.97	6	7.97	319	7	250242.93	68879.75
8	JK	250222.81	68846.87	250182.26	68814.08	1.01	681	1.01	728	4.96	269	4.96	316	8	250261.87	68896.01
9	KL	250262.23	68881.03	250222.81	68846.87	1.51	592	1.51	622	7.97	254	7.97	284	9	250205.49	68882.74
10	MY	250220.86	68841.45	250249.58	68806.35	1.14	74	1.06	143	6.00	30	6.00	30	10	250189.26	68901.82
11	MN	250262.63	68877.19	250220.86	68841.45	1.45	28	1.45	28	7.97	21	7.97	21	11	250203.27	68847.37
12	OP	250183.76	68809.38	250225.53	68845.27	1.45	77	1.45	77	7.97	77	7.97	77	12	250186.50	68833.13
13	QR	250186.34	68806.89	250226.89	68841.01	1.63	1039	1.63	1080	8.68	768	8.68	814	13	250168.10	68816.20
14	RS	250226.89	68841.01	250265.48	68873.29	1.03	1050	1.03	1154	5.06	776	5.06	855	14	250189.44	68868.88
65	TU	250193.01	68805.66	250226.10	68832.50	1.63	59	1.63	88	8.68	12	8.68	36	15	250173.71	68888.32
16	UX	250226.10	68832.50	250249.83	68802.38	1.14	59	1.06	88	6.00	12	6.00	36	16	250227.05	68822.91
17	KZ	250255.00	68805.66	250222.81	68846.87	1.95	89	1.70	106	10.98	15	10.98	32	17	250241.44	68806.16
18	PAA	250257.24	68808.79	250225.53	68845.27	1.95	12	1.70	12	10.98	12	10.98	12	18	250257.46	68787.04
19	VBB	250256.87	68815.15	250235.98	68840.57	1.95	1	1.70	30	10.98	1	10.98	30	19	250206.14	68810.04
20	VW	250235.98	68840.57	250265.75	68866.66	1.03	1	1.03	30	5.06	1	5.06	30	20	250186.07	68794.97

Bakersfield - Union Ave./ California Ave.



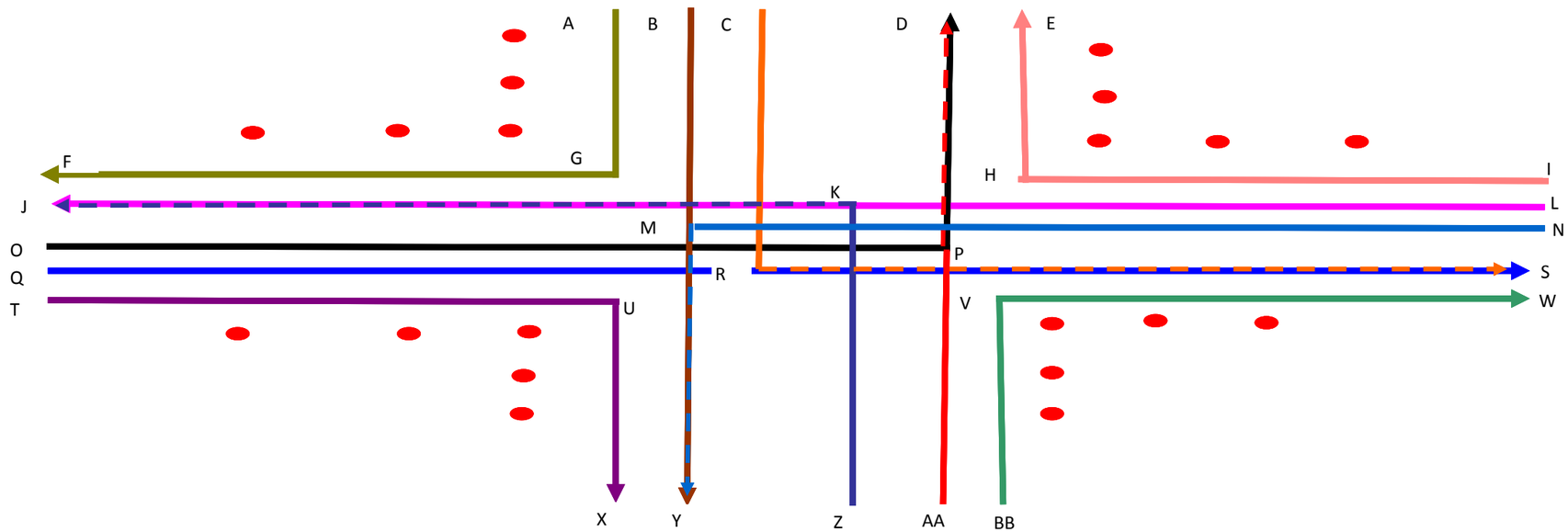
CALINE INPUT						2035				2009				Receptors		
No	Link	x1	y1	x2	y2	Rate (g/mi)	Nobuild Traffic (vph)	Rate (g/mi)	Build Traffic (vph)	Rate (g/mi)	Existing Traffic (vph)	Rate (g/mi)	Existing + Proj (vph)	No	x1	y1
1	AG	128.36	836.40	126.35	756.76	2.02	305	2.13	305	9.86	305	9.86	305	1	123.50	809.04
2	BM	136.43	836.40	136.66	744.60	2.02	1853	2.13	1991	9.86	1138	9.86	1155	2	122.82	784.00
3	CR	144.30	836.40	140.75	738.64	2.59	283	2.59	300	11.49	181	11.49	188	3	122.18	761.94
4	DP	149.84	836.00	146.54	742.92	2.02	1999	2.02	2058	6.59	1118	6.59	1147	4	100.05	761.92
5	EH	154.75	836.00	154.84	757.66	2.02	158	2.02	165	6.59	129	6.59	136	5	75.03	763.15
6	FG	63.46	757.23	126.35	756.76	1.31	305	1.31	305	6.34	305	6.34	305	6	74.00	726.86
7	HI	154.84	757.66	230.72	755.10	2.55	158	2.55	165	11.49	129	11.49	136	7	99.00	725.94
8	JK	63.37	752.90	144.43	748.85	1.31	548	1.31	552	6.34	531	6.34	565	8	121.00	725.44
9	KL	144.43	748.85	230.70	749.40	2.55	417	2.55	421	11.49	417	11.49	421	9	120.34	703.40
10	MY	136.66	744.60	132.10	660.89	1.15	2332	1.15	2470	5.45	1449	5.45	1466	10	119.77	678.50
11	MN	136.66	744.60	231.00	743.10	2.59	479	2.59	479	11.96	311	11.96	311	11	161.09	809.64
12	OP	62.80	744.30	146.54	742.92	2.59	374	2.59	374	11.96	239	11.96	239	12	160.54	784.63
13	QR	62.80	738.00	140.75	738.64	2.59	630	2.59	640	11.49	333	11.49	352	13	159.58	762.60
14	RS	140.75	738.64	230.82	734.50	2.59	913	2.59	940	11.96	514	11.96	540	14	181.65	762.20
15	TU	62.57	733.10	127.81	730.43	2.59	208	2.59	208	11.49	106	11.49	227	15	206.70	761.84
16	UX	127.81	730.43	125.60	661.19	1.15	208	1.15	208	5.45	106	5.45	227	16	205.97	723.47
17	KZ	144.43	748.85	141.22	661.10	2.59	131	2.59	131	11.96	114	11.96	144	17	180.96	723.69
18	PAA	146.54	742.92	144.88	660.12	2.57	1625	2.57	1684	10.91	879	10.91	908	18	158.95	724.15
19	VBB	154.76	729.80	150.96	659.66	2.57	257	2.57	257	10.91	115	10.91	115	19	158.47	702.12
20	VW	154.76	729.80	230.62	729.03	2.59	257	2.59	257	11.96	115	11.96	115	20	157.88	677.17

Bakersfield - Oak St./ Truxton Ave.



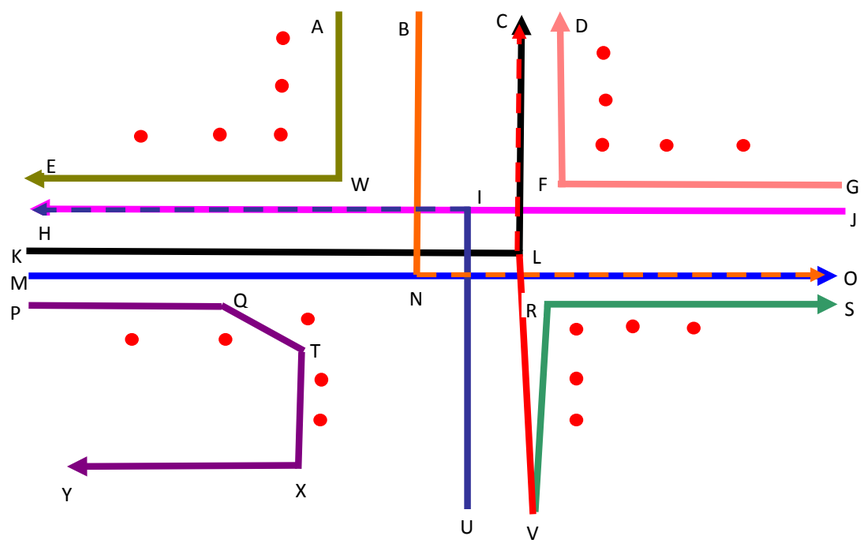
CALINE INPUT						2035				2009				Receptors		
No	Link	x1	y1	x2	y2	Rate (g/mi)	Nobuild Traffic (vph)	Rate (g/mi)	Build Traffic (vph)	Rate (g/mi)	Existing Traffic (vph)	Rate (g/mi)	Existing + Proj (vph)	No	x1	y1
1	AG	795.67	446.66	791.07	382.37	2.59	949	2.59	949	11.72	545	11.72	545	1	788.45	434.73
2	BM	802.33	445.60	798.88	367.85	2.59	822	2.59	822	11.72	706	11.72	706	2	787.96	409.62
3	CR	807.35	445.40	803.69	363.84	2.59	108	2.55	113	11.96	46	11.96	51	3	786.24	387.62
4	DP	812.49	444.66	809.31	367.23	2.59	1604	2.59	1604	11.96	1292	11.96	1292	4	764.26	388.70
5	EH	815.95	444.45	813.04	379.13	2.59	77	2.59	88	11.96	69	11.96	80	5	739.82	383.57
6	FG	725.82	383.57	791.07	382.37	1.19	949	1.19	949	5.60	545	5.60	545	6	741.40	354.50
7	HI	813.04	379.13	881.50	370.59	2.57	77	2.57	88	11.72	69	11.72	80	7	766.40	352.88
8	JK	725.70	379.23	804.97	373.82	1.19	1485	1.19	1504	5.60	1311	5.60	1330	8	788.30	351.11
9	KL	804.97	373.82	881.38	365.50	2.57	1202	2.57	1221	11.72	1028	11.72	1047	9	787.50	329.11
10	MY	798.88	367.85	796.55	298.00	1.19	1269	1.19	1269	5.60	1153	5.60	1153	10	786.60	304.15
11	MN	798.88	367.85	881.44	360.00	2.59	447	2.59	447	11.49	447	11.49	447	11	821.37	429.58
12	OP	725.58	375.50	809.31	367.23	2.59	1001	2.59	1001	11.96	689	11.96	689	12	820.66	404.45
13	QR	725.40	367.08	803.69	363.84	2.57	1359	2.57	1367	10.91	662	10.91	670	13	819.83	382.50
14	RS	803.69	363.84	881.48	354.24	2.55	1467	2.55	1480	11.96	708	11.96	721	14	841.72	380.10
15	TU	725.20	362.22	793.91	357.00	2.57	335	2.57	335	10.91	331	10.91	331	15	866.65	377.40
16	UX	793.91	357.00	792.53	298.04	1.19	335	1.19	335	5.60	331	5.60	331	16	866.42	346.70
17	KZ	804.97	373.82	800.71	297.50	2.59	283	2.59	283	11.96	283	11.96	283	17	841.72	348.00
18	PAA	809.31	367.23	807.68	297.10	2.59	603	2.59	603	10.91	603	10.91	603	18	819.96	351.67
19	VBB	815.53	356.97	812.86	296.35	2.59	299	2.59	299	10.91	224	10.91	224	19	819.16	329.70
20	VW	815.53	356.97	880.98	349.65	2.55	299	2.55	299	11.96	224	11.96	224	20	818.75	304.64

Bakersfield - Oak St./SR 178



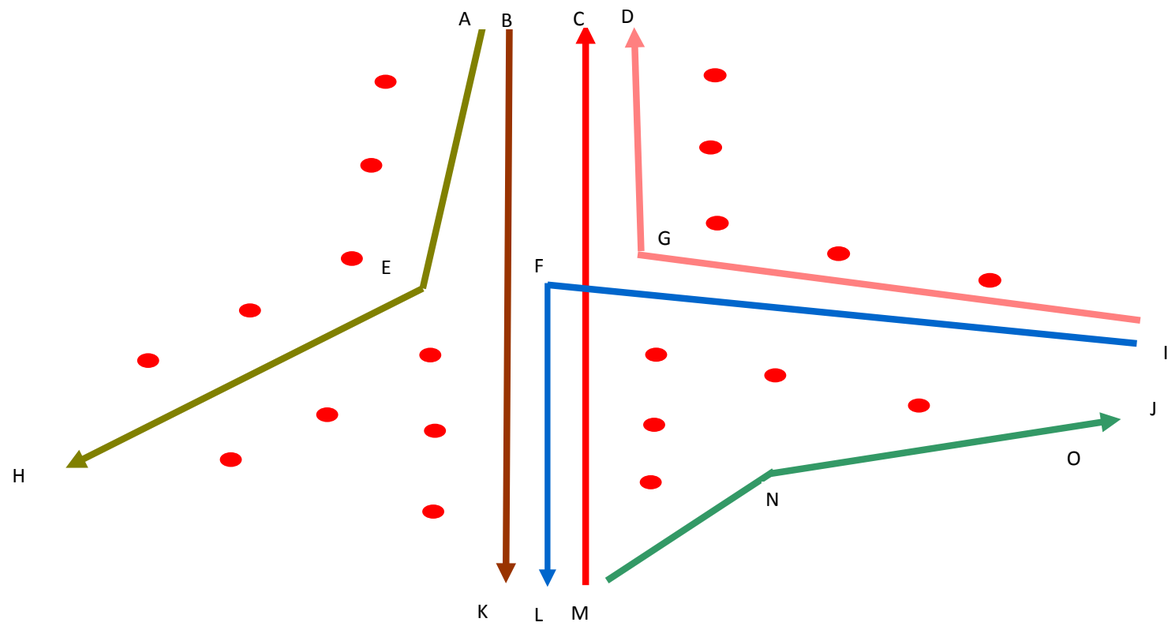
CALINE INPUT						2035				2009				Receptors		
No	Link	x1	y1	x2	y2	Rate (g/mi)	Nobuild Traffic (vph)	Rate (g/mi)	Build Traffic (vph)	Rate (g/mi)	Existing Traffic (vph)	Rate (g/mi)	Existing + Proj (vph)	No	x1	y1
1	AG	824.81	292.58	822.56	227.60	2.59	17	2.59	17	11.96	17	11.96	17	1	818.51	284.06
2	BM	827.25	292.41	826.75	214.61	2.59	20	2.59	20	11.96	20	11.96	20	2	818.75	259.00
3	CR	829.84	292.45	827.95	206.43	2.59	52	2.59	52	11.96	19	11.96	19	3	817.50	237.14
4	DP	832.29	292.32	831.16	209.76	1.31	47	1.31	47	6.34	45	6.34	45	4	796.65	244.20
5	EH	835.96	292.20	834.80	227.21	1.31	42	1.31	42	6.34	12	6.34	12	5	774.15	255.35
6	FG	763.06	252.31	822.56	227.60	1.15	17	1.15	17	5.31	17	5.31	17	6	769.93	209.97
7	HI	834.80	227.21	935.46	217.29	2.02	42	2.59	42	11.96	12	11.96	12	7	793.51	201.64
8	JK	759.68	247.36	832.41	217.21	1.15	3362	1.15	3373	5.31	2202	5.31	2213	8	814.42	194.61
9	KL	832.41	217.21	935.46	211.72	2.02	2797	2.59	2797	11.96	1637	11.96	1637	9	812.82	172.67
10	MY	826.75	214.61	823.17	132.10	2.59	1369	2.59	1369	11.96	516	11.96	516	10	812.55	147.55
11	MN	826.75	214.61	935.70	204.54	2.59	1349	2.55	1349	11.49	496	11.49	496	11	841.46	277.80
12	OP	754.76	239.72	831.16	209.76	2.59	36	2.59	36	11.96	36	11.96	36	12	840.75	252.74
13	QR	751.33	234.63	827.95	206.43	2.02	2797	2.59	2797	11.96	1543	11.96	1543	13	839.84	230.76
14	RS	827.95	206.43	935.20	197.63	2.59	2849	2.59	2849	5.92	1562	5.92	1562	14	861.52	227.12
15	TU	748.58	230.22	820.18	200.21	2.02	423	2.59	428	11.96	423	11.96	428	15	886.43	224.20
16	UX	820.18	200.21	818.40	132.18	2.59	423	2.59	428	11.96	423	11.96	428	16	894.63	189.42
17	KZ	832.41	217.21	828.62	131.42	2.59	565	2.59	576	11.96	565	11.96	576	17	869.56	190.28
18	PAA	831.16	209.76	832.43	130.66	2.59	11	2.55	11	11.49	9	11.49	9	18	847.72	192.34
19	VBB	841.49	200.28	836.40	130.58	2.59	1265	2.55	1265	11.49	437	11.49	437	19	846.68	170.38
20	VW	841.49	200.28	934.80	193.96	2.59	1265	2.59	1265	5.92	437	5.92	437	20	845.14	145.34

Bakersfield - Intersection 15 PM



CALINE INPUT						2035			2009			Receptors		
No	Link	x1	y1	x2	y2	Rate (g/mi)	Nobuild Traffic (vph)	Build Traffic (vph)	Rate (g/mi)	Existing Traffic (vph)	Existing + Proj (vph)	No	x1	y1
1	AW	633.60	908.78	634.60	842.17	2.00	74.0	74.0	9.34	60	60	1	629.34	894.00
2	BN	636.45	908.67	639.65	821.05	2.00	55.0	55.0	9.34	18	18	2	629.40	868.96
3	CI	639.50	908.54	646.43	825.00	2.00	78.0	78.0	9.34	78	78	3	629.80	846.90
4	DF	642.37	908.64	648.25	843.53	2.00	68.0	68.0	9.34	31	31	4	607.80	845.00
5	EW	574.78	832.72	634.60	842.17	2.00	74.0	74.0	9.34	60	60	5	582.92	842.54
6	FG	648.25	843.53	720.34	844.14	2.00	68.0	68.0	9.34	31	31	6	593.63	792.88
7	HI	567.23	824.24	641.79	831.20	2.00	916.0	932.0	9.34	662	633	7	615.84	806.08
8	IJ	641.79	831.20	720.15	838.66	2.00	615.0	631.0	9.34	316	332	8	637.93	808.95
9	KL	580.08	816.50	646.43	825.00	2.00	69.0	69.0	9.34	69	69	9	637.39	786.93
10	MN	579.91	811.21	639.65	821.05	2.00	1127.0	1168.0	9.34	1127	1168	10	635.43	761.97
11	NO	639.65	821.05	720.00	827.68	2.00	1182.0	1223.0	9.34	1145	1186	11	651.84	895.92
12	PQ	574.68	800.79	601.74	805.17	2.00	1202.0	1202.0	9.34	686	686	12	652.60	870.96
13	QT	601.74	805.17	635.66	775.81	2.00	1202.0	1202.0	9.34	686	686	13	652.54	848.87
14	TX	635.66	775.81	616.94	727.99	2.00	1202.0	1202.0	9.34	686	686	14	674.23	850.57
15	XY	616.94	727.99	570.74	728.20	2.00	1202.0	1202.0	9.34	686	686	15	699.17	852.46
16	IU	641.79	831.20	636.14	725.67	2.00	301.0	301.0	9.34	301	301	16	706.54	812.84
17	VL	641.14	724.51	646.43	825.00	2.00	9.0	9.0	9.34	9	9	17	681.55	811.79
18	VR	641.14	724.51	652.78	815.55	2.00	564.0	586.0	9.34	334	356	18	659.50	809.16
19	RS	652.78	815.55	720.19	820.32	2.00	564.0	586.0	9.34	334	356	19	658.47	787.17
												20	656.87	762.19

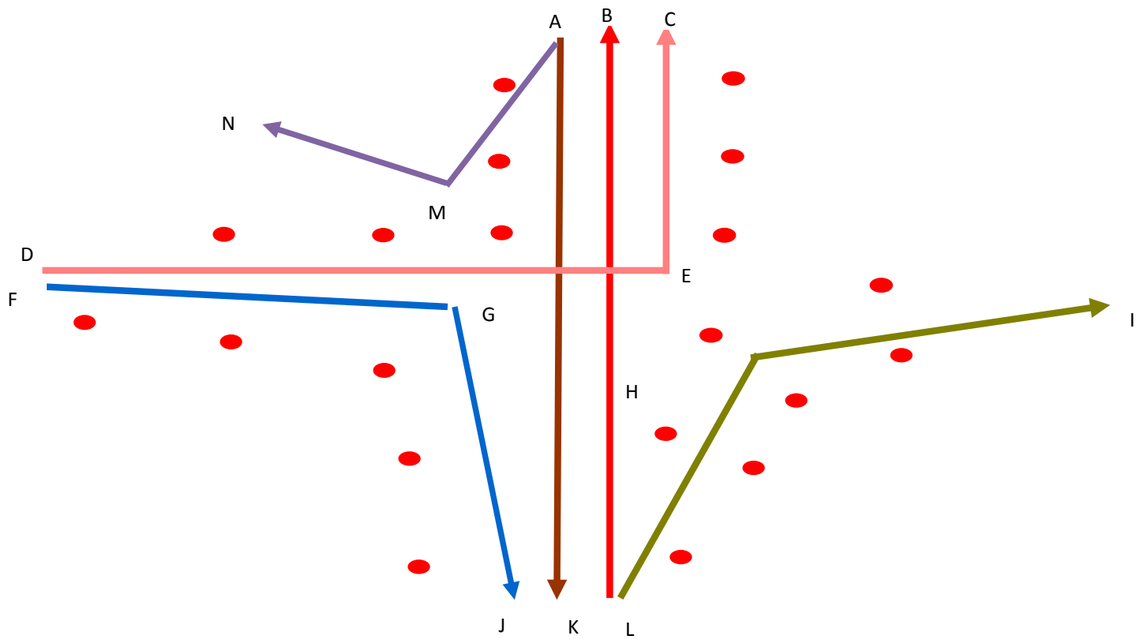
KTR 8th Ave./SR 198 WB Ramps



Receptors		
No	x1	y1
1	520.73	413.20
2	518.56	388.50
3	515.73	366.70
4	500.35	351.10
5	481.56	335.00
6	546.17	411.43
7	545.00	386.34
8	550.86	366.84
9	568.41	360.35
10	592.6	355.9
11	483.72	318.9
12	503.56	334.46
13	520.50	348.30
14	519.50	326.47
15	518.70	301.52
16	543.64	349.00
17	543.20	271.30
18	543.10	297.10
19	564.83	344.71
20	587.85	338.35

CALINE INPUT						2035			2009		
No	Link	x1	y1	x2	y2	Rate (g/mi)	Nobuild Traffic (vph)	Build Traffic (vph)	Rate (g/mi)	Existing Traffic (vph)	Existing + Proj (vph)
1	AE	529.20	461.30	523.37	364.15	1.19	67	134	6.00	67	134
2	BK	532.20	461.30	523.30	217.40	1.19	251	332	6.00	251	332
3	CM	535.30	461.30	529.40	217.40	1.19	710	746	6.00	414	450
4	DG	539.10	461.30	542.17	360.96	1.19	182	209	6.00	142	169
5	EH	523.37	364.15	392.64	256.39	1.19	67	134	6.00	67	134
6	GI	542.17	360.96	682.57	334.37	1.19	182	209	6.00	142	169
7	FL	530.33	357.70	525.70	217.40	1.19	48	48	6.00	21	98
8	FJ	530.33	357.70	682.82	330.42	1.19	48	48	6.00	21	98
9	MN	529.40	217.40	558.80	311.15	1.19	126	126	6.00	98	98
10	NO	558.80	311.15	635.60	324.15	1.19	126	126	6.00	98	98

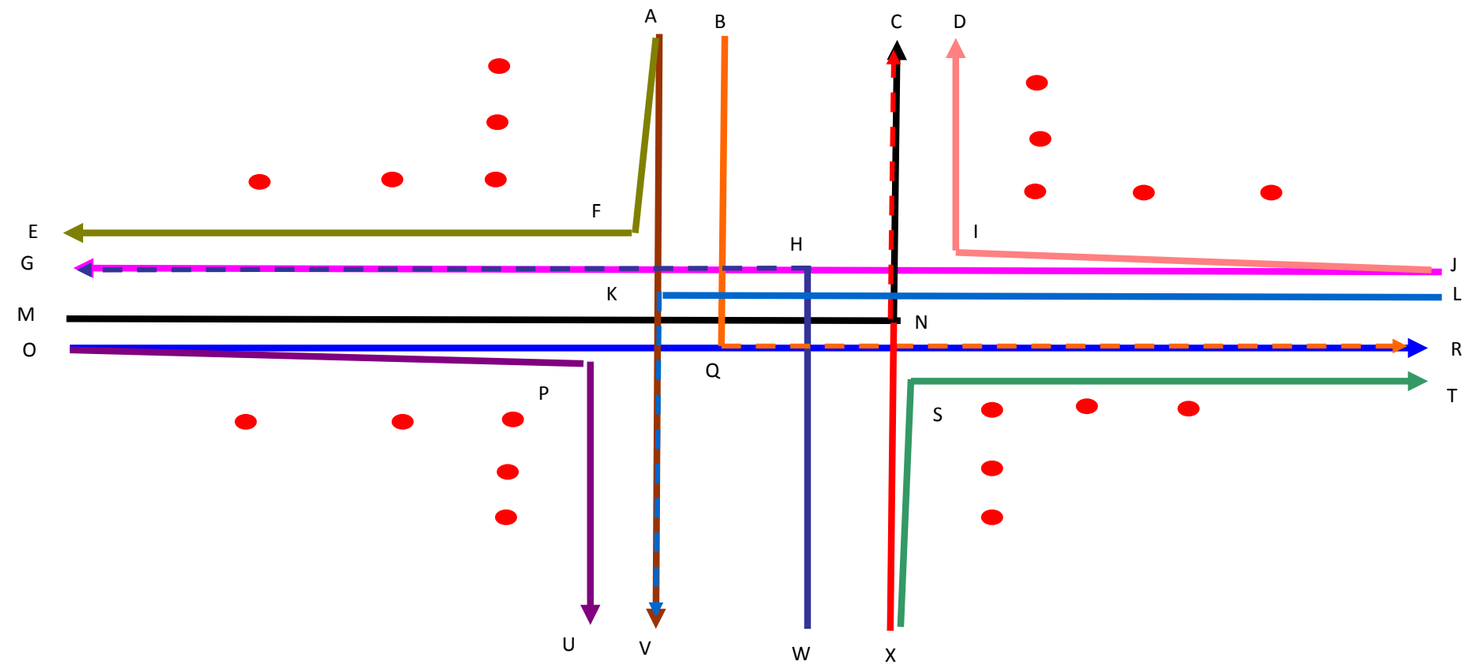
KTR 9th Ave./SR 198 EB Ramps



Receptors		
No	x1	y1
1	515.70	1038.53
2	515.42	1013.46
3	510.62	991.16
4	492.60	990.50
5	462.80	994.30
6	462.44	985.90
7	486.09	981.83
8	505.53	974.06
9	511.55	953.85
10	510.77	929.16
11	531.4	1031.43
12	530.77	1006.18
13	529.70	981.45
14	539.50	948.20
15	573.80	979.60
16	529.12	871.17
17	559.41	930.50
18	573.40	953.00
19	540.50	905.00
20	539.75	846.81

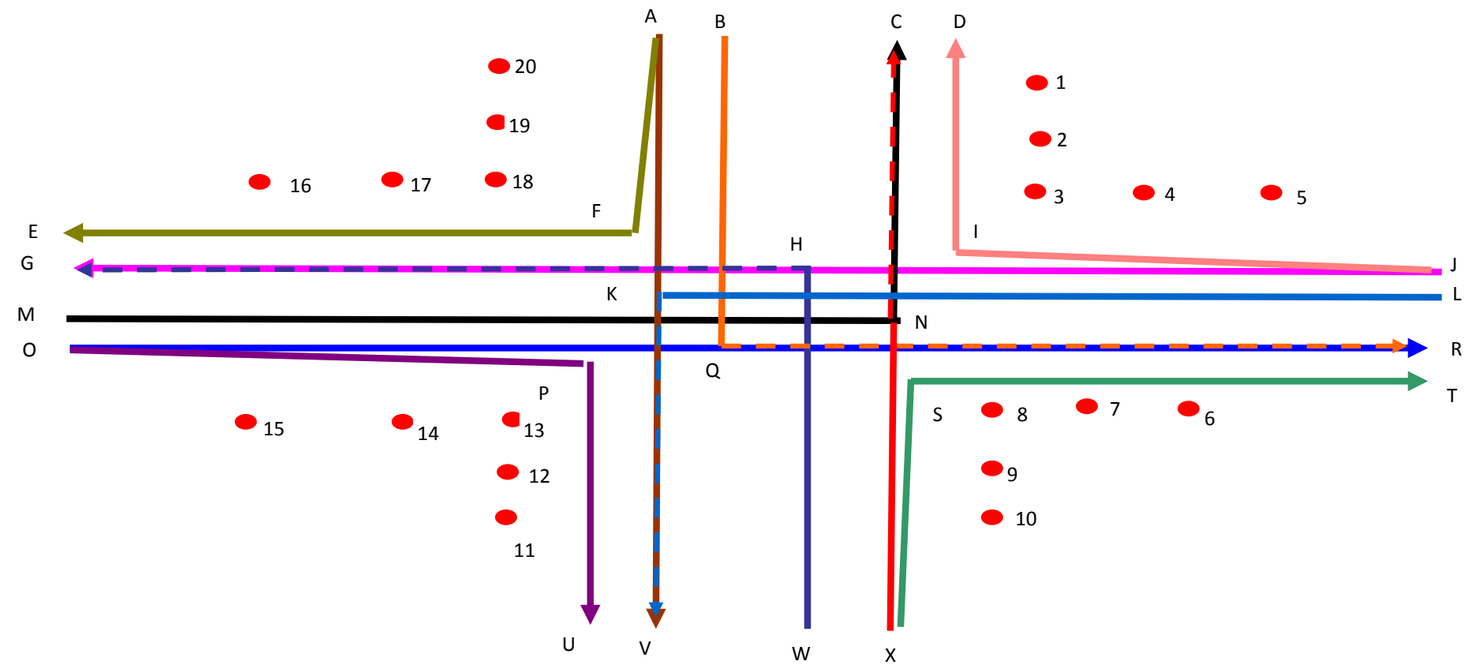
CALINE INPUT						2035			2009		
No	Link	x1	y1	x2	y2	Rate (g/mi)	Nobuild Traffic (vph)	Build Traffic (vph)	Rate (g/mi)	Existing Traffic (vph)	Existing + Proj (vph)
1	AK	521.42	1105.60	514.67	757.80	1.19	272	290	6.00	166	184
2	BL	524.76	1105.60	518.90	757.76	1.19	814	822	6.00	431	439
3	CE	528.11	1105.60	524.30	981.50	1.19	77	105	6.00	77	105
4	DE	370.20	1010.28	524.30	981.50	1.19	77	105	6.00	77	105
5	FG	369.80	1007.81	514.60	977.73	1.19	213	213	6.00	85	85
6	GJ	514.60	977.73	511.50	757.60	1.19	213	213	6.00	85	85
7	HL	549.50	934.52	518.90	757.76	1.19	109	109	6.00	57	57
8	HI	549.50	934.52	677.57	1083.99	1.19	109	109	6.00	57	57
9	AM	521.42	1105.60	459.45	1003.40	1.19	106	168	6.00	106	168
10	MN	459.45	1003.40	397.70	1043.70	1.19	106	168	6.00	106	168

KTR SR 43/Lacey Blvd. AM



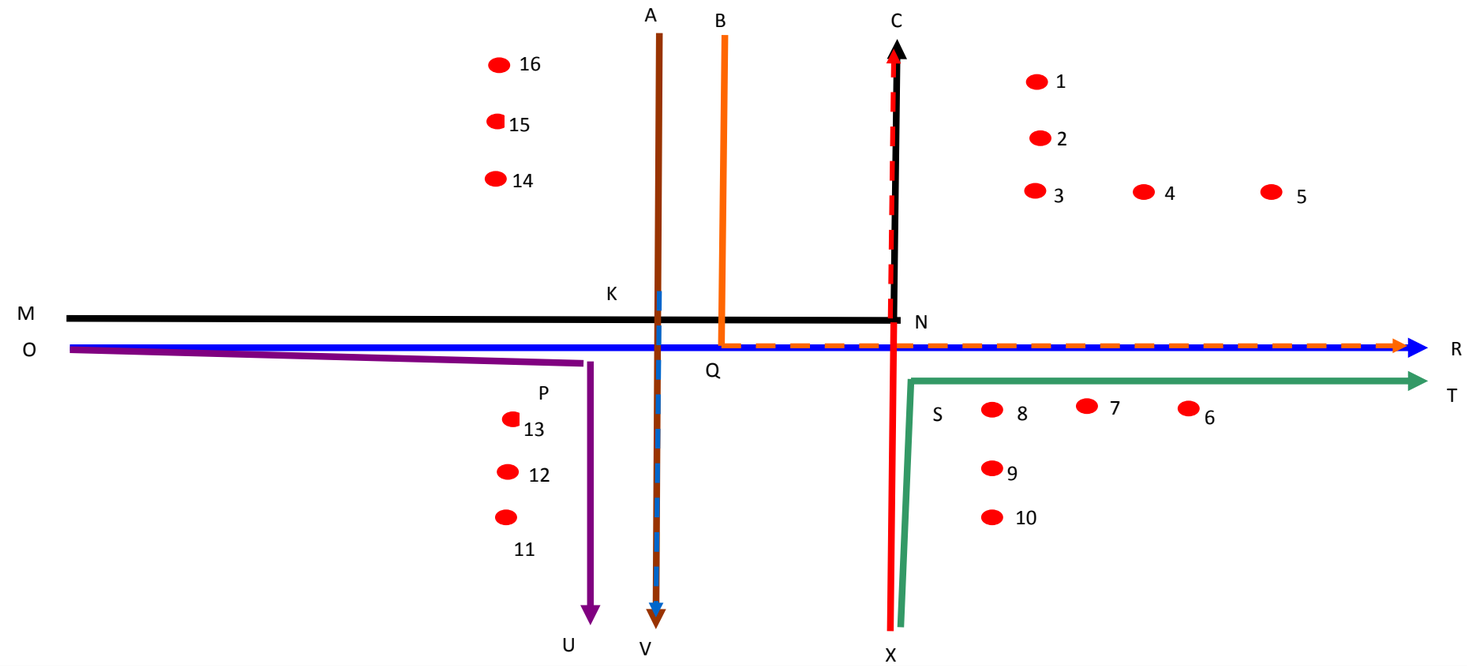
CALINE INPUT						2035			2009			Receptors		
No	Link	x1	y1	x2	y2	Rate (g/mi)	Nobuild Traffic (vph)	Build Traffic (vph)	Rate (g/mi)	Existing Traffic (vph)	Existing + Proj (vph)	No	x1	y1
1	AF	533.48	579.58	526.90	476.18	1.19	14	14	6.00	14	14	1	523.68	531.30
2	AK	533.48	579.58	531.54	468.93	1.19	513	513	6.00	471	471	2	522.26	506.35
3	BQ	538.03	579.58	535.62	466.24	1.19	55	55	6.00	18	18	3	518.88	484.60
4	CN	541.30	579.58	537.92	466.48	1.19	245	245	6.00	245	245	4	498.56	482.62
5	DI	544.79	579.58	545.77	477.20	1.19	20	20	6.00	20	20	5	473.65	483.14
6	EF	394.30	475.56	526.90	476.18	1.19	14	14	6.00	14	14	6	474.03	461.05
7	IJ	545.77	477.20	704.81	473.17	1.19	20	20	6.00	20	20	7	499.20	460.88
8	GH	394.30	473.15	534.36	470.70	1.19	76	83	6.00	76	83	8	520.00	455.90
9	HW	534.36	470.70	533.00	384.55	1.19	65	65	6.00	65	65	9	525.86	434.9
10	HJ	534.36	470.70	704.81	473.17	1.19	11	18	6.00	11	18	10	524.62	410.03
11	KV	531.54	468.93	529.19	384.55	1.19	557	620	6.00	515	578	11	552.3	529.93
12	KL	531.54	468.93	704.81	462.20	1.19	44	107	6.00	44	107	12	552.28	504.89
13	MN	394.30	470.00	537.92	466.48	1.19	14	14	6.00	14	14	13	552.10	482.80
14	NX	537.92	466.48	536.00	384.55	1.19	231	231	6.00	231	231	14	574.04	482.16
15	OP	394.30	468.60	524.57	458.67	1.19	66	66	6.00	66	66	15	599.11	482.47
16	OQ	394.30	468.60	535.62	466.24	1.19	7	24	6.00	7	24	16	550.10	454.70
17	QR	535.62	466.24	704.81	462.20	1.19	62	79	6.00	25	42	17	571.15	457.80
18	PU	524.57	458.67	526.59	384.55	1.19	66	66	6.00	66	66	18	595.57	457.25
19	SX	544.07	461.04	536.00	384.55	1.19	43	191	6.00	41	189	19	545.92	433.63
20	ST	544.07	461.04	704.81	456.65	1.19	43	191	6.00	41	189	20	545.57	408.34

KTR 12th Ave./Lacey Blvd.



CALINE INPUT						2035			2009			Receptors		
No	Link	x1	y1	x2	y2	Rate (g/mi)	Nobuild Traffic (vph)	Build Traffic (vph)	Rate (g/mi)	Existing Traffic (vph)	Existing + Proj (vph)	No	x1	y1
1	AF	7738.00	5824.58	7767.46	5752.74	2.29	41	43	11.35	41	43	1	7767.05	5825.76
2	AK	7738.00	5824.58	7784.04	5740.61	2.29	400	400	11.35	400	400	2	7779.65	5800.41
3	BQ	7741.67	5826.55	7792.35	5744.39	2.78	127	127	13.83	127	127	3	7794.19	5775.94
4	CN	7750.60	5830.48	7793.53	5748.07	2.78	1135	1140	13.83	573	578	4	7818.95	5785.19
5	DI	7754.10	5832.29	7791.59	5769.74	2.78	302	302	13.83	153	153	5	7844.42	5797.03
6	EF	7700.45	5715.05	7767.46	5752.74	1.33	41	43	6.25	41	43	6	7865.15	5764.33
7	IJ	7791.59	5769.74	7861.24	5796.50	2.75	302	302	11.35	153	153	7	7839.17	5751.84
8	GH	7702.48	5710.89	7788.25	5751.77	1.33	604	606	6.25	604	606	8	7811.81	5737.11
9	HW	7788.25	5751.77	7828.37	5668.52	2.78	158	158	13.83	158	158	9	7822.13	5713.25
10	HJ	7788.25	5751.77	7861.24	5796.50	2.75	446	448	11.35	446	448	10	7833.75	5688.25
11	KV	7784.04	5740.61	7819.62	5665.45	1.40	688	688	7.43	688	688	11	7802.84	5670.31
12	KL	7784.04	5740.61	7863.93	5789.37	2.78	288	288	13.83	288	288	12	7789.77	5695.44
13	MN	7707.05	5701.50	7793.53	5748.07	2.78	152	157	13.83	81	86	13	7776.99	5720.40
14	NX	7793.53	5748.07	7834.79	5671.91	2.76	983	983	11.35	492	492	14	7749.16	5707.55
15	OP	7709.46	5697.72	7779.71	5726.56	2.75	152	152	13.17	152	152	15	7724.39	5696.65
16	OQ	7709.46	5697.72	7792.35	5744.39	2.75	202	206	13.17	202	206	16	7712.43	5729.22
17	QR	7792.35	5744.39	7867.88	5779.57	1.27	329	333	6.59	329	333	17	7736.80	5740.86
18	PU	7779.71	5726.56	7815.60	5663.65	1.40	152	152	7.43	152	152	18	7760.89	5754.52
19	SX	7805.73	5738.68	7834.79	5671.91	2.76	137	137	11.35	137	137	19	7747.99	5783.87
20	ST	7805.73	5738.68	7869.84	5775.30	1.27	137	137	6.59	137	137	20	7734.18	5810.77

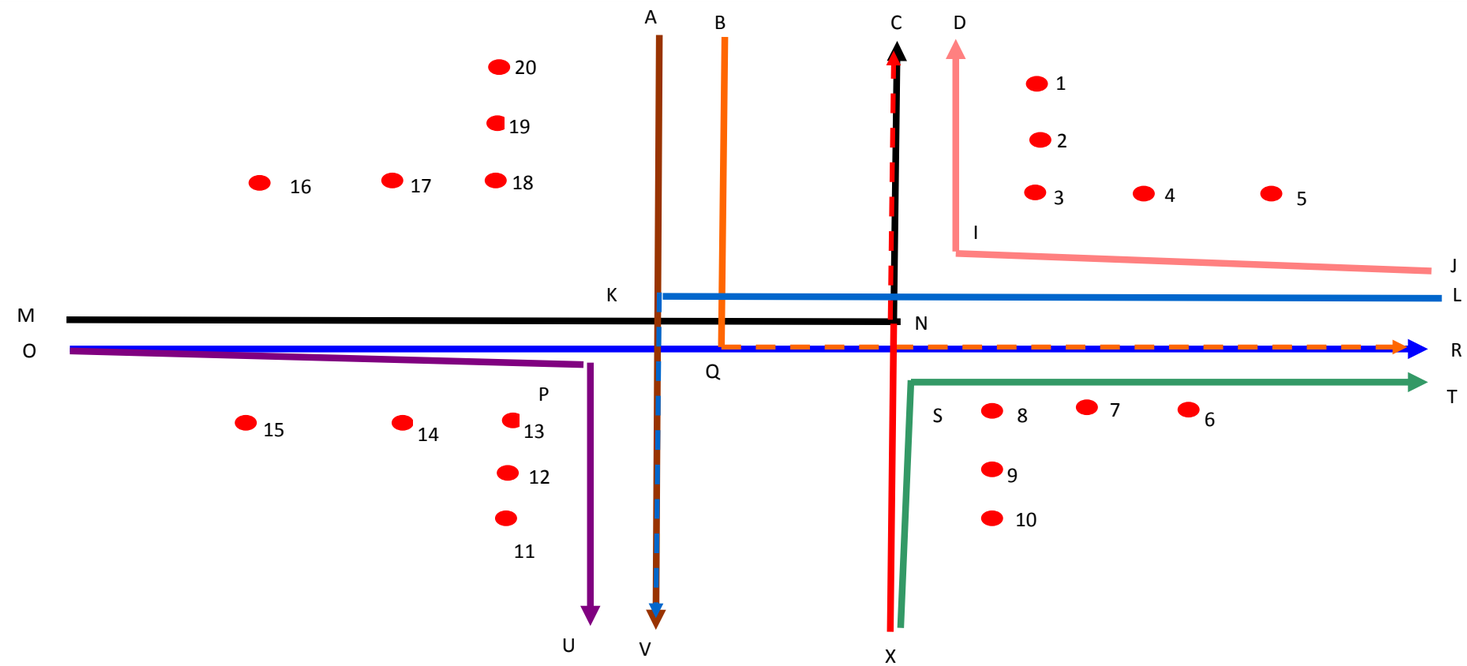
KTR N 11th Avenue/SR 198 EB Off-Ramp/E 3rd Street



CALINE INPUT						2035			2009			Receptors		
No	Link	x1	y1	x2	y2	Rate (g/mi)	Nobuild Traffic (vph)	Build Traffic (vph)	Rate (g/mi)	Existing Traffic (vph)	Existing + Proj (vph)	No	x1	y1
1	AK	9809.90	5810.79	9854.59	5728.09	2.78	798	798	11.91	798	798	1	9846.90	5804.21
2	BQ	9814.66	5813.04	9868.51	5735.96	2.78	269	269	13.17	197	197	2	9860.85	5777.86
3	CN	9826.88	5820.35	9866.05	5739.55	1.33	1,158	1,159	13.83	776	777	3	9875.81	5749.73
4	KV	9854.59	5728.09	9904.09	5647.87	2.16	798	798	7.43	798	798	4	9900.85	5767.17
5	MN	9784.87	5686.38	9866.05	5739.55	2.78	596	597	11.35	214	215	5	9925.11	5785.75
6	NX	9866.05	5739.55	9914.87	5653.61	2.78	562	562	13.83	562	562	6	9935.32	5764.98
7	OP	9784.87	5686.38	9858.89	5713.64	2.29	62	62	11.35	62	62	7	9909.82	5746.38
8	OQ	9784.87	5686.38	9868.51	5735.96	2.29	41	41	11.35	30	30	8	9886.25	5727.40
9	QR	9868.51	5735.96	9955.82	5799.07	1.45	310	310	6.96	227	227	9	9900.89	5700.06
10	PU	9858.89	5713.64	9900.00	5645.40	2.16	62	62	7.43	62	62	10	9915.21	5674.79
11	SX	9879.95	5730.15	9914.87	5653.61	2.78	106	106	13.83	106	106	11	9882.15	5657.66
12	ST	9879.95	5730.15	9959.78	5794.59	1.45	106	106	6.96	106	106	12	9869.33	5682.76
												13	9855.43	5706.91
												14	9843.40	5730.06
												15	9828.22	5757.93
												16	9814.52	5784.33

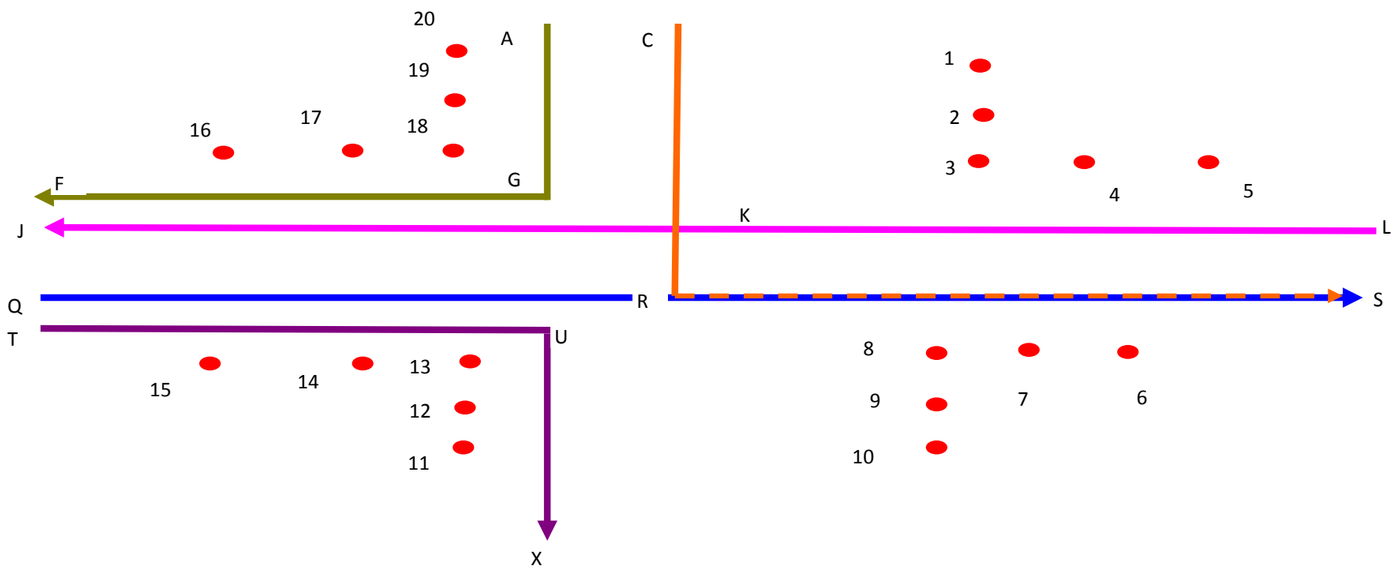
Table C-4.6
Kings Tulare Regional Station S 10th Ave./E 3rd St. Intersection CALINE Inputs

S 10th Avenue/E 3rd Street



CALINE INPUT						2035			2009			Receptors		
No	Link	x1	y1	x2	y2	Rate (g/mi)	Nobuild Traffic (vph)	Build Traffic (vph)	Rate (g/mi)	Existing Traffic (vph)	Existing + Proj (vph)	No	x1	y1
1	AK	1357.82	6973.32	1408.69	6881.10	1.93	298	298	9.05	298	298	1	1391.40	6966.75
2	BQ	1362.63	6975.67	1419.63	6893.92	2.78	118	118	13.83	118	118	2	1405.24	6940.21
3	CN	1370.52	6980.79	1414.05	6897.00	1.33	1,121	1,126	8.33	516	521	3	1423.28	6918.52
4	DI	1375.47	6983.20	1421.17	6911.33	1.33	87	87	8.33	87	87	4	1451.64	6931.19
5	IJ	1421.17	6911.33	1517.54	6957.41	2.43	87	87	13.17	87	87	5	1475.89	6945.41
6	KV	1408.69	6881.10	1452.86	6787.64	1.23	310	310	5.96	310	310	6	1482.29	6922.26
7	KL	1408.69	6881.10	1517.54	6957.41	2.43	12	12	13.17	12	12	7	1458.52	6905.62
8	MN	1327.27	6822.20	1414.05	6897.00	2.78	762	767	13.17	218	223	8	1436.88	6885.42
9	NX	1414.05	6897.00	1457.78	6790.03	2.76	359	359	11.35	298	298	9	1442.61	6857
10	OP	1332.10	6816.66	1402.91	6860.68	2.43	17	18	13.17	17	18	10	1450.18	6826.41
11	OQ	1332.10	6816.66	1419.63	6893.92	2.43	18	18	13.17	18	18	11	1431.35	6807.62
12	QR	1419.63	6893.92	1520.29	6951.86	1.27	136	136	7.43	136	136	12	1419.38	6831.89
13	PU	1402.91	6860.68	1449.21	6785.86	1.23	17	18	5.96	17	18	13	1402.47	6855.20
14	SX	1431.03	6885.52	1457.78	6790.03	2.76	34	34	11.35	34	34	14	1374.86	6842.25
15	ST	1431.03	6885.52	1520.29	6951.86	1.27	34	34	7.43	34	34	15	1350.45	6824.36
												16	1347.22	6847.73
												17	1372.10	6865.12
												18	1393.96	6881.61
												19	1380.84	6909.35
												20	1369.04	6933.57

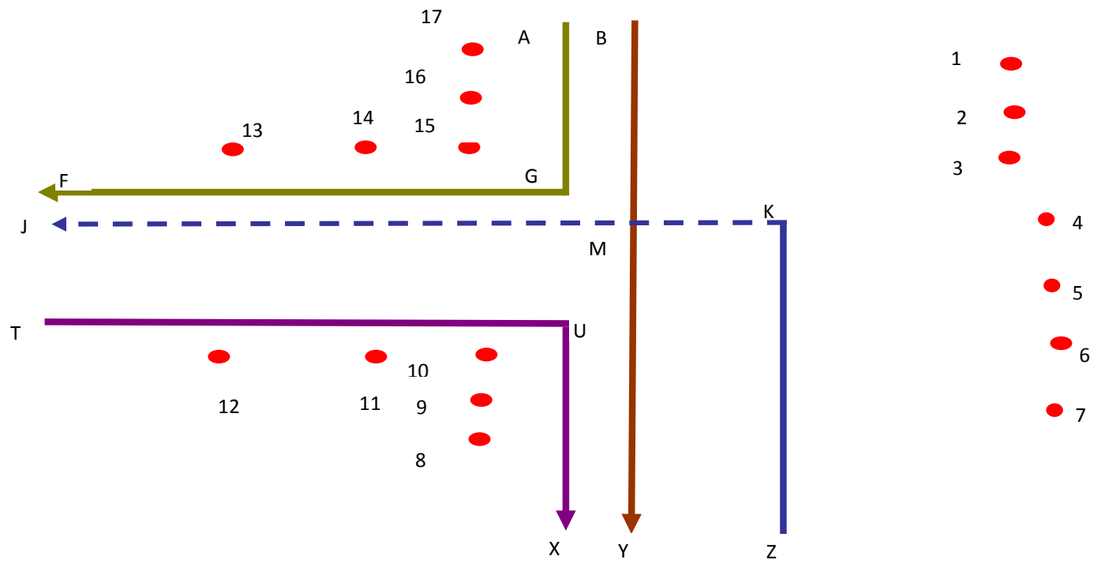
Fresno HMF SR 99 SB Off-Ramp/ E. American Ave.



Receptors		
Receptor No	x1	y1
1	3746.29	2231.47
2	3758.71	2205.40
3	3769.85	2182.74
4	3792.11	2194.31
5	3817.61	2207.43
6	3827.41	2175.61
7	3801.69	2172.53
8	3778.62	2161.54
9	3789.49	2138.42
10	3802.10	211.75
11	3781.35	2103.02
12	3768.96	2127.89
13	3757.44	2151.22
14	3734.09	2139.91
15	3708.08	2127.30
16	3690.89	2152.78
17	3716.96	2165.68
18	3740.15	2177.10
19	3728.25	2201.54
20	3716.40	2226.48

CALINE INPUT						2035			2009		
No	Link	x1	y1	x2	y2	Rate (g/mi)	Nobuild Traffic (vph)	Build Traffic (vph)	Rate (g/mi)	Existing Traffic (vph)	Existing + Proj (vph)
1	AG	3733.87	2221.64	3747.21	2172.07	1.01	41	77	5.058	36	72
2	CR	3737.35	2223.61	3779.80	2171.25	1.01	325	325	5.058	56	56
3	FG	3688.75	2132.69	3747.21	2172.07	1.01	41	77	5.058	36	72
4	JK	3689.86	2130.14	3769.73	2174.07	1.01	537	552	5.058	49	64
5	KL	3769.73	2174.07	3809.21	2193.87	1.01	537	552	5.058	49	64
6	QR	3691.58	2126.63	3779.80	2171.25	1.01	496	572	5.058	221	297
7	RS	3779.80	2171.25	3812.81	2187.10	1.01	821	897	5.058	277	353
8	TU	3692.72	2124.11	3760.66	2159.13	1.01	0	0	5.058	0	0
9	UX	3760.66	2159.13	3777.98	2129.50	1.01	0	0	5.058	0	0

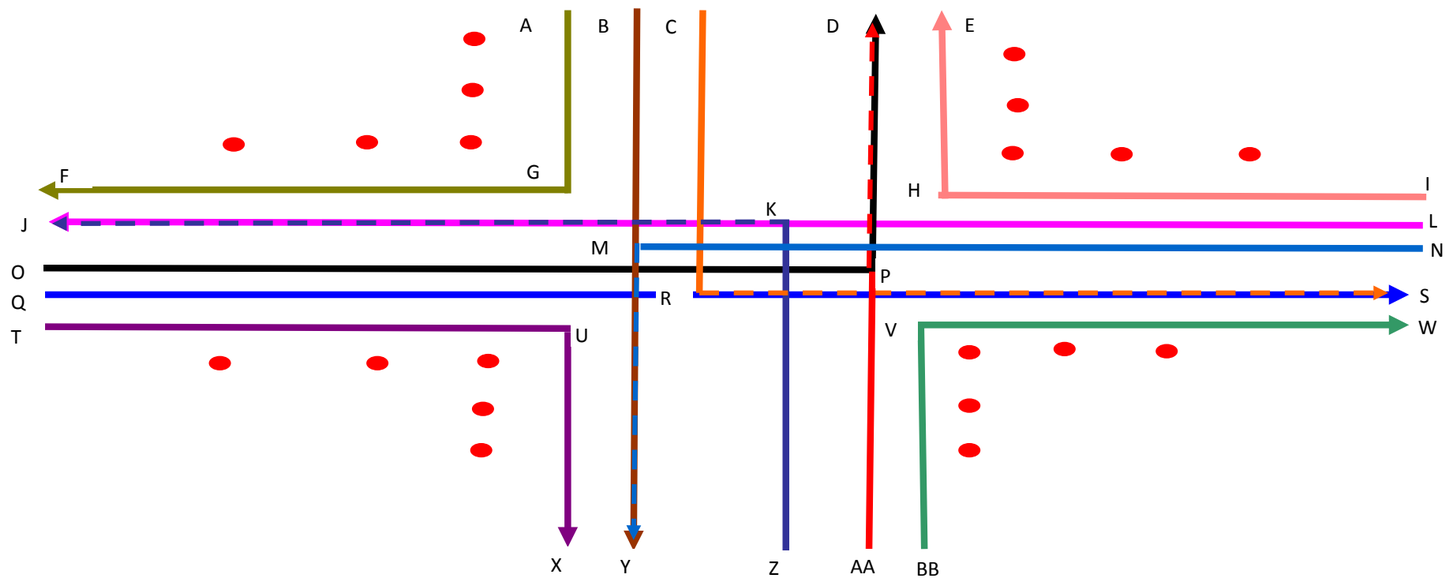
Fresno HMF SR 99 NB On-Ramp/ E. American Ave.



Receptors		
Receptor No	x1	y1
1	7289.21	824.18
2	7314.30	809.22
3	7337.00	795.15
4	7360.09	807.14
5	7384.12	789.96
6	7407.73	771.66
7	7430.96	753.53
8	7389.51	744.25
9	7361.94	755.76
10	7335.25	761.84
11	7309.23	757.14
12	7281.78	748.00
13	7247.88	757.06
14	7272.12	772.23
15	7295.06	785.86
16	7278.44	804.72
17	7255.94	824.57

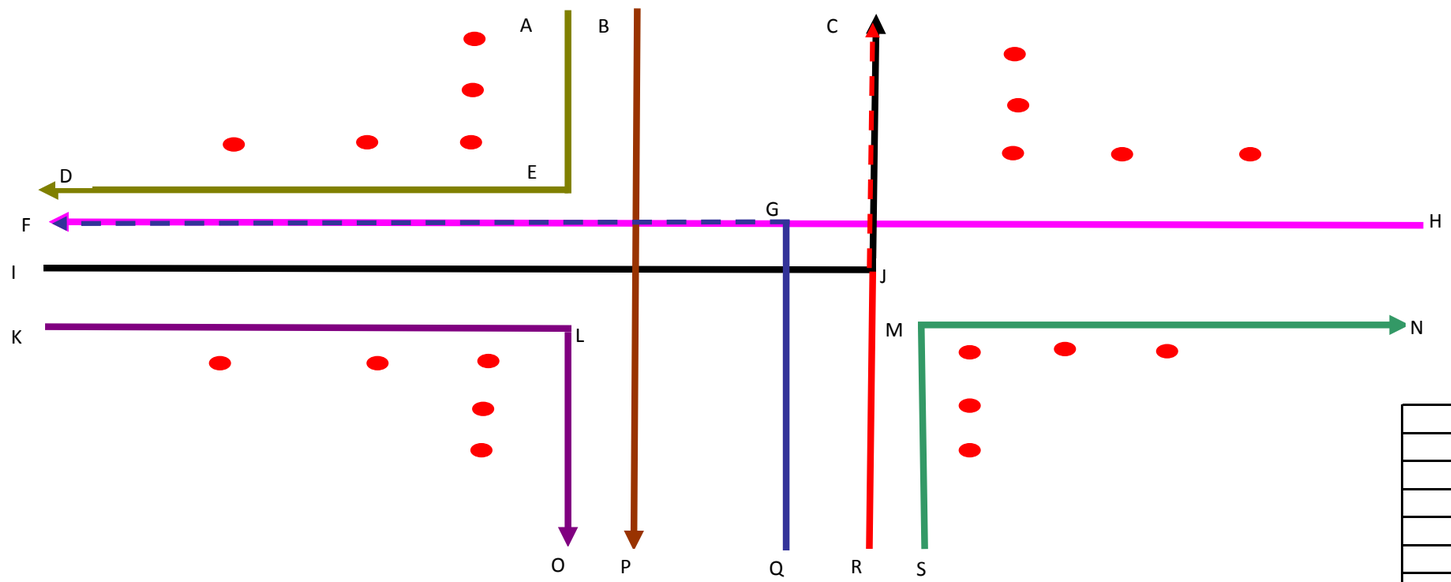
CALINE INPUT						2035			2009		
No	Link	x1	y1	x2	y2	Rate (g/mi)	Nobuild Traffic (vph)	Build Traffic (vph)	Rate (g/mi)	Existing Traffic (vph)	Existing + Proj (vph)
1	AG	7269.06	825.05	7304.25	787.25	1.01	20	20	5.058	10	10
2	BM	7270.45	827.09	7335.66	788.02	1.01	178	178	5.058	96	96
6	FG	7224.29	735.60	7304.25	787.25	1.01	20	20	5.058	10	10
8	JK	7225.39	733.17	7354.01	790.46	1.01	79	120	5.058	54	95
10	MY	7335.66	788.02	7447.49	719.57	1.01	178	178	5.058	96	96
15	TU	7227.70	729.07	7333.87	770.53	1.01	137	199	5.058	74	136
16	UX	7333.87	770.53	7446.31	718.36	1.01	137	199	5.058	74	136
17	KZ	7354.01	790.46	7450.42	722.93	1.01	79	120	5.058	54	95

Wasco HMF - SR 43/Wasco Ave.



CALINE INPUT						2035			2009			Receptors		
No	Link	x1	y1	x2	y2	Rate (g/mi)	Nobuild Traffic (vph)	Build Traffic (vph)	Rate (g/mi)	Existing Traffic (vph)	Existing + Proj (vph)	No	x1	y1
1	AG	9093.03	2308.97	9095.65	2254.24	1.17	296	296	5.16	77	77	1	9088.89	2260.50
2	BM	9094.07	2308.86	9097.50	2248.37	1.17	241	271	5.16	102	132	2	9069.88	2261.17
3	CR	9095.59	2308.56	9099.44	2243.75	1.17	13	20	5.16	13	20	3	9044.88	2261.85
4	DP	9097.80	2308.51	9106.06	2248.39	1.17	497	542	5.16	98	143	4	9088.69	2284.69
5	EH	9098.92	2308.57	9108.92	2254.82	1.17	9	20	5.16	7	18	5	9087.69	2309.48
6	FG	9044.23	2254.93	9095.65	2254.24	1.17	296	296	5.16	77	77	6	9089.21	2236.07
7	HI	9108.92	2254.82	9155.45	2253.21	1.17	9	20	5.16	7	18	7	9090.57	2213.93
8	JK	9044.11	2253.48	9104.30	2252.87	1.17	582	646	5.16	211	275	8	9092.01	2189.06
9	KL	9104.30	2252.87	9155.45	2251.97	1.17	480	512	5.16	199	231	9	9066.04	2238.57
10	MY	9097.50	2248.37	9098.84	2200.15	1.17	301	331	5.16	143	173	10	9040.86	2239.33
11	MN	9097.50	2248.37	9155.48	2250.08	1.17	60	60	5.16	41	41	11	9115.65	2236.70
12	OP	9043.78	2250.87	9106.06	2248.39	1.17	299	299	5.16	57	57	12	9117.21	2214.09
13	QR	9043.99	2246.66	9099.44	2243.75	1.17	401	423	5.16	193	215	13	9116.23	2188.36
14	RS	9099.44	2243.75	9155.01	2244.59	1.17	414	443	5.16	206	235	14	9140.58	2237.19
15	TU	9043.94	2244.63	9095.56	2240.71	1.17	131	153	5.16	23	45	15	9114.51	2261.40
16	UX	9095.56	2240.71	9097.12	2200.19	1.17	131	153	5.16	23	45	16	9109.33	2282.67
17	KZ	9104.30	2252.87	9102.19	2199.92	1.17	102	134	5.16	12	44	17	9105.04	2307.68
18	PAA	9106.06	2248.39	9104.13	2199.79	1.17	198	243	5.16	41	86	18	9140.16	2259.15
19	VBB	9108.89	2242.35	9106.68	2199.96	1.17	13	42	5.16	22	22	19	9165.70	2259.11
20	VW	9108.89	2242.35	9155.20	2243.10	1.17	13	42	5.16	22	22			

Wasco HMF - Wasco Ave.-J St./6th St.



Receptors		
No	x1	y1
1	9066.33	1572.71
2	9067.43	1550.74
3	9065.54	1525.78
4	9042.99	1574.48
5	9018.05	1574.62
6	9068.72	1597.00
7	9069.37	1619.22
8	9069.28	1644.29
9	9045.92	1597.69
10	9020.94	1598.09
11	9093.15	1594.04
12	9091.44	1616.05
13	9091.83	1641.00
14	9114.70	1595.03
15	9139.70	1594.84
16	9093.33	1579.92
17	9093.07	1559.84
18	9092.29	1534.74
19	9115.68	1579.47
20	9140.70	1579.17

CALINE INPUT						2035			2009		
No	Link	x1	y1	x2	y2	Rate (g/mi)	Nobuild Traffic (vph)	Build Traffic (vph)	Rate (g/mi)	Existing Traffic (vph)	Existing + Proj (vph)
1	AE	9076.43	1641.22	9073.02	1590.83	1.17	69	69	5.16	26	26
2	BP	9080.04	1641.14	9075.49	1532.33	1.17	356	381	5.16	136	161
3	CJ	9086.33	1641.09	9085.39	1580.85	1.17	343	360	5.16	75	92
4	DE	9030.30	1592.16	9073.02	1590.83	1.17	69	69	5.16	26	26
5	FG	9030.37	1589.44	9080.69	1587.98	1.17	9	9	5.16	9	9
6	GH	9080.69	1587.98	9137.71	1587.47	1.17	0	0	5.16	0	0
7	IJ	9030.07	1583.89	9085.39	1580.85	1.17	60	60	5.16	17	17
8	KL	9029.96	1580.52	9073.87	1576.57	1.17	6	6	5.16	6	6
9	MN	9087.28	1585.90	9137.66	1584.77	1.17	0	0	5.16	0	0
10	LO	9073.87	1576.57	9071.55	1532.42	1.17	6	6	5.16	6	6
11	GQ	9080.69	1587.98	9080.34	1531.96	1.17	9	9	5.16	9	9
12	RJ	9085.18	1532.00	9085.39	1580.85	1.17	283	300	5.16	58	75
13	MS	9087.28	1585.90	9088.67	1532.15	1.17	0	0	5.16	0	0

Parking Lot Emission Factors (Fresno Mariposa Option)

Running Exhaust Emission Factors (EF)

Speed (mph)	Emissions (g/mile) 2035
10	0.813

Source: EMFAC 2007 run for Fresno Co. (SJV) Winter, 2035 (31 F, 41% RH)

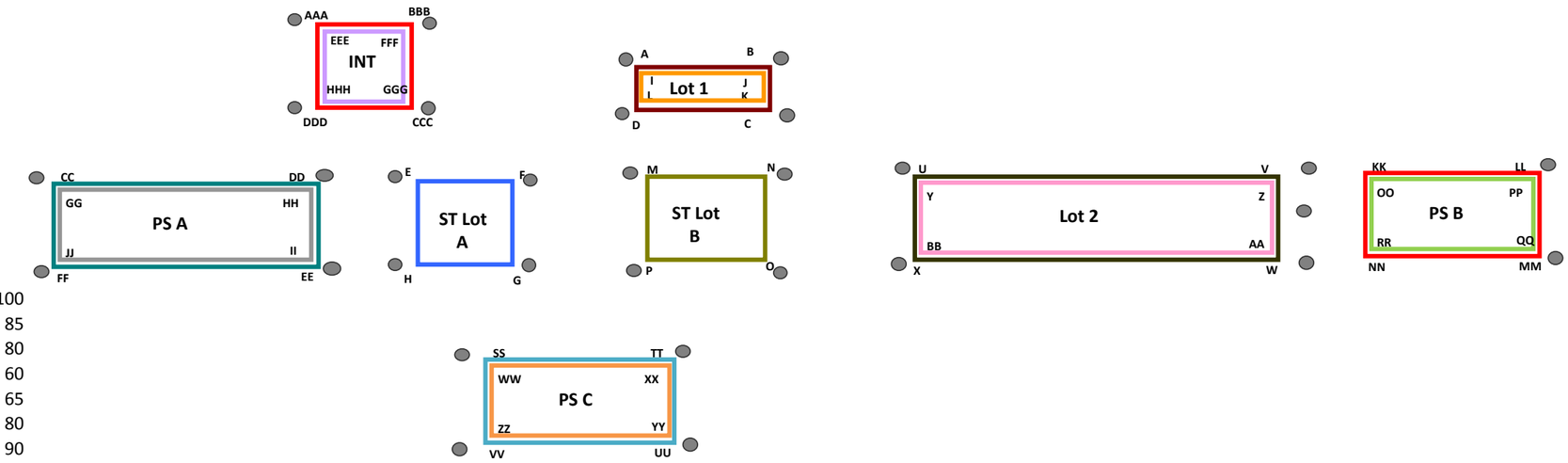
Start-Up Emission Factors

Rest Time (Hrs)	Emissions (g/trip) 2035
3	1.3785
12	1.9515

Source: EMFAC 2007 run for Fresno Co. (SJV) Winter, 2035 (31 F, 41% RH)

Assumptions:

Emfac 2007: Fresno Co. (SJV) Winter, 2035 (31 F, 41% RH)
Assumed max speed of 10 mph within parking lot
Assumed 50% LDA and 50% LDT1
Assumed vehicles had been in the parking lot for 12 hours (cold start)
Assumed vehicles had been in the short term parking lot for 3 hours (hot start)



Short Term Parking Lot (ST Lot)

Parking Capacity:	100 spaces	
INT	130	100
PS A	165	85
PSB	140	80
PSC	140	60
Lot 1	145	65
lot 2	140	80
ST Lot	90	90

Since the cold start emissions segment was included with the running emissions in the CALINE4 model, it had to be converted to a gram per mile factor. A corrected running emission factor was calculated to account for the running exhaust emissions and the slug of emissions released during cold start-up. The conversion of the slug start-up emission factors for outbound link from grams per trip to grams per mile were calculated using eq. 6-20 of the CALINE4- A Dispersion Model For Predicting Air Pollutant Concentrations Near Roadways guidance (Nov 1984) as presented below. Inbound link activities used the stabilized hot running emission factor as generated by EMFAC 2007 model for the specific scenario.

For Caline4 CO modeling, acess activity data is based on California High-Speed Train Project Technical Memorandum: Station Parking Area Guidance (PB. May 13, 2010). Worst case hourly assumptions assumed the average daily vehicles arriving to park (total inbound) and equal number of vehicles leaving the parking lot after at least 12 hours of parking period (total outbound) as link activities for the parking structure in the Caline4 modeling. The allocation of activities is based on the parking structure capacity (evenly distributed among the four parking lots). Additional activities from the short term parking lot was modeled assuming the maximum capacity of the lot, and all vehicles are traveling outbound with hot start (3 hours of parking period).

$$EFL = \frac{1}{LL_T} * \left[(E_{tr} * f_e) + (EF_{hot} * SPD * t_e) \right] , \qquad (6\text{-}20)$$

Where:

		PS B, Lot 2	Short Term Parking Lot	Int	PS A	PS C	Lot 1
EFL :	Emission Factor in the Lot (grams/vehicle mile)						
LL_T :	Average distance traveled within the parking lot (mile)	0.137	0.130	0.143	0.155	0.124	0.130
E_{tr} :	Transient emission mass (grams/veh start)						
f_e :	Fraction of excess transient emission	0.110	0.105	0.115	0.124	0.100	0.105
EF_{hot} :	Hot stabilized emission rate at SPD						
SPD :	Average vehicle speed in the lot (mph), assumed 10 mph.	10	10	10	10	10	10
t_e :	Average egress time (hr). Assumed average time elapsed to reach the average distance within the parking lot (LL_T/SPD)	0.014	0.013	0.014	0.016	0.012	0.013

$f_e = f_r^3 - 3f_r^2 + 3f_r$ $\qquad f_r = r/R$.		PS B, Lot 2	Short Term Parking Lot	Int	PS A	PS C	Lot 1
f_r :	Fraction of transient cycle completed	0.038	0.036	0.040	0.043	0.035	0.036
R :	Total distance travelled during transient cycle. Assumed 3.59 miles (FTP-75)	3.59	3.59	3.59	3.59	3.59	3.59
r :	Trip length to a certain destination. In this case, equals to LL_T	0.137	0.130	0.143	0.155	0.124	0.130

Calculation for EF with Cold Start

Location	Emission Factor in the Lot for Outbound Vehicle (g/mile)
	2035
PS B, Lot 2	2.382
Short Term Parking Lot	1.924
Int	2.380
PS A	2.374
PS C	2.388
Lot 1	2.385

Ridership Data for Caline4 Model

Location	Worst Case Access Activity (Vehile/hour)
	2035
Total Inbound*	2,200
Total Outound	2,200
PS and Lot Inbound	367
PS and Lot Outbound	367
ST Lot Outbound	100

* Total inbound access data was provided as number of vehicle arriving to park in the Station Parking Area Guidance (PB. May 13, 2010). Worst case hourly assumptions assumed the average daily vehicles arriving to park (total inbound) and equal number of vehicles leaving the parking lot after at least 12 hours of parking period (total outbound) as link activities for Caline4 modeling.Short term Lot assumed maximum capacity as outbound vph.

Links	Distance (Miles)	2035 Corrected Running EF (grams/mile)	Links	Distance (Miles)	2035 Corrected Running EF (grams/mile)
AB (outbound)	0.09	2.385	JJGG (inbound)	0.05	2.374
BC (outbound)	0.04	2.385	KKLL (outbound)	0.09	2.382
CD (outbound)	0.09	2.385	LLMM (outbound)	0.05	2.382
DA (outbound)	0.04	2.385	MMNN (outbound)	0.09	2.382
IJ (inbound)	0.09	2.385	NNKK (outbound)	0.05	2.382
JK (inbound)	0.04	2.385	OOPP (inbound)	0.09	2.382
KL (inbound)	0.09	2.385	PPQQ (inbound)	0.05	2.382
LI (inbound)	0.04	2.385	QQRR (inbound)	0.09	2.382
EF (outbound)	0.06	1.924	RROO (inbound)	0.05	2.382
FG (outbound)	0.06	1.924	SSTT (outbound)	0.09	2.388
GH (outbound)	0.06	1.924	TTUU (outbound)	0.04	2.388
HE (outbound)	0.06	1.924	UUVV (outbound)	0.09	2.388
MN (outbound)	0.06	1.924	VVSS (outbound)	0.04	2.388
NO (outbound)	0.06	1.924	WWXX (inbound)	0.09	2.388
OP (outbound)	0.06	1.924	XXYY (inbound)	0.04	2.388
PM (outbound)	0.06	1.924	YYZZ (inbound)	0.09	2.388
UV (outbound)	0.09	2.382	ZZWW (inbound)	0.04	2.388
VW (outbound)	0.05	2.382	AAABBB (outbound)	0.08	2.380
WX (outbound)	0.09	2.382	BBBCCC (outbound)	0.06	2.380
XU (outbound)	0.05	2.382	CCCDDD (outbound)	0.08	2.380
YZ (inbound)	0.09	2.382	DDDAAA (outbound)	0.06	2.380
ZAA (inbound)	0.05	2.382	EEEFFF (inbound)	0.08	2.380
AABB (inbound)	0.09	2.382	FFFGGG (inbound)	0.06	2.380
BBY (inbound)	0.05	2.382	GGGHHH (inbound)	0.08	2.380
CCDD (outbound)	0.10	2.374	HHHEEE (inbound)	0.06	2.380
DDEE (outbound)	0.05	2.374			
EEFF (outbound)	0.10	2.374			
FFCC (outbound)	0.05	2.374			
GGHH (inbound)	0.10	2.374			
HHII (inbound)	0.05	2.374			
IIJJ (inbound)	0.10	2.374			

CALINE INPUT					2035	
Link	x1	y1	x2	y2	Rate (g/mi)	Traffic (vph)
AB (outbound)	4063654.04	4867298.81	4063788.02	4867246.11	2.385	183
BC (outbound)	4063788.02	4867246.11	4063760.67	4867185.60	2.385	183
CD (outbound)	4063760.67	4867185.60	4063628.03	4867238.85	2.385	183
DA (outbound)	4063628.03	4867238.85	4063654.04	4867298.81	2.385	183
IJ (inbound)	4063656.77	4867294.58	4063784.17	4867244.32	2.385	183
JK (inbound)	4063784.17	4867244.32	4063757.94	4867189.83	2.385	183
KL (inbound)	4063757.94	4867189.83	4063632.27	4867240.64	2.385	183
LI (inbound)	4063632.27	4867240.64	4063656.77	4867294.58	2.385	183
EF (outbound)	4063469.58	4867258.37	4063553.77	4867227.59	1.924	50
FG (outbound)	4063553.77	4867227.59	4063516.19	4867142.86	1.924	50
GH (outbound)	4063516.19	4867142.86	4063433.65	4867180.43	1.924	50
HE (outbound)	4063433.65	4867180.43	4063469.58	4867258.37	1.924	50
MN (outbound)	4063664.71	4867183.80	4063747.52	4867148.86	1.924	50
NO (outbound)	4063747.52	4867148.86	4063712.95	4867058.86	1.924	50
OP (outbound)	4063712.95	4867058.86	4063627.16	4867096.15	1.924	50
PM (outbound)	4063627.16	4867096.15	4063664.71	4867183.80	1.924	50
UV (outbound)	4063935.36	4867070.84	4064065.14	4867015.56	2.382	183
VW (outbound)	4064065.14	4867015.56	4064032.36	4866943.40	2.382	183
WX (outbound)	4064032.36	4866943.40	4063905.04	4866995.08	2.382	183
XU (outbound)	4063905.04	4866995.08	4063935.36	4867070.84	2.382	183
YZ (inbound)	4063938.09	4867066.61	4064060.91	4867015.56	2.382	183
ZAA (inbound)	4064060.91	4867015.56	4064029.63	4866947.63	2.382	183
AABB (inbound)	4064029.63	4866947.63	4063909.27	4866995.08	2.382	183
BBY (inbound)	4063909.27	4866995.08	4063938.09	4867066.61	2.382	183
CCDD (outbound)	4063278.84	4867344.86	4063425.08	4867281.67	2.374	183
DDEE (outbound)	4063425.08	4867281.67	4063397.60	4867203.20	2.374	183
EEFF (outbound)	4063397.60	4867203.20	4063240.31	4867271.29	2.374	183
FFCC (outbound)	4063240.31	4867271.29	4063278.84	4867344.86	2.374	183
GGHH (inbound)	4063281.57	4867341.61	4063420.85	4867281.30	2.374	183
HHII (inbound)	4063420.85	4867281.30	4063394.87	4867206.45	2.374	183
IIJJ (inbound)	4063394.87	4867206.45	4063244.54	4867271.66	2.374	183
JJGG (inbound)	4063244.54	4867271.66	4063281.57	4867341.61	2.374	183
KKLL (outbound)	4064089.89	4867009.67	4064223.32	4866956.72	2.382	183
LLMM (outbound)	4064223.32	4866956.72	4064187.19	4866879.95	2.382	183
MMNN (outbound)	4064187.19	4866879.95	4064061.20	4866932.68	2.382	183
NNKK (outbound)	4064061.20	4866932.68	4064089.89	4867009.67	2.382	183
OOPP (inbound)	4064092.62	4867005.44	4064219.09	4866959.45	2.382	183
PPQQ (inbound)	4064219.09	4866959.45	4064184.46	4866884.18	2.382	183
QQRR (inbound)	4064184.46	4866884.18	4064065.43	4866929.95	2.382	183
RROO (inbound)	4064065.43	4866929.95	4064092.62	4867005.44	2.382	183
SSTT (outbound)	4063265.82	4866784.34	4063391.72	4866731.52	2.388	183
TTUU (outbound)	4063391.72	4866731.52	4063372.83	4866678.88	2.388	183
UUVV (outbound)	4063372.83	4866678.88	4063245.43	4866730.57	2.388	183
VVSS (outbound)	4063245.43	4866730.57	4063265.82	4866784.34	2.388	183
WWXX (inbound)	4063268.55	4866781.09	4063387.49	4866731.15	2.388	183

CALINE INPUT					2035	
Link	x1	y1	x2	y2	Rate (g/mi)	Traffic (vph)
XXYY (inbound)	4063387.49	4866731.15	4063370.10	4866682.13	2.388	183
YYZZ (inbound)	4063370.10	4866682.13	4063249.66	4866730.94	2.388	183
ZZWW (inbound)	4063249.66	4866730.94	4063268.55	4866781.09	2.388	183
AAABBB (outbound)	4063519.65	4867395.55	4063634.66	4867346.01	2.380	183
BBBCCC (outbound)	4063634.66	4867346.01	4063598.72	4867249.41	2.380	183
CCCDDD (outbound)	4063598.72	4867249.41	4063481.41	4867299.19	2.380	183
DDDAAA (outbound)	4063481.41	4867299.19	4063519.65	4867395.55	2.380	183
EEEFFF (inbound)	4063522.38	4867391.32	4063630.81	4867344.22	2.380	183
FFFGGG (inbound)	4063630.81	4867344.22	4063595.99	4867253.64	2.380	183
GGGHHH (inbound)	4063595.99	4867253.64	4063485.65	4867300.98	2.380	183
HHHEEE (inbound)	4063485.65	4867300.98	4063522.38	4867391.32	2.380	183

Note: UTM x axis , UTM y axis(removed first 1 digit)
Link Type: pk, Height: 0 , Mix Zone: 10

CALINE INPUT

Receptor	x1	y1
1	4063648.82	4867302.35
2	4063793.65	4867245.38
3	4063764.97	4867178.86
4	4063622.69	4867236.24
5	4063463.40	4867258.00
6	4063547.01	4867234.87
7	4063507.15	4867143.12
8	4063432.89	4867180.63
9	4063663.20	4867188.41
10	4063753.71	4867151.84
11	4063716.99	4867059.15
12	4063621.20	4867096.28
13	4063932.51	4867076.90
14	4064063.92	4867024.48
15	4064026.18	4866940.45
16	4063897.17	4866991.33
17	4063277.15	4867350.26
18	4063421.79	4867279.58
19	4063402.06	4867195.83
20	4063230.41	4867269.79
21	4063263.82	4866788.85
22	4063397.31	4866732.18
23	4063373.08	4866676.55
24	4063240.53	4866728.03
25	4064090.68	4867014.76
26	4064225.67	4866956.71
27	4064192.10	4866872.67
28	4064056.19	4866929.73
29	4063517.37	4867400.98
30	4063638.40	4867346.80
31	4063600.81	4867243.99
32	4063477.36	4867296.26

Run
F Mar 2035
Worst Case Wind Angle
Central Bussines District
0.5 m/s , stdev 5, G, ambient 2.22 C

Caline Model Run Plan

	Link 1-20	**Link 21-40**	**Link 41-56**
Rec 1-20	**Run 1**	**Run 2**	**Run 3**
Rec 21-32	**Run 3**	**Run 5**	**Run 6**

Parking Lot Emission Factors (Fresno Kern Option)

Running Exhaust Emission Factors (EF)

Speed (mph)	Emissions (g/mile) 2035
10	0.813

Source: EMFAC 2007 run for Fresno Co. (SJV) Winter, 2035 (31 F, 41% RH)

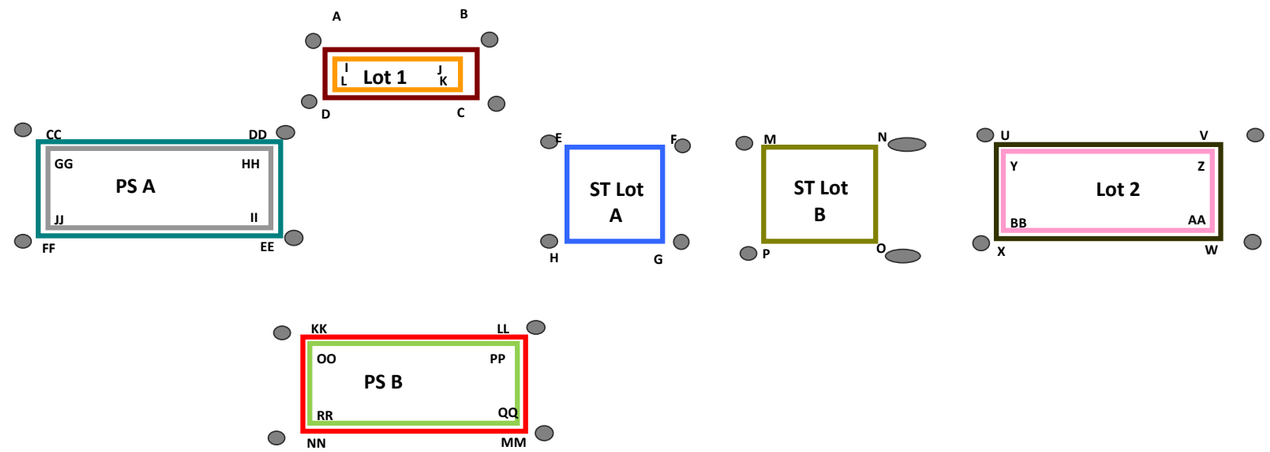
Start-Up Emission Factors

Rest Time (Hrs)	(g/trip) 2035
3	1.3785
12	1.9515

Source: EMFAC 2007 run for Fresno Co. (SJV) Winter, 2035 (31 F, 41% RH)

Assumptions:

Emfac 2007: Fresno Co. (SJV) Winter, 2035 (31 F, 41% RH)
Assumed max speed of 10 mph within parking lot
Assumed 50% LDA and 50% LDT1
Assumed vehicles had been in the parking lot for 12 hours (cold start)
Assumed vehicles had been in the short term parking lot for 3 hours (hot start)



Short Term Parking Lot

Parking Capacity:	175 spaces	
PS A	130	85
PSB	140	60
Lot 1	145	65
lot 2	140	80
ST Lot	90	90

Since the cold start emissions segment was included with the running emissions in the CALINE4 model, it had to be converted to a gram per mile factor. A corrected running emission factor was calculated to account for the running exhaust emissions and the slug of emissions released during cold start-up. The conversion of the slug start-up emission factors for outbound link from grams per trip to grams per mile were calculated using eq. 6-20 of the CALINE4- A Dispersion Model For Predicting Air Pollutant Concentrations Near Roadways guidance (Nov 1984) as presented below. Inbound link activities used the stabilized hot running emission factor as generated by EMFAC 2007 model for the specific scenario.

For Caline4 CO modeling, acess activity data is based on California High-Speed Train Project Technical Memorandum: Station Parking Area Guidance (PB. May 13, 2010). Worst case hourly assumptions assumed the average daily vehicles arriving to park (total inbound) and equal number of vehicles leaving the parking lot after at least 12 hours of parking period (total outbound) as link activities for the parking structure in the Caline4 modeling. Since the parking lots are almost the same size, the activities were evenly distributed among the four parking lots. Additional activities from the short term parking lot was modeled assuming the maximum capacity of the lot, and all vehicles are traveling outbound with hot start (3 hours of parking period).

$$EFL = \frac{1}{LL_T} * \left[(E_{tr} * f_e) + (EF_{hot} * SPD * t_e) \right] , \qquad (6\text{-}20)$$

Where:

		PS A	PS B	Short Term Parking Lot	Lot 1	Lot 2
EFL :	Emission Factor in the Lot (grams/vehicle mile)					
LL_T :	Average distance traveled within the parking lot (mile)	0.134	0.124	0.112	0.130	0.137
E_{tr} :	Transient emission mass (grams/veh start)					
f_e :	Fraction of excess transient emission	0.108	0.100	0.091	0.105	0.110
EF_{hot} :	Hot stabilized emission rate at SPD					
SPD :	Average vehicle speed in the lot (mph), assumed 10 mph.	10	10	10	10	10
t_e :	Average egress time (hr). Assumed average time elapsed to reach the average distance within the parking lot (LL_T/SPD)	0.013	0.012	0.011	0.013	0.014

$f_e = f_r^3 - 3f_r^2 + 3f_r$ $\qquad f_r = r/R$.		PS A	PS B	Short Term Parking Lot	Lot 1	Lot 2
f_r :	Fraction of transient cycle completed	0.037	0.035	0.031	0.036	0.038
R :	Total distance travelled during transient cycle. Assumed 3.59 miles (FTP-75)	3.59	3.59	3.59	3.59	3.59
r :	Trip length to a certain destination. In this case, equals to LL_T	0.134	0.124	0.112	0.130	0.137

Calculation for EF with Cold Start

Location	Emission Factor in the Lot for Outbound Vehicle (g/mile)
	2035
PS A	2.384
PS B	2.388
Short Term Lot	1.929
Lot 1	2.385
Lot 2	2.382

Ridership Data for Caline4 Model

Location	Worst Case Access Activity (Vehile/hour)
	2035
Total Inbound*	2,200
Total Outound	2,200
PS/ Lot Outbound	550
PS/ Lot Inbound	550
ST Lot Outbound	175

* Total inbound access data was provided as number of vehicle arriving to park in the Station Parking Area Guidance (PB. May 13, 2010). Worst case hourly assumptions assumed the average daily vehicles arriving to park (total inbound) and equal number of vehicles leaving the parking lot after at least 12 hours of parking period (total outbound) as link activities for Caline4 modeling. Short term Lot assumed maximum capacity as outbound vph.

Table C-7.2
Fresno Kern Option Parking Lot CALINE Inputs

Links	Distance (Miles)	2035 Corrected Running EF (grams/mile)
AB (outbound)	0.09	2.385
BC (outbound)	0.04	2.385
CD (outbound)	0.09	2.385
DA (outbound)	0.04	2.385
IJ (inbound)	0.09	2.385
JK (inbound)	0.04	2.385
KL (inbound)	0.09	2.385
LI (inbound)	0.04	2.385
EF (outbound)	0.06	1.929
FG (outbound)	0.06	1.929
GH (outbound)	0.06	1.929
HE (outbound)	0.06	1.929
MN (outbound)	0.06	1.929
NO (outbound)	0.06	1.929
OP (outbound)	0.06	1.929
PM (outbound)	0.06	1.929
UV (outbound)	0.09	2.382
VW (outbound)	0.05	2.382
WX (outbound)	0.09	2.382
XU (outbound)	0.05	2.382
YZ (inbound)	0.09	2.382
ZAA (inbound)	0.05	2.382
AABB (inbound)	0.09	2.382
BBY (inbound)	0.05	2.382
CCDD (outbound)	0.08	2.384
DDEE (outbound)	0.05	2.384
EEFF (outbound)	0.08	2.384
FFCC (outbound)	0.05	2.384
GGHH (inbound)	0.08	2.384
HHII (inbound)	0.05	2.384
IIJJ (inbound)	0.08	2.384
JJGG (inbound)	0.05	2.384
KKLL (outbound)	0.09	2.388
LLMM (outbound)	0.04	2.388
MMNN (outbound)	0.09	2.388
NNKK (outbound)	0.04	2.388
OOPP (inbound)	0.09	2.388
PPQQ (inbound)	0.04	2.388
QQRR (inbound)	0.09	2.388
RROO (inbound)	0.04	2.388

CALINE INPUT					2035	
Link	x1	y1	x2	y2	Rate (g/mi)	Traffic (vph)
AB (outbound)	4063654.04	4867298.81	4063788.02	4867246.11	2.385	275
BC (outbound)	4063788.02	4867246.11	4063760.67	4867185.60	2.385	275
CD (outbound)	4063760.67	4867185.60	4063628.03	4867238.85	2.385	275
DA (outbound)	4063628.03	4867238.85	4063654.04	4867298.81	2.385	275
IJ (inbound)	4063656.77	4867294.58	4063784.17	4867244.32	2.385	275
JK (inbound)	4063784.17	4867244.32	4063757.94	4867189.83	2.385	275
KL (inbound)	4063757.94	4867189.83	4063632.27	4867240.64	2.385	275
LI (inbound)	4063632.27	4867240.64	4063656.77	4867294.58	2.385	275
EF (outbound)	4063780.37	4867136.14	4063875.83	4867097.90	1.929	88
FG (outbound)	4063875.83	4867097.90	4063841.28	4867022.40	1.929	88
GH (outbound)	4063841.28	4867022.40	4063750.80	4867059.67	1.929	88
HE (outbound)	4063750.80	4867059.67	4063780.37	4867136.14	1.929	88
MN (outbound)	4063985.20	4867057.59	4064065.14	4867015.56	1.929	88
NO (outbound)	4064065.14	4867015.56	4064032.36	4866943.40	1.929	88
OP (outbound)	4064032.36	4866943.40	4063954.89	4866973.71	1.929	88
PM (outbound)	4063954.89	4866973.71	4063985.20	4867057.59	1.929	88
UV (outbound)	4064089.89	4867009.67	4064223.32	4866956.72	2.382	275
VW (outbound)	4064223.32	4866956.72	4064187.19	4866879.95	2.382	275
WX (outbound)	4064187.19	4866879.95	4064061.20	4866932.68	2.382	275
XU (outbound)	4064061.20	4866932.68	4064089.89	4867009.67	2.382	275
YZ (inbound)	4064092.617	4867006.42	4064219.094	4866956.35	2.382	275
ZAA (inbound)	4064219.094	4866956.35	4064184.463	4866883.2	2.382	275
AABB (inbound)	4064184.463	4866883.2	4064065.426	4866933.05	2.382	275
BBY (inbound)	4064065.426	4866933.05	4064092.617	4867006.42	2.382	275
CCDD (outbound)	4063307.98	4867331.03	4063425.08	4867281.67	2.384	275
DDEE (outbound)	4063425.08	4867281.67	4063397.6	4867203.2	2.384	275
EEFF (outbound)	4063397.6	4867203.2	4063273.71	4867254.39	2.384	275
FFCC (outbound)	4063273.71	4867254.39	4063307.98	4867331.03	2.384	275
GGHH (inbound)	4063310.707	4867327.78	4063420.854	4867281.3	2.384	275
HHII (inbound)	4063420.854	4867281.3	4063394.873	4867206.45	2.384	275
IIJJ (inbound)	4063394.873	4867206.45	4063277.936	4867254.76	2.384	275
JJGG (inbound)	4063277.936	4867254.76	4063310.707	4867327.78	2.384	275
KKLL (outbound)	4063265.82	4866784.34	4063391.72	4866731.52	2.388	275
LLMM (outbound)	4063391.72	4866731.52	4063372.83	4866678.88	2.388	275
MMNN (outbound)	4063372.83	4866678.88	4063245.43	4866730.57	2.388	275
NNKK (outbound)	4063245.43	4866730.57	4063265.82	4866784.34	2.388	275
OOPP (inbound)	4063268.547	4866781.09	4063387.494	4866731.15	2.388	275
PPQQ (inbound)	4063387.494	4866731.15	4063370.103	4866682.13	2.388	275
QQRR (inbound)	4063370.103	4866682.13	4063249.656	4866730.94	2.388	275
RROO (inbound)	4063249.656	4866730.94	4063268.547	4866781.09	2.388	275

Note: UTM x axis , UTM y axis(removed first 1 digit)
Link Type: pk, Height: 0 , Mix Zone: 10

CALINE INPUT

Receptor	x1	y1
1	4063648.82	4867302.35
2	4063793.65	4867245.38
3	4063764.97	4867178.86
4	4063622.69	4867236.24
5	4063779.35	4867140.60
6	4063879.19	4867100.89
7	4063841.98	4867018.37
8	4063744.29	4867057.64
9	4063983.21	4867057.75
10	4064063.92	4867024.48
11	4064026.18	4866940.45
12	4063948.74	4866970.65
13	4064090.68	4867014.76
14	4064225.67	4866956.71
15	4064192.10	4866872.67
16	4064056.19	4866929.73
17	4063306.63	4867340.44
18	4063421.79	4867279.58
19	4063402.06	4867195.83
20	4063268.64	4867248.57
21	4063263.82	4866788.85
22	4063397.31	4866732.18
23	4063373.08	4866676.55
24	4063240.53	4866728.03

Run
F Kern 2035
Worst Case Wind Angle
Central Bussines District
0.5 m/s , stdev 5, G, ambient 2.22 C

Caline Model Run Plan		
	Link 1-20	**Link 21-40**
Rec 1-20	**Run 1**	**Run 2**
Rec 21-24	**Run 3**	**Run 4**

Parking Lot Emission Factors (Bakersfield North Option)

Running Exhaust Emission Factors (EF)

Speed (mph)	Emissions (g/mile) 2035
10	0.796

Source: EMFAC 2007 run for Kern Co. (SJV) Winter 2035 (41 F, 33%)

Start-Up Emission Factors

Rest Time (Hrs)	(g/trip) 2035
12	1.877

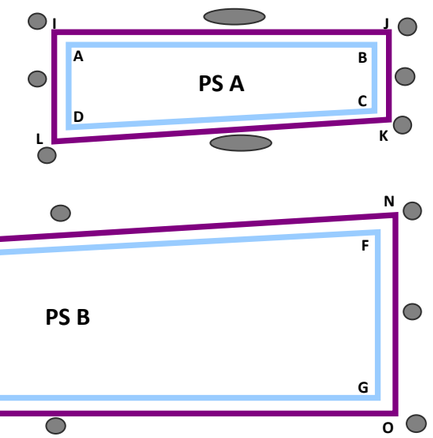
Source: EMFAC 2007 run for Kern Co. (SJV) Winter 2035 (41 F, 33%)

Parking Structure A
Parking Capacity: 1,500 spaces
300 spaces/level
5 Levels

Parking Structure B
Parking Capacity: 3,000 spaces
600 spaces/level
5 Levels

Assumptions:

Emfac 2007: Kern Co. (SJV) Winter 2035 (41 F, 33%)
Assumed max speed of 10 mph within parking lot
Assumed 50% LDA and 50% LDT1
Assumed vehicles had been in the parking lot for 12 hours (cold start)
Assumed vehicles had been in the short term parking lot for 3 hours (hot start)



Since the cold start emissions segment was included with the running emissions in the CALINE4 model, it had to be converted to a gram per mile factor. A corrected running emission factor was calculated to account for the running exhaust emissions and the slug of emissions released during cold start-up. The conversion of the slug start-up emission factors for outbound link from grams per trip to grams per mile were calculated using eq. 6-20 of the CALINE4- A Dispersion Model For Predicting Air Pollutant Concentrations Near Roadways guidance (Nov 1984) as presented below. Inbound link activities used the stabilized hot running emission factor as generated by EMFAC 2007 model for the specific scenario.

For Caline4 CO modeling, acess activity data is based on California High-Speed Train Project Technical Memorandum: Station Parking Area Guidance (PB. May 13, 2010). Worst case hourly assumptions assumed the average daily vehicles arriving to park (total inbound) and equal number of vehicles leaving the parking lot after at least 12 hours of parking period (total outbound) as link activities for Caline4 modeling. The allocation of activities is based on the parking structure capacity (note that the capacity of Parking Structure B is twice Parking Structure A).

$$EFL = \frac{1}{LL_T} * \left[(E_{tr} * f_e) + (EF_{hot} * SPD * t_e) \right] , \qquad (6\text{-}20)$$

Where:

		Parking Structure A	Parking Structure B
EFL :	Emission Factor in the Lot (grams/vehicle mile)		
LL_T :	Average distance traveled within the parking lot (mile)	0.132	0.196
E_{tr} :	Transient emission mass (grams/veh start)		
f_e :	Fraction of excess transient emission	0.106	0.155
EF_{hot} :	Hot stabilized emission rate at SPD		
SPD :	Average vehicle speed in the lot (mph), assumed 10 mph.	10	10
t_e :	Average egress time (hr). Assumed average time elapsed to reach the average distance within the parking lot (LL_T/SPD)	0.013	0.020

$f_e = f_r^3 - 3f_r^2 + 3f_r$ $\qquad f_r = r/R$.	Parking Structure A	Parking Structure B
f_r : Fraction of transient cycle completed	0.037	0.055
R : Total distance travelled during transient cycle. Assumed 3.59 miles (FTP-75)	3.59	3.59
r : Trip length to a certain destination. In this case, equals to LL_T	0.132	0.196

Calculation for EF with Cold Start

Location	Emission Factor in the Lot for Outbound Vehicle (g/mile)
	2035
Parking Structure A	2.308
Parking Structure B	2.280

Ridership Data for Caline4 Model

Location	Worst Case Access Activity (Vehile/hour)
	2035
Total Inbound*	2,300
Total Outound	2,300
PS. A Inbound	767
PS. A Outbound	767
PS. B Inbound	1,533
PS. B Outbound	1,533

* Total inbound access data was provided as number of vehicle arriving to park in the Station Parking Area Guidance (PB. May 13, 2010). Worst case hourly assumptions assumed the average daily vehicles arriving to park (total inbound) and equal number of vehicles leaving the parking lot after at least 12 hours of parking period (total outbound) as link activities for Caline4 modeling.

Links	Distance (Miles)	2035 Corrected Running EF (grams/mile)
AB (inbound)	0.08	0.796
BC (inbound)	0.04	0.796
CD (inbound)	0.09	0.796
DA (inbound)	0.05	0.796
EF (inbound)	0.13	0.796
FG (inbound)	0.08	0.796
GH (inbound)	0.13	0.796
HE (inbound)	0.06	0.796
IJ (outbound)	0.08	2.31
JK (outbound)	0.04	2.31
KL (outbound)	0.09	2.31
LI (outbound)	0.05	2.31
MN (outbound)	0.13	2.28
NO (outbound)	0.08	2.28
OP (outbound)	0.13	2.28
PM (outbound)	0.06	2.28

CALINE INPUT					2035	
Link	x1	y1	x2	y2	Rate (g/mi)	Traffic (vph)
AB (inbound)	7898.57	6264.19	8035.43	6261.86	0.796	383
BC (inbound)	8035.43	6261.86	8033.65	6197.04	0.796	383
CD (inbound)	8033.65	6197.04	7896.95	6178.72	0.796	383
DA (inbound)	7896.95	6178.72	7898.57	6264.19	0.796	383
EF (inbound)	7824.91	6115.04	8029.57	6134.40	0.796	767
FG (inbound)	8029.57	6134.40	8026.55	6011.69	0.796	767
GH (inbound)	8026.55	6011.69	7822.58	6015.55	0.796	767
HE (inbound)	7822.58	6015.55	7824.91	6115.04	0.796	767
IJ (outbound)	7902.07	6260.69	8031.93	6258.56	2.308	383
JK (outbound)	8031.93	6258.56	8030.15	6200.54	2.308	383
KL (outbound)	8030.15	6200.54	7900.45	6182.22	2.308	383
LI (outbound)	7900.45	6182.22	7902.07	6260.69	2.308	383
MN (outbound)	7828.41	6111.94	8026.07	6130.90	2.280	767
NO (outbound)	8026.07	6130.90	8023.05	6014.19	2.280	767
OP (outbound)	8023.05	6014.19	7826.08	6019.05	2.280	767
PM (outbound)	7826.08	6019.05	7828.41	6111.94	2.280	767

Note: UTM x axis (removed first two digits 31), UTM y axis(removed first 3 digits 391)
Link Type: pk, Height: 0 , Mix Zone: 10

CALINE INPUT

Receptor	x1	y1
1	7894.56	6269.32
2	7970.4	6268.61
3	8039.32	6267.68
4	8041.79	6234.90
5	8039.32	6195.17
6	7970.80	6181.86
7	7891.36	6173.91
8	7890.93	6216.08
9	7818.37	6114.97
10	7932.96	6133.42
11	8037.11	6138.10
12	8032.92	6063.19
13	8033.06	6008.47
14	7942.70	6005.91
15	7816.34	6010.42
16	7817.70	6059.86

Run
BKF North 2035
Worst Case Wind Angle
Central Bussines District
Evening
0.5 m/s , stdev 5, G, ambient 7.777 C

Parking Lot Emission Factors (Bakersfield South Option)

Running Exhaust Emission Factors (EF)

Speed (mph)	Emissions (g/mile) 2035
10	0.796

Source: EMFAC 2007 run for Kern Co. (SJV) Winter 2035 (41 F, 33%)

Start-Up Emission Factors

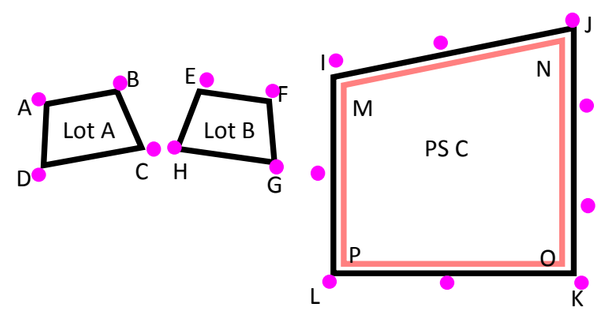
Rest Time (Hrs)	(g/trip) 2035
3	1.325
12	1.877

Source: EMFAC 2007 run for Kern Co. (SJV) Winter 2035 (41 F, 33%)

Parking Capacity:	4500	spaces
Each Level Capacity:	750	spaces/level
Short Term Lot:	90	spaces/ lot
	2	Short term Lot

Assumptions:

Emfac 2007: Kern Co. Winter 2035 (41 F, 33%)
Assumed max speed of 10 mph within parking lot
Assumed 50% LDA and 50% LDT1
Assumed vehicles had been in the parking lot for 12 hours (cold start)
Assumed vehicles had been in the short term parking lot for 3 hours (hot start)



Since the cold start emissions segment was included with the running emissions in the CALINE4 model, it had to be converted to a gram per mile factor. A corrected running emission factor was calculated to account for the running exhaust emissions and the slug of emissions released during cold start-up. The conversion of the slug start-up emission factors for outbound link from grams per trip to grams per mile were calculated using eq. 6-20 of the CALINE4- A Dispersion Model For Predicting Air Pollutant Concentrations Near Roadways guidance (Nov 1984) as presented below. Inbound link activities used the stabilized hot running emission factor as generated by EMFAC 2007 model for the specific scenario.

For Caline4 CO modeling, acess activity data is based on California High-Speed Train Project Technical Memorandum: Station Parking Area Guidance (PB. May 13, 2010). Worst case hourly assumptions assumed the average daily vehicles arriving to park (total inbound) and equal number of vehicles leaving the parking lot after at least 12 hours of parking period (total outbound) as link activities for the parking structure in the Caline4 modeling. Additional activities from the short term parking lots (A and B) was modeled assuming the maximum capacity of each lot, and all vehicles are traveling outbound with hot start (3 hours of parking period).

$$EFL = \frac{1}{LL_T} * \left[(E_{tr} * f_e) + (EF_{hot} * SPD * t_e) \right] , \qquad (6\text{-}20)$$

Where:

		Short Term Parking Lot	Parking Structure C
EFL :	Emission Factor in the Lot (grams/vehicle mile)		
LL_T :	Average distance traveled within the parking lot (mile)	0.070	0.206
E_{tr} :	Transient emission mass (grams/veh start)		
f_e :	Fraction of excess transient emission	0.058	0.162
EF_{hot} :	Hot stabilized emission rate at SPD		
SPD :	Average vehicle speed in the lot (mph), assumed 10 mph.	10	10
t_e :	Average egress time (hr). Assumed average time elapsed to reach the average distance within the parking lot (LL_T/SPD)	0.007	0.021

$f_e = f_r^3 - 3f_r^2 + 3f_r$ $\qquad f_r = r/R$.	Parking Structure A	Parking Structure A
f_r : Fraction of transient cycle completed	0.020	0.057
R : Total distance travelled during transient cycle. Assumed 3.59 miles (FTP-75)	3.59	3.59
r : Trip length to a certain destination. In this case, equals to LL_T	0.070	0.206

Calculation for EF with Cold Start

Location	Emission Factor in the Lot for Outbound Vehicle (g/mile)
	2035
Short Term Lot A&B	1.882
Parking Structure C	2.276

Ridership Data for Caline4 Model

Location	Worst Case Access Activity (Vehile/hour)
	2035
Total Inbound*	2,300
Total Outound	2,300
STL A Outbound	90
STL B Outbound	90
PS. C Inbound	2,300
PS. C Outbound	2,300

* Total inbound access data was provided as number of vehicle arriving to park in the Station Parking Area Guidance (PB. May 13, 2010). Worst case hourly assumptions assumed the average daily vehicles arriving to park (total inbound) and equal number of vehicles leaving the parking lot after at least 12 hours of parking period (total outbound) as link activities for Caline4 modeling.

Links	Distance (Miles)	2035 Corrected Running EF (grams/mile)
AB (outbound)	0.03	1.882
BC (outbound)	0.03	1.882
CD (outbound)	0.04	1.882
DA (outbound)	0.03	1.882
EF (outbound)	0.03	1.882
FG (outbound)	0.03	1.882
GH (outbound)	0.04	1.882
HE (outbound)	0.03	1.882
IJ (inbound)	0.10	0.80
JK (inbound)	0.11	0.80
KL (inbound)	0.10	0.80
LI (inbound)	0.10	0.80
MN (outbound)	0.10	2.276
NO (outbound)	0.11	2.276
OP (outbound)	0.10	2.276
PM (outbound)	0.10	2.276

CALINE INPUT					2035	
Link	x1	y1	x2	y2	Rate (g/mi)	Traffic (vph)
AB (outbound)	7679.80	6098.34	7732.60	6114.19	1.882	45
BC (outbound)	7732.60	6114.19	7746.26	6068.20	1.882	45
CD (outbound)	7746.26	6068.20	7677.32	6049.04	1.882	45
DA (outbound)	7677.32	6049.04	7679.80	6098.34	1.882	45
EF (outbound)	7797.42	6114.63	7852.34	6099.01	1.882	45
FG (outbound)	7852.34	6099.01	7846.33	6044.88	1.882	45
GH (outbound)	7846.33	6044.88	7782.56	6066.04	1.882	45
HE (outbound)	7782.56	6066.04	7797.42	6114.63	1.882	45
IJ (inbound)	7874.20	6156.70	8034.28	6177.20	0.796	1150
JK (inbound)	8034.28	6177.20	8031.56	5994.43	0.796	1150
KL (inbound)	8031.56	5994.43	7872.14	5995.49	0.796	1150
LI (inbound)	7872.14	5995.49	7874.20	6156.70	0.796	1150
MN (outbound)	7878.70	6153.20	8030.78	6173.70	2.276	1150
NO (outbound)	8030.78	6173.70	8027.96	5997.93	2.276	1150
OP (outbound)	8027.96	5997.93	7875.64	5998.99	2.276	1150
PM (outbound)	7875.64	5998.99	7878.70	6153.20	2.276	1150

Note: UTM x axis (removed first two digits 37), UTM y axis(removed first 3 digits 391)
Link Type: pk, Height: 0 , Mix Zone: 10

CALINE INPUT

Receptor	x1	y1
1	7673.25	6107.89
2	7741.81	6119.64
3	7681.17	6042.33
4	7752.78	6057.30
5	7788.76	6115.95
6	7857.70	6091.60
7	7846.50	6039.99
8	7775.14	6058.86
9	7871.06	6159.15
10	7954.09	6172.88
11	8039.84	6182.24
12	8039.95	6116.52
13	8037.86	6051.78
14	8034.09	5990.39
15	7950.37	5989.36
16	7870.95	5990.36
17	7864.92	6058.41

Run

BKF South 2035
Worst Case Wind Angle
Central Bussines District
Evening
0.5 m/s , stdev 5, G, ambient 7.777 C

Parking Lot Emission Factors (BakersfieldHybrid Option)

Running Exhaust Emission Factors (EF)

Speed (mph)	Emissions (g/mile) 2035
10	0.796

Source: EMFAC 2007 run for Kern Co. (SJV) Winter 2035 (41 F, 33%)

Start-Up Emission Factors

Rest Time (Hrs)	(g/trip) 2035
12	1.877

Source: EMFAC 2007 run for Kern Co. (SJV) Winter 2035 (41 F, 33%)

Parking Lot A
Parking Capacity: 75 spaces
0.8 acres

Parking Structure B
Parking Capacity: 1,750 spaces
250 spaces/level
7 Levels
1.8 acres

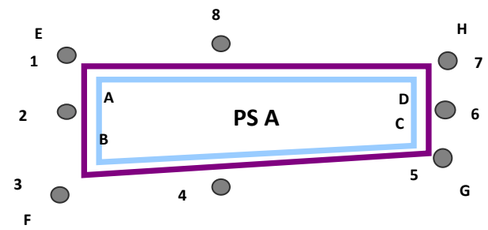
Parking Lot C
Parking Capacity: 185 spaces
1.5 acres

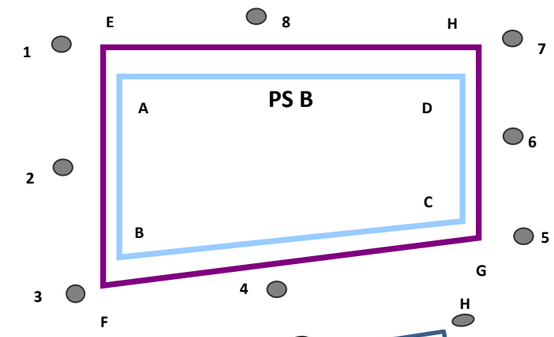
Parking Lot D
Parking Capacity: 90 spaces
0.8 acres

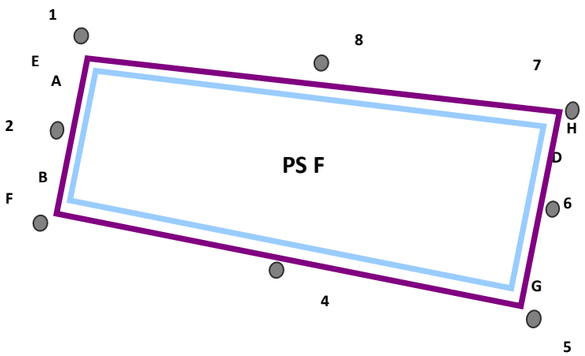
Parking Lot E
Parking Capacity: 110 spaces
1.3 acres

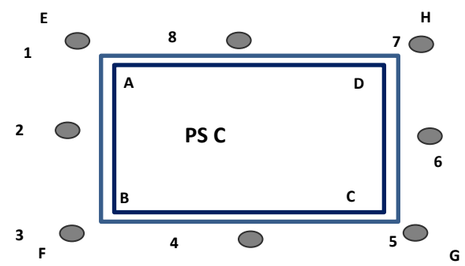
Assumptions:

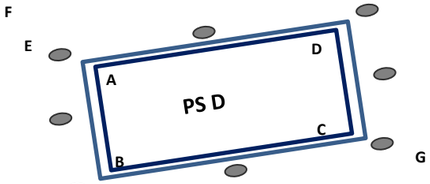
Emfac 2007: Kern Co. (SJV) Winter 2035 (41 F, 33%)
Assumed max speed of 10 mph within parking lot
Assumed 50% LDA and 50% LDT1
Assumed vehicles had been in the parking lot for 12 hours (cold start)
Assumed vehicles had been in the short term parking lot for 3 hours (hot start)

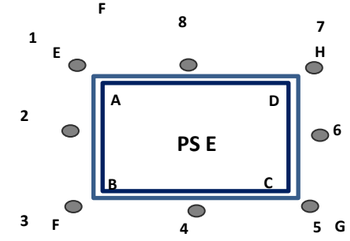


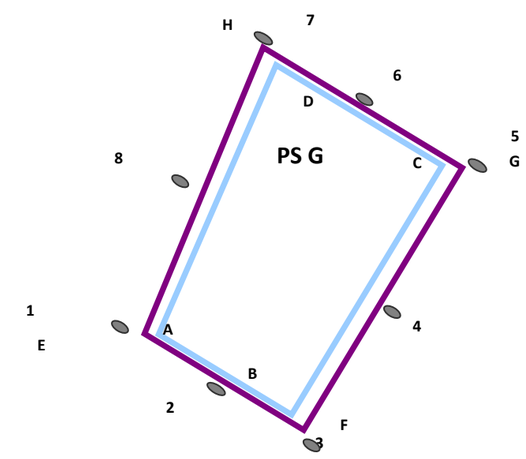












Parking Structure F

Parking Capacity:	1,315	spaces
	188	spaces/level
	7	Levels
	1.3	acres

Parking Structure G

Parking Capacity:	1,435	spaces
	205	spaces/level
	7	Levels
	1.4	acres

Since the cold start emissions segment was included with the running emissions in the CALINE4 model, it had to be converted to a gram per mile factor. A corrected running emission factor was calculated to account for the running exhaust emissions and the slug of emissions released during cold start-up. The conversion of the slug start-up emission factors for outbound link from grams per trip to grams per mile were calculated using eq. 6-20 of the CALINE4- A Dispersion Model For Predicting Air Pollutant Concentrations Near Roadways guidance (Nov 1984) as presented below. Inbound link activities used the stabilized hot running emission factor as generated by EMFAC 2007 model for the specific scenario.

For Caline4 CO modeling, acess activity data is based on California High-Speed Train Project Technical Memorandum: Station Parking Area Guidance (PB. May 13, 2010). Worst case hourly assumptions assumed the average daily vehicles arriving to park (total inbound) and equal number of vehicles leaving the parking lot after at least 12 hours of parking period (total outbound) as link activities for Caline4 modeling. The allocation of activities is based on the parking structure capacity (note that the capacity of Parking Structure B is twice Parking Structure A).

$$EFL = \frac{1}{LL_T} * \left[(E_{tr} * f_e) + (EF_{hot} * SPD * t_e) \right] , \qquad (6\text{-}20)$$

Where:

	Parking Lot A	Parking Structure B	Parking Lot C	Parking Lot D	Parking Lot E	Parking Structure F	Parking Structure G
EFL : Emission Factor in the Lot (grams/vehicle mile)							
LL_T : Average distance traveled within the parking lot (mile)	0.062	0.102	0.092	0.048	0.075	0.093	0.091
E_{tr} : Transient emission mass (grams/veh start)							
f_e : Fraction of excess transient emission	0.051	0.083	0.075	0.040	0.061	0.075	0.074
EF_{hot} : Hot stabilized emission rate at SPD							
SPD : Average vehicle speed in the lot (mph), assumed 10 mph.	10	10	10	10	10	10	10
t_e : Average egress time (hr). Assumed average time elapsed to reach the average distance within the parking lot (LL_T/SPD)	0.006	0.010	0.009	0.005	0.008	0.009	0.009

$f_e = f_r^3 - 3f_r^2 + 3f_r$ $\qquad f_r = r/R$.	Parking Lot A	Parking Structure B	Parking Lot C	Parking Lot D	Parking Lot E	Parking Structure F	Parking Structure G
f_r : Fraction of transient cycle completed	0.017	0.028	0.026	0.013	0.021	0.026	0.025
R : Total distance travelled during transient cycle. Assumed 3.59 miles (FTP-75)	3.59	3.59	3.59	3.59	3.59	3.59	3.59
r : Trip length to a certain destination. In this case, equals to LL_T	0.062	0.102	0.092	0.048	0.075	0.093	0.091

Calculation for EF with Cold Start

Location	Emission Factor in the Lot for Outbound Vehicle (g/mile)
	2035
Parking Structure A	2.338
Parking Structure B	2.320
Parking Structure C	2.325
Parking Structure D	2.344
Parking Structure E	2.332
Parking Structure F	2.324
Parking Structure G	2.325

Ridership Data for Caline4 Model

Location	Worst Case Access Activity (Vehile/hour)
	2035
Total Inbound*	2,300
Total Outbound	2,300
PL A Inbound	35
PL A Outbound	35
PS. B Inbound	811
PS. B Outbound	811
PL C Inbound	86
PL C Outbound	86
PL D Inbound	42
PL D Outbound	42
PL E Inbound	51
PL E Outbound	51
PS F Inbound	610
PS F Outbound	610
PS G Inbound	665
PS G Outbound	665

* Total inbound access data was provided as number of vehicle arriving to park in the Station Parking Area Guidance (PB. May 13, 2010). Worst case hourly assumptions assumed the average daily vehicles arriving to park (total inbound) and equal number of vehicles leaving the parking lot after at least 12 hours of parking period (total outbound) as link activities for Caline4 modeling.

Table C-7.5
Bakersfield Hybrid Option Parking Lot CALINE Inputs

Links	Distance (Miles)	2035 Corrected Running EF (grams/mile)
Parking Lot A		
AB (inbound)	0.03	0.796
BC (inbound)	0.04	0.796
CD (inbound)	0.02	0.796
DA (inbound)	0.04	0.796
EF (outbound)	0.03	2.34
FG (outbound)	0.04	2.34
GH (outbound)	0.02	2.34
HE (outbound)	0.04	2.34
Parking Lot B		
AB (inbound)	0.04	0.796
BC (inbound)	0.06	0.796
CD (inbound)	0.03	0.796
DA (inbound)	0.06	0.796
EF (outbound)	0.04	2.32
FG (outbound)	0.06	2.32
GH (outbound)	0.03	2.32
HE (outbound)	0.06	2.32
Parking Lot C		
AB (inbound)	0.04	0.796
BC (inbound)	0.06	0.796
CD (inbound)	0.04	0.796
DA (inbound)	0.06	0.796
EF (outbound)	0.04	2.32
FG (outbound)	0.06	2.32
GH (outbound)	0.04	2.32
HE (outbound)	0.06	2.32
Parking Lot D		
AB (inbound)	0.01	0.796
BC (inbound)	0.04	0.796
CD (inbound)	0.01	0.796
DA (inbound)	0.04	0.796
EF (outbound)	0.01	2.34
FG (outbound)	0.04	2.34
GH (outbound)	0.01	2.34
HE (outbound)	0.04	2.34

Parking Lot E		
AB (inbound)	0.04	0.796
BC (inbound)	0.04	0.796
CD (inbound)	0.04	0.796
DA (inbound)	0.04	0.796
EF (outbound)	0.04	2.33
FG (outbound)	0.04	2.33
GH (outbound)	0.04	2.33
HE (outbound)	0.04	2.33
Parking Lot F		
AB (inbound)	0.02	0.796
BC (inbound)	0.06	0.796
CD (inbound)	0.04	0.796
DA (inbound)	0.07	0.796
EF (outbound)	0.02	2.32
FG (outbound)	0.06	2.32
GH (outbound)	0.04	2.32
HE (outbound)	0.07	2.32
Parking Lot G		
AB (inbound)	0.05	0.796
BC (inbound)	0.03	0.796
CD (inbound)	0.05	0.796
DA (inbound)	0.05	0.796
EF (outbound)	0.05	2.33
FG (outbound)	0.03	2.33
GH (outbound)	0.05	2.33
HE (outbound)	0.05	2.33

CALINE INPUT					**2035**	
Link	**x1**	**y1**	**x2**	**y2**	**Rate (g/mi)**	**Traffic (vph)**
Parking Lot A						
AB (inbound)	5384.56	5147.76	5406.16	5103.09	0.796	17
BC (inbound)	5406.16	5103.09	5468.00	5138.38	0.796	17
CD (inbound)	5468.00	5138.38	5447.89	5178.28	0.796	17
DA (inbound)	5447.89	5178.28	5384.56	5147.76	0.796	17
EF (outbound)	5388.67	5146.84	5407.85	5106.63	2.338	17
FG (outbound)	5407.85	5106.63	5464.27	5139.46	2.338	17
GH (outbound)	5464.27	5139.46	5446.28	5175.40	2.338	17
HE (outbound)	5446.28	5175.40	5388.67	5146.84	2.338	17

Parking Lot B						
AB (inbound)	5531.54	5270.55	5565.29	5197.91	0.796	406
BC (inbound)	5565.29	5197.91	5666.88	5263.03	0.796	406
CD (inbound)	5666.88	5263.03	5639.99	5322.66	0.796	406
DA (inbound)	5639.99	5322.66	5531.54	5270.55	0.796	406
EF (outbound)	5533.64	5269.84	5565.56	5201.79	2.320	406
FG (outbound)	5565.56	5201.79	5663.82	5263.42	2.320	406
GH (outbound)	5663.82	5263.42	5639.09	5320.36	2.320	406
HE (outbound)	5639.09	5320.36	5533.64	5269.84	2.320	406
Parking Lot C						
AB (inbound)	5461.84	4999.86	5491.51	4936.18	0.796	43
BC (inbound)	5491.51	4936.18	5582.96	4980.61	0.796	43
CD (inbound)	5582.96	4980.61	5552.68	5046.02	0.796	43
DA (inbound)	5552.68	5046.02	5461.84	4999.86	0.796	43
EF (outbound)	5466.63	4998.48	5492.36	4941.96	2.325	43
FG (outbound)	5492.36	4941.96	5576.98	4982.45	2.325	43
GH (outbound)	5576.98	4982.45	5551.47	5042.35	2.325	43
HE (outbound)	5551.47	5042.35	5466.63	4998.48	2.325	43
Parking Lot D						
AB (inbound)	5655.68	5139.59	5672.59	5119.25	0.796	21
BC (inbound)	5672.59	5119.25	5728.63	5154.70	0.796	21
CD (inbound)	5728.63	5154.70	5711.52	5177.14	0.796	21
DA (inbound)	5711.52	5177.14	5655.68	5139.59	0.796	21
EF (outbound)	5658.08	5138.83	5673.38	5122.30	2.344	21
FG (outbound)	5673.38	5122.30	5724.97	5154.28	2.344	21
GH (outbound)	5724.97	5154.28	5711.56	5173.17	2.344	21
HE (outbound)	5711.56	5173.17	5658.08	5138.83	2.344	21
Parking Lot E						
AB (inbound)	5661.00	5094.29	5693.95	5033.75	0.796	26
BC (inbound)	5693.95	5033.75	5763.40	5067.68	0.796	26
CD (inbound)	5763.40	5067.68	5730.81	5130.36	0.796	26
DA (inbound)	5730.81	5130.36	5661.00	5094.29	0.796	26
EF (outbound)	5666.67	5092.99	5695.56	5039.22	2.332	26
FG (outbound)	5695.56	5039.22	5757.06	5068.90	2.332	26
GH (outbound)	5757.06	5068.90	5728.33	5124.83	2.332	26
HE (outbound)	5728.33	5124.83	5666.67	5092.99	2.332	26

Parking Lot F						
AB (inbound)	5758.48	5202.59	5774.63	5171.19	0.796	305
BC (inbound)	5774.63	5171.19	5879.68	5193.69	0.796	305
CD (inbound)	5879.68	5193.69	5872.04	5275.26	0.796	305
DA (inbound)	5872.04	5275.26	5758.48	5202.59	0.796	305
EF (outbound)	5762.82	5201.61	5777.17	5175.78	2.324	305
FG (outbound)	5777.17	5175.78	5873.43	5197.21	2.324	305
GH (outbound)	5873.43	5197.21	5869.24	5269.01	2.324	305
HE (outbound)	5869.24	5269.01	5762.82	5201.61	2.324	305
Parking Lot G						
AB (inbound)	5788.95	5144.82	5830.96	5055.61	0.796	333
BC (inbound)	5830.96	5055.61	5889.66	5067.13	0.796	333
CD (inbound)	5889.66	5067.13	5879.72	5163.44	0.796	333
DA (inbound)	5879.72	5163.44	5788.95	5144.82	0.796	333
EF (outbound)	5793.42	5143.06	5833.65	5059.59	2.325	333
FG (outbound)	5833.65	5059.59	5885.21	5071.13	2.325	333
GH (outbound)	5885.21	5071.13	5876.76	5160.06	2.325	333
HE (outbound)	5876.76	5160.06	5793.42	5143.06	2.325	333

Note: UTM x axis (removed first two digits 42), UTM y axis(removed first 3 digits 474)
Link Type: pk, Height: 0 , Mix Zone: 10

CALINE INPUT

Receptor	x1	y1
Parking Lot A		
1	5381.88	5149.10
2	5391.98	5123.76
3	5405.08	5100.07
4	5440.80	5118.56
5	5471.50	5136.70
6	5461.30	5160.09
7	5449.21	5181.63
8	5416.45	5166.75
Parking Lot B		
1	5528.61	5271.54
2	5544.50	5233.44
3	5563.46	5194.74
4	5618.76	5227.99
5	5670.56	5261.09
6	5658.00	5295.52
7	5642.53	5326.19
8	5585.37	5300.65
Parking Lot C		
1	5457.86	4999.82
2	5470.77	4967.50
3	5488.81	4931.70
4	5542.34	4955.14
5	5587.11	4978.75
6	5572.46	5014.77
7	5555.82	5050.79
8	5504.61	5026.93

Parking Lot D		
1	5652.56	5139.96
2	5662.69	5126.95
3	5671.49	5116.73
4	5704.21	5135.81
5	5731.86	5153.64
6	5722.32	5167.83
7	5713.06	5180.44
8	5682.19	5160.79
Parking Lot E		
1	5656.77	5094.31
2	5673.39	5061.80
3	5692.77	5029.57
4	5732.68	5048.74
5	5768.63	5066.32
6	5750.47	5102.39
7	5731.87	5134.97
8	5696.32	5117.43
Parking Lot F		
1	5755.78	5202.75
2	5764.56	5185.04
3	5773.79	5168.64
4	5828.21	5178.34
5	5882.76	5190.50
6	5881.33	5234.20
7	5876.22	5278.97
8	5811.78	5241.75
Parking Lot G		
1	5784.90	5146.80
2	5805.78	5100.60
3	5827.43	5053.46
4	5859.20	5057.74
5	5891.38	5064.17
6	5889.62	5117.14
7	5882.64	5166.08
8	5836.07	5161.14

Worst Case Wind Angle
Central Bussines District
Evening
0.5 m/s , stdev 5, G, ambient 7.777 C

Parking Lot Emission Factors (Kings Tulare Regional Option)

Running Exhaust Emission Factors (EF)

Speed (mph)	Emissions (g/mile) 2035
10	0.8935

Source: EMFAC 2007 run for Kern Co. (SJV) Winter 2035 (41 F, 33%)

Start-Up Emission Factors

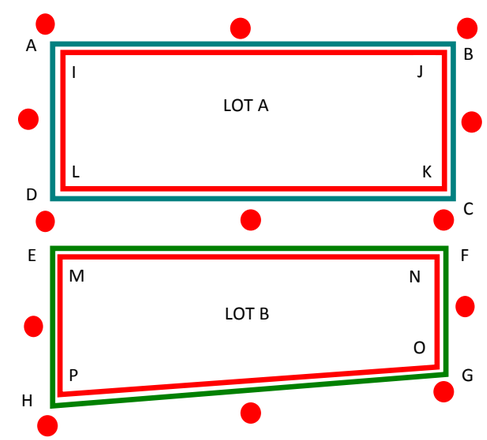
Rest Time (Hrs)	(g/trip) 2035
12	2.135

Source: EMFAC 2007 run for Kern Co. (SJV) Winter 2035 (41 F, 33%)

Parking Capacity:	1601	spaces		
Each Lot Capacity:	800	spaces/lot		
Parking Lot length:	920	ft	280.4	Meter
Parking Lot Width:	345	ft (Lot A)	105.2	Meter
	250	ft (Lot B Short)	76.2	Meter
	405	ft (Lot B Long)	123.4	Meter
	975	ft (Lot B Diag)	297.2	Meter

Assumptions:

Emfac 2007: Kings Co. (SJV) Winter 2035 (35 F, 46%)
Assumed max speed of 10 mph within parking lot
Assumed 50% LDA and 50% LDT1
Assumed vehicles had been in the parking lot for 12 hours (cold start)



Since the cold start emissions segment was included with the running emissions in the CALINE4 model, it had to be converted to a gram per mile factor. A corrected running emission factor was calculated to account for the running exhaust emissions and the slug of emissions released during cold start-up. The conversion of the slug start-up emission factors for outbound link from grams per trip to grams per mile were calculated using eq. 6-20 of the CALINE4- A Dispersion Model For Predicting Air Pollutant Concentrations Near Roadways guidance (Nov 1984) as presented below. Inbound link activities used the stabilized hot running emission factor as generated by EMFAC 2007 model for the specific scenario.

For Caline4 CO modeling, access activity data is based on CFor Caline4 CO modeling, acess activity data is based on California High-Speed Train Project Technical Memorandum: Station Parking Area Guidance Rev 4 (May 10, 2010) Table A-5 Highest Station Boardings and Access Activity for New Stations - 2035, 2030, and 2025. Worst case hourly assumptions assumed the average daily vehicles arriving to park (total inbound) and equal number of vehicles leaving the parking lot after at least 12 hours of parking period (total outbound) as link activities for Caline4 modeling. The allocation of activities is assumed equal between the two parking lots.

$$EFL = \frac{1}{LL_T} * \left[(E_{tr} * f_e) + (EF_{hot} * SPD * t_e) \right] , \qquad (6\text{-}20)$$

Where:

		Parking Lot A	Parking Lot B
EFL :	Emission Factor in the Lot (grams/vehicle mile)		
LL_T :	Average distance traveled within the parking lot (mile)	0.239	0.246
E_{tr} :	Transient emission mass (grams/veh start)		
f_e :	Fraction of excess transient emission	0.187	0.192
EF_{hot} :	Hot stabilized emission rate at SPD		
SPD :	Average vehicle speed in the lot (mph), assumed 10 mph.	10	10
t_e :	Average egress time (hr). Assumed average time elapsed to reach the average distance within the parking lot (LL_T/SPD)	0.024	0.025

$f_e = f_r^3 - 3f_r^2 + 3f_r$ $\qquad f_r = r/R$.	Parking Structure A	Parking Structure B
f_r : Fraction of transient cycle completed	0.067	0.069
R : Total distance travelled during transient cycle. Assumed 3.59 miles (FTP-75)	3.59	3.59
r : Trip length to a certain destination. In this case, equals to LL_T	0.239	0.246

Calculation for EF with Cold Start

Location	Emission Factor in the Lot for Outbound Vehicle (g/mile)
	2035
Parking Structure A	2.561
Parking Structure B	2.558

Ridership Data for Caline4 Model

Location	Worst Case Access Activity (Vehile/hour)
	2035
Total Inbound*	800
Total Outound	800
PL. A Inbound	400
PL. A Outbound	400
PL. B Inbound	400
PL. B Outbound	400

* Total inbound access data was provided as number of vehicle arriving to park in the Station Parking Area Guidance (PB. May 13, 2010). Worst case hourly assumptions assumed the average daily vehicles arriving to park (total inbound) and equal number of vehicles leaving the parking lot after at least 12 hours of parking period (total outbound) as link activities for Caline4 modeling.

Links	Distance (Miles)	2035 Corrected Running EF (grams/mile)
AB (inbound)	0.17	0.894
BC (inbound)	0.07	0.894
CD (inbound)	0.17	0.894
DA (inbound)	0.07	0.894
EF (inbound)	0.18	0.894
FG (inbound)	0.05	0.894
GH (inbound)	0.18	0.894
HE (inbound)	0.08	0.894
IJ (outbound)	0.17	2.56
JK (outbound)	0.07	2.56
KL (outbound)	0.17	2.56
LI (outbound)	0.07	2.56
MN (outbound)	0.18	2.56
NO (outbound)	0.05	2.56
OP (outbound)	0.18	2.56
PM (outbound)	0.08	2.56

CALINE INPUT					2035	
Link	x1	y1	x2	y2	Rate (g/mi)	Traffic (vph)
AB (inbound)	6778.42	4253.24	7047.51	4246.06	0.894	200
BC (inbound)	7047.51	4246.06	7045.61	4145.12	0.894	200
CD (inbound)	7045.61	4145.12	6777.22	4150.76	0.894	200
DA (inbound)	6777.22	4150.76	6778.42	4253.24	0.894	200
EF (inbound)	6775.37	4111.32	7035.58	4103.98	0.894	200
FG (inbound)	7035.58	4103.98	7026.18	4028.77	0.894	200
GH (inbound)	7026.18	4028.77	6771.33	3990.69	0.894	200
HE (inbound)	6771.33	3990.69	6775.37	4111.32	0.894	200
IJ (outbound)	6782.42	4249.10	7043.50	4243.06	2.561	200
JK (outbound)	7043.50	4243.06	7041.61	4150.12	2.561	200
KL (outbound)	7041.61	4150.12	6781.22	4153.76	2.561	200
LI (outbound)	6781.22	4153.76	6782.42	4249.10	2.561	200
MN (outbound)	6778.99	4107.16	7032.01	4100.25	2.558	200
NO (outbound)	7032.01	4100.25	7022.58	4032.33	2.558	200
OP (outbound)	7022.58	4032.33	6774.99	3994.25	2.558	200
PM (outbound)	6774.99	3994.25	6778.99	4107.16	2.558	200

Note: UTM x axis (removed first two digits 26), UTM y axis(removed first 3 digits 402)
Link Type: pk, Height: 0 , Mix Zone: 10

CALINE INPUT

Receptor	x1	y1
1	6772.25	4269.65
2	6902.28	4264.66
3	7046.24	4256.54
4	6768.83	4201.27
5	7054.46	4195.48
6	6766.65	4133.62
7	6897.05	4127.42
8	7037.50	4122.57
9	67671.42	4051.84
10	7039.89	4065.82
11	6762.85	3978.53
12	6896.10	4000.39
13	7039.84	4016.41

Run
VTH 2035
Worst Case Wind Angle
Central Bussines District

Evening
0.5 m/s , stdev 5, G, ambient 10.55 C

Parking Lot Emission Factors (West Hanford At-Grade Option)

Running Exhaust Emission Factors (EF)

Speed (mph)	Emissions (g/mile) 2035
10	0.8935

Source: EMFAC 2007 run for Kings Co. (SJV) Winter 2035 (41 F, 33%)

Start-Up Emission Factors

Rest Time (Hrs)	Emissions (g/trip) 2035
12	2.135

Source: EMFAC 2007 run for Kings Co. (SJV) Winter 2035 (41 F, 33%)

Parking Structures 1 and 2

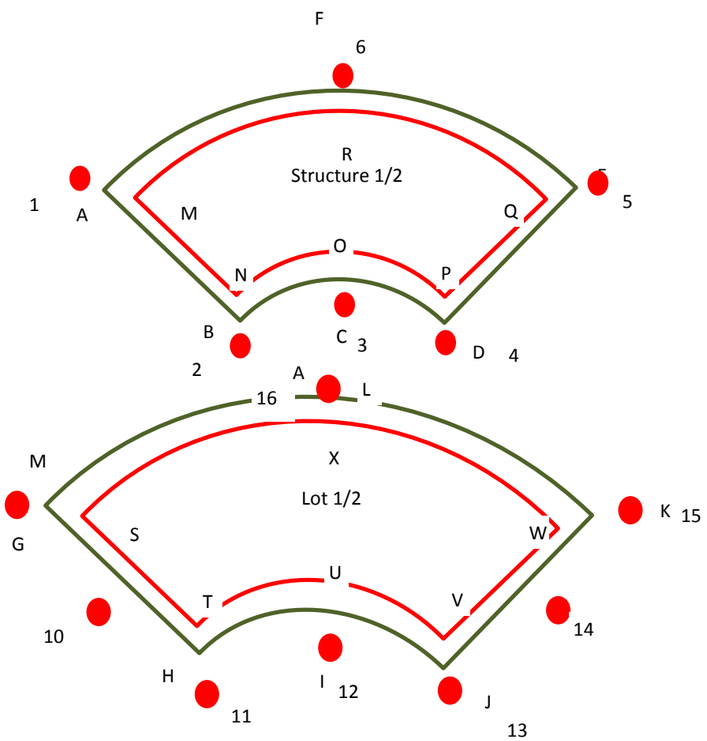
Parking Capacity:	1050 spaces		
	263 spaces/level		
	4 Levels		
	180 feet	A-B	54.9 Meter
	160 feet	B-C	48.8 Meter
	245 feet	F-A	74.7 Meter

Parking Surface Lot 1 and 2

Parking Capacity:	700 spaces		
	350 spaces/lot		
	300 feet	G-H	91.4 Meter
	180 feet	H-I	54.9 Meter
	395 feet	K-L	120.4 Meter

Assumptions:

Emfac 2007: Kings Co. (SJV) Winter 2035 (35 F, 46%)
Assumed max speed of 10 mph within parking lot
Assumed 50% LDA and 50% LDT1
Assumed vehicles had been in the parking lot for 12 hours (cold start)



Since the cold start emissions segment was included with the running emissions in the CALINE4 model, it had to be converted to a gram per mile factor. A corrected running emission factor was calculated to account for the running exhaust emissions and the slug of emissions released during cold start-up. The conversion of the slug start-up emission factors for outbound link from grams per trip to grams per mile were calculated using eq. 6-20 of the CALINE4- A Dispersion Model For Predicting Air Pollutant Concentrations Near Roadways guidance (Nov 1984) as presented below. Inbound link activities used the stabilized hot running emission factor as generated by EMFAC 2007 model for the specific scenario.

For Caline4 CO modeling, access activity data is based on CFor Caline4 CO modeling, acess activity data is based on California High-Speed Train Project Technical Memorandum: Station Parking Area Guidance Rev 4 (May 10, 2010) Table A-5 Highest Station Boardings and Access Activity for New Stations - 2035, 2030, and 2025. Worst case hourly assumptions assumed the average daily vehicles arriving to park (total inbound) and equal number of vehicles leaving the parking lot after at least 12 hours of parking period (total outbound) as link activities for Caline4 modeling. The allocation of activities is assumed equal between the two parking lots.

$$EFL = \frac{1}{LL_T} * \left[(E_{tr} * f_e) + (EF_{hot} * SPD * t_e) \right] , \qquad (6\text{-}20)$$

Where:

		Parking Structure 1/2	Parking Lot 1/2
EFL :	Emission Factor in the Lot (grams/vehicle mile)		
LL_T :	Average distance traveled within the parking lot (mile)	0.076	0.110
E_{tr} :	Transient emission mass (grams/veh start)		
f_e :	Fraction of excess transient emission	0.062	0.089
EF_{hot} :	Hot stabilized emission rate at SPD		
SPD :	Average vehicle speed in the lot (mph), assumed 10 mph.	10	10
t_e :	within the parking lot (LL_T/SPD)	0.008	0.011

$f_e = f_r^3 - 3f_r^2 + 3f_r$ $\qquad f_r = r/R$.		Parking Structures 1/2	Parking Lots 1/2
f_r :	Fraction of transient cycle completed	0.021	0.031
R :	Total distance travelled during transient cycle. Assumed 3.59 miles (FTP-75)	3.59	3.59
r :	Trip length to a certain destination. In this case, equals to LL_T	0.076	0.110

Calculation for EF with Cold Start

Location	Emission Factor in the Lot for Outbound Vehicle (g/mile)
	2035
Parking Structures 1/2	2.640
Parking Lot 1/2	2.623

Ridership Data for Caline4 Model

Location	Worst Case Access Activity (Vehile/hour) 2035
Total Inbound*	1,750
Total Outound	1,750
Structure Inbound	525
Structure Outbound	525
Lot Inbound	350
Lot Outbound	350

* Total inbound access data was provided as number of vehicle arriving to park in the Station Parking Area Guidance (PB. May 13, 2010). Worst case hourly assumptions assumed the average daily vehicles arriving to park (total inbound) and equal number of vehicles leaving the parking lot after at least 12 hours of parking period (total outbound) as link activities for Caline4 modeling.

Links	Distance (Miles)	2035 Corrected Running EF (grams/mile)
AB (inbound)	0.03	0.894
BC (inbound)	0.03	0.894
CD (inbound)	0.03	0.894
DE (inbound)	0.03	0.894
EF (inbound)	0.05	0.894
FA (inbound)	0.05	0.894
GH (inbound)	0.06	0.894
HI (inbound)	0.03	0.894
IJ (inbound)	0.03	0.894
JK (inbound)	0.06	0.894
KL (inbound)	0.07	0.894
LG (inbound)	0.07	0.894
MN (outbound)	0.03	2.64
NO (outbound)	0.03	2.64
OP (outbound)	0.03	2.64
PQ (outbound)	0.03	2.64
QR (outbound)	0.05	2.62
RM (outbound)	0.05	2.62
ST (outbound)	0.06	2.62
TU (outbound)	0.03	2.62
UV (outbound)	0.03	2.62
VW (outbound)	0.06	2.62
WX (outbound)	0.07	2.62
XS (outbound)	0.07	2.62

CALINE INPUT

Receptor	x1	y1
1	6914.94	4014.72
2	6861.33	4080.37
3	6789.15	4053.52
4	6714.03	4043.43
5	6695.55	3960.97
6	6806.56	3963.03
7	6595.05	4131.26
8	6660.49	4204.48
9	6637.27	4277.61
10	6658.28	4346.71
11	6575.81	4435.05
12	6506.27	4297.62

Run
VTH 2035
Worst Case Wind Angle
Central Bussines District
Evening
0.5 m/s , stdev 5, G, ambient 10.55 C

CALINE INPUT					2035	
Link	x1	y1	x2	y2	Rate (g/mi)	Traffic (vph)
AB (inbound)	6909.65	4012.71	6862.10	4070.34	0.894	263
BC (inbound)	6862.10	4070.34	6792.02	4043.41	0.894	263
CD (inbound)	6792.02	4043.41	6720.11	4037.19	0.894	263
DE (inbound)	6720.11	4037.19	6702.24	3964.07	0.894	263
EF (inbound)	6702.24	3964.07	6805.89	3968.43	0.894	263
FA (inbound)	6805.89	3968.43	6909.65	4012.71	0.894	263
GH (inbound)	6597.94	4134.78	6653.84	4203.02	0.894	175
HI (inbound)	6653.84	4203.02	6632.42	4272.47	0.894	175
IJ (inbound)	6632.42	4272.47	6654.79	4338.38	0.894	175
JK (inbound)	6654.79	4338.38	6580.80	4425.13	0.894	175
KL (inbound)	6580.80	4425.13	6517.14	4290.04	0.894	175
LG (inbound)	6517.14	4290.04	6597.94	4134.78	0.894	175
MN (outbound)	6909.65	4012.71	6862.10	4070.34	2.64	263
NO (outbound)	6862.10	4070.34	6792.02	4043.41	2.64	263
OP (outbound)	6792.02	4043.41	6720.11	4037.19	2.64	263
PQ (outbound)	6720.11	4037.19	6702.24	3964.07	2.64	263
QR (outbound)	6702.24	3964.07	6805.89	3968.43	2.64	263
RM (outbound)	6805.89	3968.43	6909.65	4012.71	2.64	263
ST (outbound)	6597.94	4134.78	6653.84	4203.02	2.623	175
TU (outbound)	6653.84	4203.02	6632.42	4272.47	2.623	175
UV (outbound)	6632.42	4272.47	6654.79	4338.38	2.623	175
VW (outbound)	6654.79	4338.38	6580.80	4425.13	2.623	175
WX (outbound)	6580.80	4425.13	6517.14	4290.04	2.623	175
XS (outbound)	6517.14	4290.04	6597.94	4134.78	2.623	175

Note: UTM x axis (removed first two digits 36), UTM y axis(removed first 3 digits -119)
Link Type: pk, Height: 0 , Mix Zone: 10

Parking Lot Emission Factors (West Hanford Below-Grade Option)

Running Exhaust Emission Factors (EF)

Speed (mph)	Emissions (g/mile) 2035
10	0.8935

Source: EMFAC 2007 run for Kings Co. (SJV) Winter 2035 (41 F, 33%)

Start-Up Emission Factors

Rest Time (Hrs)	Emissions (g/trip) 2035
12	2.135

Source: EMFAC 2007 run for Kings Co. (SJV) Winter 2035 (41 F, 33%)

Parking Structures 1 and 2

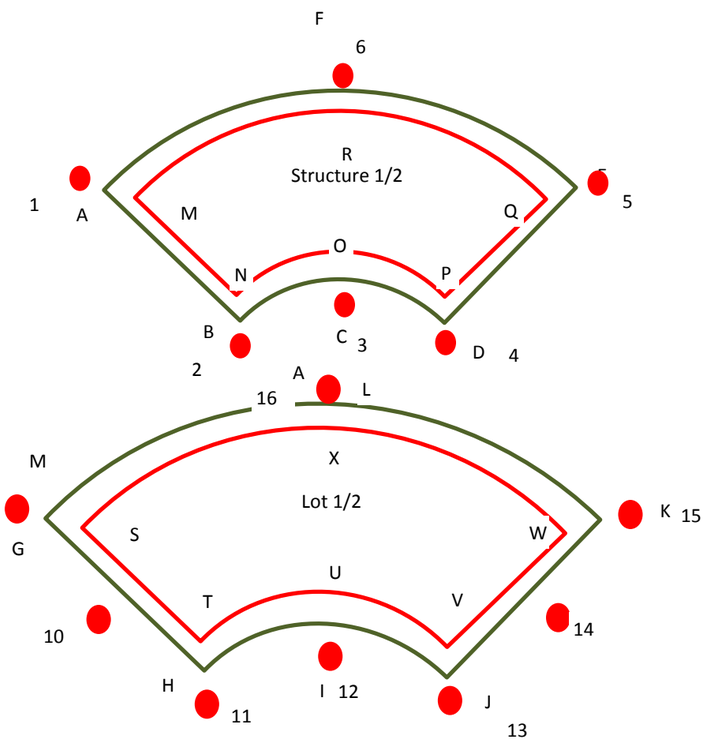
Parking Capacity:	1100 spaces		
	275 spaces/level		
	4 Levels		
	180 feet	A-B	54.9 Meter
	160 feet	B-C	48.8 Meter
	245 feet	F-A	74.7 Meter

Parking Surface Lot 1 and 2

Parking Capacity:	580 spaces		
	290 spaces/lot		
	300 feet	G-H	91.4 Meter
	180 feet	H-I	54.9 Meter
	395 feet	K-L	120.4 Meter

Assumptions:

Emfac 2007: Kings Co. (SJV) Winter 2035 (35 F, 46%)
Assumed max speed of 10 mph within parking lot
Assumed 50% LDA and 50% LDT1
Assumed vehicles had been in the parking lot for 12 hours (cold start)



Since the cold start emissions segment was included with the running emissions in the CALINE4 model, it had to be converted to a gram per mile factor. A corrected running emission factor was calculated to account for the running exhaust emissions and the slug of emissions released during cold start-up. The conversion of the slug start-up emission factors for outbound link from grams per trip to grams per mile were calculated using eq. 6-20 of the CALINE4- A Dispersion Model For Predicting Air Pollutant Concentrations Near Roadways guidance (Nov 1984) as presented below. Inbound link activities used the stabilized hot running emission factor as generated by EMFAC 2007 model for the specific scenario.
For Caline4 CO modeling, access activity data is based on CFor Caline4 CO modeling, acess activity data is based on California High-Speed Train Project Technical Memorandum: Station Parking Area Guidance Rev 4 (May 10, 2010) Table A-5 Highest Station Boardings and Access Activity for New Stations - 2035, 2030, and 2025. Worst case hourly assumptions assumed the average daily vehicles arriving

$$EFL = \frac{1}{LL_T} * \left[(E_{tr} * f_e) + (EF_{hot} * SPD * t_e) \right] , \qquad (6\text{-}20)$$

Where:

		Parking Structure 1/2	Parking Lot 1/2
EFL :	Emission Factor in the Lot (grams/vehicle mile)		
LL_T :	Average distance traveled within the parking lot (mile)	0.076	0.110
E_{tr} :	Transient emission mass (grams/veh start)		
f_e :	Fraction of excess transient emission	0.062	0.089
EF_{hot} :	Hot stabilized emission rate at SPD		
SPD :	Average vehicle speed in the lot (mph), assumed 10 mph.	10	10
t_e :	within the parking lot (LL_T/SPD)	0.008	0.011

$f_e = f_r^3 - 3f_r^2 + 3f_r$ $\qquad f_r = r/R$.	Parking Structures 1/2	Parking Lots 1/2
f_r : Fraction of transient cycle completed	0.021	0.031
R : Total distance travelled during transient cycle. Assumed 3.59 miles (FTP-75)	3.59	3.59
r : Trip length to a certain destination. In this case, equals to LL_T	0.076	0.110

Calculation for EF with Cold Start

Location	Emission Factor in the Lot for Outbound Vehicle (g/mile)
	2035
Parking Structures 1/2	2.640
Parking Lot 1/2	2.623

Ridership Data for Caline4 Model

Location	Worst Case Access Activity (Vehile/hour) 2035
Total Inbound*	1,680
Total Outound	1,680
Structure Inbound	550
Structure Outbound	550
Lot Inbound	290
Lot Outbound	290

* Total inbound access data was provided as number of vehicle arriving to park in the Station Parking Area Guidance (PB. May 13, 2010). Worst case hourly assumptions assumed the average daily vehicles arriving to park (total inbound) and equal number of vehicles leaving the parking lot after at least 12 hours of parking period (total outbound) as link activities for Caline4 modeling.

Links	Distance (Miles)	2035 Corrected Running EF (grams/mile)
AB (inbound)	0.03	0.894
BC (inbound)	0.03	0.894
CD (inbound)	0.03	0.894
DE (inbound)	0.03	0.894
EF (inbound)	0.05	0.894
FA (inbound)	0.05	0.894
GH (inbound)	0.06	0.894
HI (inbound)	0.03	0.894
IJ (inbound)	0.03	0.894
JK (inbound)	0.06	0.894
KL (inbound)	0.07	0.894
LG (inbound)	0.07	0.894
MN (outbound)	0.03	2.64
NO (outbound)	0.03	2.64
OP (outbound)	0.03	2.64
PQ (outbound)	0.03	2.64
QR (outbound)	0.05	2.62
RM (outbound)	0.05	2.62
ST (outbound)	0.06	2.62
TU (outbound)	0.03	2.62
UV (outbound)	0.03	2.62
VW (outbound)	0.06	2.62
WX (outbound)	0.07	2.62
XS (outbound)	0.07	2.62

CALINE INPUT

Receptor	x1	y1
1	6914.94	4014.72
2	6861.33	4080.37
3	6789.15	4053.52
4	6714.03	4043.43
5	6695.55	3960.97
6	6806.56	3963.03
7	6595.05	4131.26
8	6660.49	4204.48
9	6637.27	4277.61
10	6658.28	4346.71
11	6575.81	4435.05
12	6506.27	4297.62

Run
VTH 2035
Worst Case Wind Angle
Central Bussines District
Evening
0.5 m/s , stdev 5, G, ambient 10.55 C

CALINE INPUT					2035	
Link	x1	y1	x2	y2	Rate (g/mi)	Traffic (vph)
AB (inbound)	6909.65	4012.71	6862.10	4070.34	0.894	275
BC (inbound)	6862.10	4070.34	6792.02	4043.41	0.894	275
CD (inbound)	6792.02	4043.41	6720.11	4037.19	0.894	275
DE (inbound)	6720.11	4037.19	6702.24	3964.07	0.894	275
EF (inbound)	6702.24	3964.07	6805.89	3968.43	0.894	275
FA (inbound)	6805.89	3968.43	6909.65	4012.71	0.894	275
GH (inbound)	6597.94	4134.78	6653.84	4203.02	0.894	145
HI (inbound)	6653.84	4203.02	6632.42	4272.47	0.894	145
IJ (inbound)	6632.42	4272.47	6654.79	4338.38	0.894	145
JK (inbound)	6654.79	4338.38	6580.80	4425.13	0.894	145
KL (inbound)	6580.80	4425.13	6517.14	4290.04	0.894	145
LG (inbound)	6517.14	4290.04	6597.94	4134.78	0.894	145
MN (outbound)	6909.65	4012.71	6862.10	4070.34	2.64	275
NO (outbound)	6862.10	4070.34	6792.02	4043.41	2.64	275
OP (outbound)	6792.02	4043.41	6720.11	4037.19	2.64	275
PQ (outbound)	6720.11	4037.19	6702.24	3964.07	2.64	275
QR (outbound)	6702.24	3964.07	6805.89	3968.43	2.64	275
RM (outbound)	6805.89	3968.43	6909.65	4012.71	2.64	275
ST (outbound)	6597.94	4134.78	6653.84	4203.02	2.623	145
TU (outbound)	6653.84	4203.02	6632.42	4272.47	2.623	145
UV (outbound)	6632.42	4272.47	6654.79	4338.38	2.623	145
VW (outbound)	6654.79	4338.38	6580.80	4425.13	2.623	145
WX (outbound)	6580.80	4425.13	6517.14	4290.04	2.623	145
XS (outbound)	6517.14	4290.04	6597.94	4134.78	2.623	145

Note: UTM x axis (removed first two digits 36), UTM y axis(removed first 3 digits -119)
Link Type: pk, Height: 0 , Mix Zone: 10

Title : Fresno Parking 061410
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2010/06/14 10:46:45
Scen Year: 2025 -- All model years in the range 1981 to 2025 selected
Season : Winter
Area : Fresno
****
Year: Inclusive --
Emfac2007 Emission Factors: V2.3 Nov 1 2006
County Average

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Carbon Monoxide Temperature: 31F

Speed MPH	LDA ALL	LDT1 ALL
10	1.073	1.387

Title : Fresno Parking 061410
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2010/06/14 10:46:45
Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
Season : Winter
Area : Fresno
****
Year: Inclusive --
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Carbon Monoxide Temperature: 31F

Speed MPH	LDA ALL	LDT1 ALL
10	0.869	1.051

Title : Fresno Parking 061410
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2010/06/14 10:46:45
Scen Year: 2035 -- All model years in the range 1991 to 2035 selected
Season : Winter
Area : Fresno
****
Year: Inclusive --
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Carbon Monoxide Temperature: 31F

Speed	LDA	LDT1
MPH	ALL	ALL
10	0.764	0.862

Title : Fresno Parking 061410
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2010/06/14 10:46:45
Scen Year: 2035 -- All model years in the range 1991 to 2035 selected
Season : Winter
Area : Fresno
****

Title : BKF Parking 2025 2030 2035
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2010/06/10 12:28:04
Scen Year: 2025 -- All model years in the range 1981 to 2025 selected
Season : Winter
Area : Kern
****
Year: Inclusive --
Emfac2007 Emission Factors: V2.3 Nov 1 2006
County Average
Table 1: Running Exhaust Emissions (grams/mile)

Temperature: 41F
Pollutant Name: Carbon Monoxide

Speed MPH	LDA ALL	LDT1 ALL
10	1.044	1.384

Title : BKF Parking 2025 2030 2035
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2010/06/10 12:28:04
Scen Year: 2025 -- All model years in the range 1981 to 2025 selected
Season : Winter
Area : Kern
****
Year: Inclusive --
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average

Table 1: Running Exhaust Emissions (grams/mile)
Temperature: 41F
Pollutant Name: Carbon Monoxide

Speed MPH	LDA ALL	LDT1 ALL
10	0.85	1.033

Title : BKF Parking 2025 2030 2035
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2010/06/10 12:28:04
Scen Year: 2035 -- All model years in the range 1991 to 2035 selected
Season : Winter
Area : Kern
****
Year: Inclusive --
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average

Table 1: Running Exhaust Emissions (grams/mile)
Temperature: 41F
Pollutant Name: Carbon Monoxide

Speed	LDA	LDT1
MPH	ALL	ALL
10	0.749	0.843

Title : VTH Parking Lot 061110
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2010/06/11 12:51:42
Scen Year: 2025 -- All model years in the range 1981 to 2025 selected
Season : Winter
Area : Kings
****
Year: Inclusive --
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average

Table 1: Running Exhaust Emissions (grams/mile)
Temperature: 35F
Pollutant Name: Carbon Monoxide

Speed MPH	LDA ALL	LDT1 ALL
10	1.22	1.926

Title : VTH Parking Lot 061110
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2010/06/11 12:51:42
Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
Season : Winter
Area : Kings
****
Year: Inclusive --
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average

Table 1: Running Exhaust Emissions (grams/mile)
Temperature: 35F
Pollutant Name: Carbon Monoxide

Speed MPH	LDA ALL	LDT1 ALL
10	0.955	1.319

Title : VTH Parking Lot 061110
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2010/06/11 12:51:42
Scen Year: 2035 -- All model years in the range 1991 to 2035 selected
Season : Winter
Area : Kings
****
Year: Inclusive --
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average

Table 1: Running Exhaust Emissions (grams/mile)
Temperature: 35F
Pollutant Name: Carbon Monoxide

Speed	LDA	LDT1
MPH	ALL	ALL
10	0.821	0.966

Title : Fresno 2009 and 2035
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/05/10 06:41:25
Scen Year: 2009 -- All model years in the range 1965 to 2009 selected
Season : Winter
Area : Fresno
****
Year: 2009 -- Model Years 1965 to 2009 Inclusive -- Winter
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average Fresno County Average

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Carbon Monoxide Temperature: 31F Relative Humidity: 41%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	MH ALL	ALL NCAT	ALL CAT	ALL DSL	ALL ALL
27	97.927	2.955	0.822	3.68	98.569	3.785	0.618	5.531	95.423	4.519	0.809	5.288	21.471	87.087	3.743	4.722	5.058

Title : Fresno 2009 and 2035
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/05/10 06:41:25
Scen Year: 2035 -- All model years in the range 1991 to 2035 selected
Season : Winter
Area : Fresno
****
Year: 2035 -- Model Years 1991 to 2035 Inclusive -- Winter
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average Fresno County Average

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Carbon Monoxide Temperature: 31F Relative Humidity: 41%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	MH ALL	ALL NCAT	ALL CAT	ALL DSL	ALL ALL
27	0	0.569	0.537	0.569	0	0.64	0.546	0.64	0	1.093	0.597	1.093	0.228	42.209	0.878	1.084	1.011

Title : Kern 2009 and 2035
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/05/10 08:48:38
Scen Year: 2009 -- All model years in the range 1965 to 2009 selected
Season : Winter
Area : Kern
****
Year: 2009 -- Model Years 1965 to 2009 Inclusive -- Winter
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average Kern County Average

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Carbon Monoxide Temperature: 41F Relative Humidity: 33%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	ALL NCAT	ALL CAT	ALL DSL	ALL ALL
27	85.249	2.79	0.771	3.454	85.584	3.882	0.599	5.305	83.609	3.912	0.704	4.467	66.914	3.606	5.894	5.16

Title : Kern 2009 and 2035
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/05/10 08:48:38
Scen Year: 2035 -- All model years in the range 1991 to 2035 selected
Season : Winter
Area : Kern
****
Year: 2035 -- Model Years 1991 to 2035 Inclusive -- Winter
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average Kern County Average

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Carbon Monoxide Temperature: 41F Relative Humidity: 33%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	ALL NCAT	ALL CAT	ALL DSL	ALL ALL
27	0	0.558	0.529	0.558	0	0.626	0.542	0.625	0	1.052	0.568	1.052	36.481	0.983	1.134	1.167

Title : Kings 2009 and 2035
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/05/10 09:56:54
Scen Year: 2009 -- All model years in the range 1965 to 2009 selected
Season : Winter
Area : Kings
****
Year: 2009 -- Model Years 1965 to 2009 Inclusive -- Winter
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average Kings County Average

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Carbon Monoxide Temperature: 35F Relative Humidity: 41%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	ALL NCAT	ALL CAT	ALL DSL	ALL ALL
27	94.706	3.606	0.797	4.344	95.461	5.921	0.617	7.59	93.834	5.277	0.742	6.138	77.609	4.571	5.867	6.004

Title : Kings 2009 and 2035
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/05/10 09:56:54
Scen Year: 2035 -- All model years in the range 1991 to 2035 selected
Season : Winter
Area : Kings
****
Year: 2035 -- Model Years 1991 to 2035 Inclusive -- Winter
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average Kings County Average

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Carbon Monoxide Temperature: 35F Relative Humidity: 41%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	ALL NCAT	ALL CAT	ALL DSL	ALL ALL
27	0	0.611	0.537	0.611	0	0.715	0.545	0.714	0	1.192	0.553	1.192	39.817	1.047	1.102	1.185

Fresno Station Van Ness St./Inyo St. 2009 Existing CALINE Output

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL							
JUNE	1989	VERSION										
PAGE	1											
JOB:	Fresno	In	17	Existing								
RUN:	Hour	1	(WORST	CASE	ANGLE)							
POLLUTANT:	Carbon	Monoxide										
I.	SITE	VARIABLES										
U=	1	M/S	Z0=	100	CM	ALT=	0	(M)				
BRG=	WORST	CASE	VD=	0	CM/S							
CLAS=	7	(G)	VS=	0	CM/S							
MIXH=	1000	M	AMB=	0	PPM							
SIGTH=	5	DEGREES	TEMP=	2.2	DEGREE	(C)						
II.	LINK	VARIABLES										
LINK			LINK	COORDINATES	(M)					EF	H	W
DESCRIPTION			X1	Y1	X2	Y2	TYPE	VPH		(G/MI)	(M)	(M)
A.	Link	A	1059	8918	1123	8835	AG	118		7.4	0	10
B.	Link	B	1062	8920	1132	8834	AG	118		7.4	0	10
C.	Link	C	1065	8922	1138	8834	AG	9		7.4	0	10
D.	Link	D	1067	8923	1137	8839	AG	192		5.3	0	10
E.	Link	E	1069	8925	1137	8847	AG	192		5.3	0	10
F.	Link	F	1052	8775	1123	8835	AG	69		5.4	0	10
G.	Link	G	1137	8847	1209	8906	AG	49		8.3	0	10
H.	Link	H	1054	8773	1133	8839	AG	69		5.4	0	10
I.	Link	I	1133	8839	1211	8904	AG	49		8.3	0	10
J.	Link	J	1132	8834	1188	8770	AG	125		5.2	0	10
K.	Link	K	1132	8834	1213	8901	AG	20		8.3	0	10
L.	Link	L	1056	8770	1137	8839	AG	47		8.3	0	10
M.	Link	M	1058	8768	1138	8834	AG	36		8.3	0	10
N.	Link	N	1138	8834	1216	8898	AG	35		5.4	0	10
O.	Link	O	1060	8765	1136	8826	AG	36		8.3	0	10
P.	Link	P	1136	8826	1185	8768	AG	125		5.2	0	10
Q.	Link	Q	1133	8839	1190	8772	AG	40		7.4	0	10
R.	Link	R	1137	8839	1192	8774	AG	161		7.7	0	10
S.	Link	S	1145	8835	1195	8776	AG	161		7.7	0	10
T.	Link	T	1145	8835	1218	8896	AG	35		5.4	0	10

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Fresno In 17 Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

*		COORDINATES (M)		
RECEPTOR	*	X	Y	Z
1	Recpt 1	1086	8872	1.8
2	Recpt 2	1102	8853	1.8
3	Recpt 3	1115	8835	1.8
4	Recpt 4	1099	8821	1.8
5	Recpt 5	1079	8806	1.8
6	Recpt 6	1109	8888	1.8
7	Recpt 7	1124	8869	1.8
8	Recpt 8	1138	8851	1.8
9	Recpt 9	1155	8866	1.8
10	Recpt 10	1174	8881	1.8
11	Recpt 11	1099	8791	1.8
12	Recpt 12	1118	8808	1.8
13	Recpt 13	1135	8822	1.8
14	Recpt 14	1149	8805	1.8
15	Recpt 15	1165	8785	1.8
16	Recpt 16	1187	8865	1.8
17	Recpt 17	1168	8849	1.8
18	Recpt 18	1150	8835	1.8
19	Recpt 19	1165	8818	1.8
20	Recpt 20	1181	8799	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Fresno In 17 Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

*	*	*	*	PRED			CONC/LINK					
*		*	BRG	CONC			*	(PPM)				
RECEPTOR	*		(DEG)	(PPM)	A	B	C	D	E	F	G	H
1	Recpt	1	129	0.3	0	0	0	0	0	0	0	0
2	Recpt	2	126	0.3	0	0	0	0	0	0	0	0
3	Recpt	3	122	0.3	0	0	0	0	0	0	0	0
4	Recpt	4	57	0.2	0	0	0	0	0	0	0	0
5	Recpt	5	58	0.2	0	0	0	0	0	0	0	0
6	Recpt	6	149	0.3	0	0	0	0	0	0	0	0
7	Recpt	7	149	0.3	0	0	0	0	0	0	0	0
8	Recpt	8	150	0.3	0	0	0	0	0	0	0	0
9	Recpt	9	223	0.2	0	0	0	0	0	0	0	0
10	Recpt	10	224	0.2	0	0	0	0	0	0	0	0
11	Recpt	11	42	0.2	0	0	0	0	0	0	0	0
12	Recpt	12	342	0.2	0	0	0	0	0	0	0	0
13	Recpt	13	328	0.3	0	0	0	0	0	0	0	0
14	Recpt	14	328	0.3	0	0	0	0	0	0	0	0
15	Recpt	15	328	0.3	0	0	0	0	0	0	0	0
16	Recpt	16	237	0.2	0	0	0	0	0	0	0	0
17	Recpt	17	237	0.2	0	0	0	0	0	0	0	0
18	Recpt	18	152	0.3	0	0	0	0	0	0	0	0
19	Recpt	19	311	0.3	0	0	0	0	0	0	0	0
20	Recpt	20	312	0.4	0	0	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Fresno In 17 Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

* RECEPTOR	*	I	J	K	L	M	N	O	P	Q	R	S	T
*					CONC/LINK (PPM)								
1	Recpt	1	0	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	0	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	0	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	0	0	0	0	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0.1	0.1	0
19	Recpt	19	0	0	0	0	0	0	0	0	0	0	0
20	Recpt	20	0	0	0	0	0	0	0	0	0	0.1	0

Fresno Station Van Ness St./Inyo St. 2009 Existing Plus Project CALINE Output

```
CALINE4:      CALIFORNIA    LINE        SOURCE        DISPERSION    MODEL
JUNE                 1989   VERSION
PAGE                    1
JOB:          Fresno        Int                  17   Existing      +        Project
RUN:          Hour                    1 (WORST        CASE          ANGLE)
POLLUTANT:    Carbon        Monoxide
I.            SITE          VARIABLES
U=                      1   M/S         Z0=                   100 CM       ALT=          0 (M)
BRG=          WORST         CASE        VD=                     0 CM/S
CLAS=                   7   (G)         VS=                     0 CM/S
MIXH=                1000   M           AMB=                    0 PPM
SIGTH=                  5   DEGREES     TEMP=                 2.2 DEGREE   (C)
II.           LINK          VARIABLES
LINK                                    LINK          COORDINATES  (M)                          EF      H    W
DESCRIPTION                             X1            Y1            X2      Y2      TYPE   VPH  (G/MI)  (M)  (M)
----------------*-------------------------*------------------------------
A.            Link          A                   1059          8918    1123    8835  AG     121    7.4    0   10
B.            Link          B                   1062          8920    1132    8834  AG     121    7.4    0   10
C.            Link          C                   1065          8922    1138    8834  AG       9    7.4    0   10
D.            Link          D                   1067          8923    1137    8839  AG     205    5.3    0   10
E.            Link          E                   1069          8925    1137    8847  AG     205    5.3    0   10
F.            Link          F                   1052          8775    1123    8835  AG      70    5.4    0   10
G.            Link          G                   1137          8847    1209    8906  AG      49    8.3    0   10
H.            Link          H                   1054          8773    1133    8839  AG      70    5.4    0   10
I.            Link          I                   1133          8839    1211    8904  AG      49    8.3    0   10
J.            Link          J                   1132          8834    1188    8770  AG     129    5.2    0   10
K.            Link          K                   1132          8834    1213    8901  AG      20    8.3    0   10
L.            Link          L                   1056          8770    1137    8839  AG      47    8.3    0   10
M.            Link          M                   1058          8768    1138    8834  AG      37    8.3    0   10
N.            Link          N                   1138          8834    1216    8898  AG      35    5.4    0   10
O.            Link          O                   1060          8765    1136    8826  AG      37    8.3    0   10
P.            Link          P                   1136          8826    1185    8768  AG     129    5.2    0   10
Q.            Link          Q                   1133          8839    1190    8772  AG      41    7.4    0   10
R.            Link          R                   1137          8839    1192    8774  AG     174    7.7    0   10
S.            Link          S                   1145          8835    1195    8776  AG     174    7.7    0   10
T.            Link          T                   1145          8835    1218    8896  AG      35    5.4    0   10
```

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Fresno Int 17 Existing + Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

*		COORDINATES (M)		
RECEPTOR	*	X	Y	Z
1	Recpt 1	1086	8872	1.8
2	Recpt 2	1102	8853	1.8
3	Recpt 3	1115	8835	1.8
4	Recpt 4	1099	8821	1.8
5	Recpt 5	1079	8806	1.8
6	Recpt 6	1109	8888	1.8
7	Recpt 7	1124	8869	1.8
8	Recpt 8	1138	8851	1.8
9	Recpt 9	1155	8866	1.8
10	Recpt 10	1174	8881	1.8
11	Recpt 11	1099	8791	1.8
12	Recpt 12	1118	8808	1.8
13	Recpt 13	1135	8822	1.8
14	Recpt 14	1149	8805	1.8
15	Recpt 15	1165	8785	1.8
16	Recpt 16	1187	8865	1.8
17	Recpt 17	1168	8849	1.8
18	Recpt 18	1150	8835	1.8
19	Recpt 19	1165	8818	1.8
20	Recpt 20	1181	8799	1.8

Fresno Station Van Ness St./Inyo St. 2009 Existing Plus Project CALINE Output

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Fresno Int 17 Existing + Project
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	Recpt	1	129	0.3	0	0	0	0	0	0	0	0
2	Recpt	2	126	0.3	0	0	0	0	0	0	0	0
3	Recpt	3	122	0.3	0	0	0	0	0	0	0	0
4	Recpt	4	57	0.2	0	0	0	0	0	0	0	0
5	Recpt	5	58	0.2	0	0	0	0	0	0	0	0
6	Recpt	6	149	0.3	0	0	0	0	0	0	0	0
7	Recpt	7	149	0.3	0	0	0	0	0	0	0	0
8	Recpt	8	150	0.3	0	0	0	0	0	0	0	0
9	Recpt	9	223	0.2	0	0	0	0	0	0	0	0
10	Recpt	10	224	0.2	0	0	0	0	0	0	0	0
11	Recpt	11	42	0.2	0	0	0	0	0	0	0	0
12	Recpt	12	342	0.2	0	0	0	0	0	0	0	0
13	Recpt	13	328	0.3	0	0	0	0	0	0	0	0
14	Recpt	14	328	0.3	0	0	0	0	0	0	0	0
15	Recpt	15	328	0.3	0	0	0	0	0	0	0	0
16	Recpt	16	237	0.2	0	0	0	0	0	0	0	0
17	Recpt	17	237	0.2	0	0	0	0	0	0	0	0
18	Recpt	18	152	0.3	0	0	0	0	0	0	0	0
19	Recpt	19	311	0.4	0	0	0	0	0	0	0	0
20	Recpt	20	312	0.4	0	0	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Fresno Int 17 Existing + Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	I	J	K	L	M	N	O	P	Q	R	S	T
*					CONC/LINK (PPM)								
1	Recpt	1	0	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0.1	0	0
9	Recpt	9	0	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	0	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	0	0	0	0	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0.1	0.1	0
19	Recpt	19	0	0	0	0	0	0	0	0	0	0.1	0
20	Recpt	20	0	0	0	0	0	0	0	0	0	0.2	0

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL							
JUNE	1989	VERSION										
PAGE	1											
JOB:	Fresno	Int	17	No	Build							
RUN:	Hour	1	(WORST	CASE	ANGLE)							
POLLUTANT:	Carbon	Monoxide										
I.	SITE	VARIABLES										
U=	1	M/S	Z0=	100	CM	ALT=	0	(M)				
BRG=	WORST	CASE	VD=	0	CM/S							
CLAS=	7	(G)	VS=	0	CM/S							
MIXH=	1000	M	AMB=	0	PPM							
SIGTH=	5	DEGREES	TEMP=	2.2	DEGREE	(C)						
II.	LINK	VARIABLES										
LINK	*		LINK	COORDINATES	(M)					EF	H	W
DESCRIPTION	*		X1	Y1	X2	Y2	TYPE	VPH		(G/MI)	(M)	(M)
A.	Link	A	1059	8918	1123	8835	AG	269		1.5	0	10
B.	Link	B	1062	8920	1132	8834	AG	269		1.5	0	10
C.	Link	C	1065	8922	1138	8834	AG	84		1.5	0	10
D.	Link	D	1067	8923	1137	8839	AG	310		1.1	0	10
E.	Link	E	1069	8925	1137	8847	AG	310		1.1	0	10
F.	Link	F	1052	8775	1123	8835	AG	295		1.1	0	10
G.	Link	G	1137	8847	1209	8906	AG	298		1.6	0	10
H.	Link	H	1054	8773	1133	8839	AG	295		1.1	0	10
I.	Link	I	1133	8839	1211	8904	AG	298		1.6	0	10
J.	Link	J	1132	8834	1188	8770	AG	287		1.1	0	10
K.	Link	K	1132	8834	1213	8901	AG	99		1.6	0	10
L.	Link	L	1056	8770	1137	8839	AG	74		1.6	0	10
M.	Link	M	1058	8768	1138	8834	AG	158		2	0	10
N.	Link	N	1138	8834	1216	8898	AG	232		1.1	0	10
O.	Link	O	1060	8765	1136	8826	AG	158		2	0	10
P.	Link	P	1136	8826	1185	8768	AG	287		1.1	0	10
Q.	Link	Q	1133	8839	1190	8772	AG	66		1.5	0	10
R.	Link	R	1137	8839	1192	8774	AG	238		1.6	0	10
S.	Link	S	1145	8835	1195	8776	AG	238		1.6	0	10
T.	Link	T	1145	8835	1218	8896	AG	232		1.1	0	10

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Fresno Int 17 No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

* RECEPTOR	*	COORDINATES (M) X	Y	Z
1	Recpt 1	1086	8872	1.8
2	Recpt 2	1102	8853	1.8
3	Recpt 3	1115	8835	1.8
4	Recpt 4	1099	8821	1.8
5	Recpt 5	1079	8806	1.8
6	Recpt 6	1109	8888	1.8
7	Recpt 7	1124	8869	1.8
8	Recpt 8	1138	8851	1.8
9	Recpt 9	1155	8866	1.8
10	Recpt 10	1174	8881	1.8
11	Recpt 11	1099	8791	1.8
12	Recpt 12	1118	8808	1.8
13	Recpt 13	1135	8822	1.8
14	Recpt 14	1149	8805	1.8
15	Recpt 15	1165	8785	1.8
16	Recpt 16	1187	8865	1.8
17	Recpt 17	1168	8849	1.8
18	Recpt 18	1150	8835	1.8
19	Recpt 19	1165	8818	1.8
20	Recpt 20	1181	8799	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Fresno Int 17 No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	* BRG (DEG)	PRED CONC (PPM)	A	B	CONC/LINK * C	D	E	F	G	H
1	Recpt 1	129	0.1	0	0	0	0	0	0	0	0
2	Recpt 2	127	0.1	0	0	0	0	0	0	0	0
3	Recpt 3	59	0.1	0	0	0	0	0	0	0	0
4	Recpt 4	58	0.1	0	0	0	0	0	0	0	0
5	Recpt 5	58	0.1	0	0	0	0	0	0	0	0
6	Recpt 6	150	0.1	0	0	0	0	0	0	0	0
7	Recpt 7	149	0.1	0	0	0	0	0	0	0	0
8	Recpt 8	221	0.1	0	0	0	0	0	0	0	0
9	Recpt 9	222	0.1	0	0	0	0	0	0	0	0
10	Recpt 10	223	0.2	0	0	0	0	0	0	0	0
11	Recpt 11	42	0.1	0	0	0	0	0	0	0	0
12	Recpt 12	40	0.1	0	0	0	0	0	0	0	0
13	Recpt 13	39	0.1	0	0	0	0	0	0	0	0
14	Recpt 14	327	0.1	0	0	0	0	0	0	0	0
15	Recpt 15	327	0.1	0	0	0	0	0	0	0	0
16	Recpt 16	238	0.1	0	0	0	0	0	0	0	0
17	Recpt 17	238	0.1	0	0	0	0	0	0	0	0
18	Recpt 18	312	0.1	0	0	0	0	0	0	0	0
19	Recpt 19	311	0.1	0	0	0	0	0	0	0	0
20	Recpt 20	312	0.1	0	0	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Fresno Int 17 No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

* RECEPTOR	*	I	J	K	CONC/LINK (PPM) L	M	N	O	P	Q	R	S	T
1	Recpt	1	0	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	0	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	0	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	0	0	0	0	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0	0	0
19	Recpt	19	0	0	0	0	0	0	0	0	0	0	0
20	Recpt	20	0	0	0	0	0	0	0	0	0	0	0

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL								
JUNE	1989	VERSION											
PAGE	1												
JOB:	Fresno	Int	17	Build									
RUN:	Hour	1	(WORST	CASE	ANGLE)								
POLLUTANT:	Carbon	Monoxide											
I.	SITE	VARIABLES											
U=	1	M/S	Z0=	100	CM	ALT=	0	(M)					
BRG=	WORST	CASE	VD=	0	CM/S								
CLAS=	7	(G)	VS=	0	CM/S								
MIXH=	1000	M	AMB=	0	PPM								
SIGTH=	5	DEGREES	TEMP=	2.2	DEGREE	(C)							
II.	LINK	VARIABLES											
LINK	*		LINK	COORDINATE	(M)						EF	H	W
DESCRIPTION	*		X1	Y1	X2	Y2	TYPE	VPH	(G/MI)	(M)	(M)		
A.	Link	A	1059	8918	1123	8835	AG	272	1.6	0	10		
B.	Link	B	1062	8920	1132	8834	AG	272	1.6	0	10		
C.	Link	C	1065	8922	1138	8834	AG	84	1.6	0	10		
D.	Link	D	1067	8923	1137	8839	AG	323	1.3	0	10		
E.	Link	E	1069	8925	1137	8847	AG	323	1.3	0	10		
F.	Link	F	1052	8775	1123	8835	AG	296	1.3	0	10		
G.	Link	G	1137	8847	1209	8906	AG	298	1.6	0	10		
H.	Link	H	1054	8773	1133	8839	AG	296	1.3	0	10		
I.	Link	I	1133	8839	1211	8904	AG	298	1.6	0	10		
J.	Link	J	1132	8834	1188	8770	AG	292	1.3	0	10		
K.	Link	K	1132	8834	1213	8901	AG	99	1.6	0	10		
L.	Link	L	1056	8770	1137	8839	AG	74	1.6	0	10		
M.	Link	M	1058	8768	1138	8834	AG	159	2	0	10		
N.	Link	N	1138	8834	1216	8898	AG	232	1.3	0	10		
O.	Link	O	1060	8765	1136	8826	AG	159	2	0	10		
P.	Link	P	1136	8826	1185	8768	AG	292	1.3	0	10		
Q.	Link	Q	1133	8839	1190	8772	AG	67	1.6	0	10		
R.	Link	R	1137	8839	1192	8774	AG	251	1.9	0	10		
S.	Link	S	1145	8835	1195	8776	AG	251	1.9	0	10		
T.	Link	T	1145	8835	1218	8896	AG	232	1.3	0	10		

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Fresno Int 17 Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

* RECEPTOR	*	COORDINATES (M) X	Y	Z
1	Recpt 1	1086	8872	1.8
2	Recpt 2	1102	8853	1.8
3	Recpt 3	1115	8835	1.8
4	Recpt 4	1099	8821	1.8
5	Recpt 5	1079	8806	1.8
6	Recpt 6	1109	8888	1.8
7	Recpt 7	1124	8869	1.8
8	Recpt 8	1138	8851	1.8
9	Recpt 9	1155	8866	1.8
10	Recpt 10	1174	8881	1.8
11	Recpt 11	1099	8791	1.8
12	Recpt 12	1118	8808	1.8
13	Recpt 13	1135	8822	1.8
14	Recpt 14	1149	8805	1.8
15	Recpt 15	1165	8785	1.8
16	Recpt 16	1187	8865	1.8
17	Recpt 17	1168	8849	1.8
18	Recpt 18	1150	8835	1.8
19	Recpt 19	1165	8818	1.8
20	Recpt 20	1181	8799	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Fresno Int 17 Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	* BRG (DEG)	PRED CONC (PPM)	A	B	CONC/LINK * C	D	E	F	G	H
1	Recpt 1	129	0.1	0	0	0	0	0	0	0	0
2	Recpt 2	127	0.1	0	0	0	0	0	0	0	0
3	Recpt 3	60	0.2	0	0	0	0	0	0	0	0
4	Recpt 4	58	0.1	0	0	0	0	0	0	0	0
5	Recpt 5	58	0.1	0	0	0	0	0	0	0	0
6	Recpt 6	150	0.1	0	0	0	0	0	0	0	0
7	Recpt 7	149	0.1	0	0	0	0	0	0	0	0
8	Recpt 8	151	0.2	0	0	0	0	0	0	0	0
9	Recpt 9	222	0.2	0	0	0	0	0	0	0	0
10	Recpt 10	223	0.2	0	0	0	0	0	0	0	0
11	Recpt 11	42	0.1	0	0	0	0	0	0	0	0
12	Recpt 12	41	0.1	0	0	0	0	0	0	0	0
13	Recpt 13	40	0.2	0	0	0	0	0	0	0	0
14	Recpt 14	328	0.1	0	0	0	0	0	0	0	0
15	Recpt 15	328	0.2	0	0	0	0	0	0	0	0
16	Recpt 16	238	0.1	0	0	0	0	0	0	0	0
17	Recpt 17	239	0.1	0	0	0	0	0	0	0	0
18	Recpt 18	312	0.2	0	0	0	0	0	0	0	0
19	Recpt 19	312	0.2	0	0	0	0	0	0	0	0
20	Recpt 20	312	0.2	0	0	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Fresno Int 17 Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

*						CONC/LINK (PPM)								
RECEPTOR	*	I	J	K	L	M	N	O	P	Q	R	S	T	
1	Recpt	1	0	0	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	0	0	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	0	0	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	0	0	0	0	0	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0	0	0	0
19	Recpt	19	0	0	0	0	0	0	0	0	0	0	0	0
20	Recpt	20	0	0	0	0	0	0	0	0	0	0	0	0

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL								
JUNE	1989	VERSION											
PAGE	1												
JOB:	Fresno	Int	25	Existing									
RUN:	Hour	1	(WORST	CASE	ANGLE)								
POLLUTANT:	Carbon	Monoxide											
I.	SITE	VARIABLES											
U=	1	M/S	Z0=	100	CM	ALT=	0	(M)					
BRG=	WORST	CASE	VD=	0	CM/S								
CLAS=	7	(G)	VS=	0	CM/S								
MIXH=	1000	M	AMB=	0	PPM								
SIGTH=	5	DEGREES	TEMP=	2.2	DEGREE	(C)							
II.	LINK	VARIABLES											
LINK	*		LINK	COORDINATES	(M)						EF	H	W
DESCRIPTION	*		X1	Y1	X2	Y2	TYPE	VPH	(G/MI)	(M)	(M)		
A.	Link	A	577	923	659	828	AG	101	9.1	0	10		
B.	Link	B	579	926	665	826	AG	101	9.1	0	10		
C.	Link	C	582	928	670	826	AG	99	9.1	0	10		
D.	Link	D	587	932	671	830	AG	134	5.6	0	10		
E.	Link	E	589	934	670	839	AG	134	5.6	0	10		
F.	Link	F	607	784	659	828	AG	127	5.6	0	10		
G.	Link	G	670	839	742	897	AG	73	9.1	0	10		
H.	Link	H	610	782	666	830	AG	127	5.6	0	10		
I.	Link	I	666	830	744	895	AG	73	9.1	0	10		
J.	Link	J	665	826	707	771	AG	104	5.6	0	10		
K.	Link	K	665	826	747	893	AG	37	9.1	0	10		
L.	Link	L	614	778	671	830	AG	16	9.1	0	10		
M.	Link	M	615	775	670	826	AG	51	9.1	0	10		
N.	Link	N	670	826	749	891	AG	116	5.6	0	10		
O.	Link	O	617	774	666	815	AG	51	9.1	0	10		
P.	Link	P	666	815	705	770	AG	104	5.6	0	10		
Q.	Link	Q	666	830	710	773	AG	22	9.1	0	10		
R.	Link	R	671	830	713	775	AG	96	9.1	0	10		
S.	Link	S	676	826	715	777	AG	96	9.1	0	10		
T.	Link	T	676	826	751	889	AG	116	5.6	0	10		

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Fresno Int 25 Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

*		COORDINATES (M)		
RECEPTOR	*	X	Y	Z
1	Recpt 1	708	875	1.8
2	Recpt 2	689	859	1.8
3	Recpt 3	671	844	1.8
4	Recpt 4	657	861	1.8
5	Recpt 5	641	880	1.8
6	Recpt 6	720	853	1.8
7	Recpt 7	701	839	1.8
8	Recpt 8	684	826	1.8
9	Recpt 9	699	807	1.8
10	Recpt 10	716	786	1.8
11	Recpt 11	622	864	1.8
12	Recpt 12	638	845	1.8
13	Recpt 13	652	827	1.8
14	Recpt 14	635	813	1.8
15	Recpt 15	615	798	1.8
16	Recpt 16	631	777	1.8
17	Recpt 17	650	793	1.8
18	Recpt 18	667	807	1.8
19	Recpt 19	682	791	1.8
20	Recpt 20	698	772	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Fresno Int 25 Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	*	BRG (DEG)	PRED CONC (PPM)	A	B	CONC/LINK * C	D	E	F	G	H
1	Recpt	1	222	0.3	0	0	0	0	0	0	0	0
2	Recpt	2	220	0.3	0	0	0	0	0	0	0	0
3	Recpt	3	218	0.3	0	0	0	0	0	0	0	0
4	Recpt	4	152	0.3	0	0	0	0	0	0	0	0
5	Recpt	5	151	0.3	0	0	0	0	0	0	0	0
6	Recpt	6	245	0.2	0	0	0	0	0	0	0	0
7	Recpt	7	300	0.2	0	0	0	0	0	0	0	0
8	Recpt	8	311	0.4	0	0	0	0	0	0	0	0
9	Recpt	9	312	0.4	0	0	0	0	0	0	0	0
10	Recpt	10	313	0.4	0	0	0	0	0	0	0	0
11	Recpt	11	128	0.3	0.1	0	0	0	0	0	0	0
12	Recpt	12	332	0.3	0	0	0	0	0	0	0	0
13	Recpt	13	59	0.3	0	0	0	0	0	0	0	0
14	Recpt	14	58	0.3	0	0	0	0	0	0	0	0
15	Recpt	15	57	0.3	0	0	0	0	0	0	0	0
16	Recpt	16	40	0.2	0	0	0	0	0	0	0	0
17	Recpt	17	39	0.2	0	0	0	0	0	0	0	0
18	Recpt	18	330	0.4	0	0	0	0	0	0	0	0
19	Recpt	19	328	0.3	0	0	0	0	0	0	0	0
20	Recpt	20	327	0.3	0	0	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Fresno Int 25 Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

* RECEPTOR	*	I	J	K	CONC/LINK (PPM) L	M	N	O	P	Q	R	S	T
1	Recpt	1	0	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	0	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	0	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	0	0	0	0	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0	0	0
19	Recpt	19	0	0	0	0	0	0	0	0	0	0	0
20	Recpt	20	0	0	0	0	0	0	0	0	0	0	0

Fresno Station H St./Tulare St. 2009 Existing Plus Project CALINE Output

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL								
JUNE	1989	VERSION											
PAGE	1												
JOB:	Fresno	Int	25	Existing	+	Project							
RUN:	Hour	1	(WORST	CASE	ANGLE)								
POLLUTANT:	Carbon	Monoxide											
I.	SITE	VARIABLES											
U=	1	M/S	Z0=	100	CM	ALT=	0	(M)					
BRG=	WORST	CASE	VD=	0	CM/S								
CLAS=	7	(G)	VS=	0	CM/S								
MIXH=	1000	M	AMB=	0	PPM								
SIGTH=	5	DEGREES	TEMP=	2.2	DEGREE	(C)							
II.	LINK	VARIABLES											
LINK	*		LINK	COORDINATE	(M)					EF	H	W	
DESCRIPTION	*		X1	Y1	X2	Y2	TYPE	VPH		(G/MI)	(M)	(M)	
A.	Link	A	577	923	659	828	AG	127		9.1	0	10	
B.	Link	B	579	926	665	826	AG	127		9.1	0	10	
C.	Link	C	582	928	670	826	AG	99		9.1	0	10	
D.	Link	D	587	932	671	830	AG	165		5.6	0	10	
E.	Link	E	589	934	670	839	AG	165		5.6	0	10	
F.	Link	F	607	784	659	828	AG	183		5.6	0	10	
G.	Link	G	670	839	742	897	AG	88		9.1	0	10	
H.	Link	H	610	782	666	830	AG	183		5.6	0	10	
I.	Link	I	666	830	744	895	AG	88		9.1	0	10	
J.	Link	J	665	826	707	771	AG	106		5.6	0	10	
K.	Link	K	665	826	747	893	AG	37		9.1	0	10	
L.	Link	L	614	778	671	830	AG	78		9.1	0	10	
M.	Link	M	615	775	670	826	AG	120		9.1	0	10	
N.	Link	N	670	826	749	891	AG	184		5.6	0	10	
O.	Link	O	617	774	666	815	AG	120		9.1	0	10	
P.	Link	P	666	815	705	770	AG	106		5.6	0	10	
Q.	Link	Q	666	830	710	773	AG	23		9.1	0	10	
R.	Link	R	671	830	713	775	AG	96		9.1	0	10	
S.	Link	S	676	826	715	777	AG	96		9.1	0	10	
T.	Link	T	676	826	751	889	AG	184		5.6	0	10	

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Fresno Int 25 Existing + Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

* RECEPTOR	*	COORDINATES (M) X	Y	Z
1	Recpt 1	708	875	1.8
2	Recpt 2	689	859	1.8
3	Recpt 3	671	844	1.8
4	Recpt 4	657	861	1.8
5	Recpt 5	641	880	1.8
6	Recpt 6	720	853	1.8
7	Recpt 7	701	839	1.8
8	Recpt 8	684	826	1.8
9	Recpt 9	699	807	1.8
10	Recpt 10	716	786	1.8
11	Recpt 11	622	864	1.8
12	Recpt 12	638	845	1.8
13	Recpt 13	652	827	1.8
14	Recpt 14	635	813	1.8
15	Recpt 15	615	798	1.8
16	Recpt 16	631	777	1.8
17	Recpt 17	650	793	1.8
18	Recpt 18	667	807	1.8
19	Recpt 19	682	791	1.8
20	Recpt 20	698	772	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Fresno Int 25 Existing + Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	* BRG (DEG)	* PRED CONC (PPM)	A	B	CONC/LINK * (PPM) C	D	E	F	G	H
1	Recpt 1	222	0.4	0	0	0	0	0	0	0	0
2	Recpt 2	219	0.4	0	0	0	0	0	0	0	0
3	Recpt 3	216	0.4	0	0	0	0	0	0	0	0
4	Recpt 4	192	0.3	0	0	0	0	0	0	0	0
5	Recpt 5	152	0.3	0	0	0	0	0	0	0	0
6	Recpt 6	242	0.3	0	0	0	0	0	0	0	0
7	Recpt 7	242	0.3	0	0	0	0	0	0	0	0
8	Recpt 8	311	0.4	0	0	0	0	0	0	0	0
9	Recpt 9	312	0.4	0	0	0	0	0	0	0	0
10	Recpt 10	313	0.4	0	0	0	0	0	0	0	0
11	Recpt 11	128	0.4	0.1	0	0	0	0	0	0	0
12	Recpt 12	122	0.3	0	0	0	0	0	0	0	0
13	Recpt 13	60	0.4	0	0	0	0	0	0	0	0
14	Recpt 14	59	0.4	0	0	0	0	0	0	0	0
15	Recpt 15	58	0.4	0	0	0	0	0	0.1	0	0
16	Recpt 16	38	0.4	0	0	0	0	0	0	0	0
17	Recpt 17	38	0.3	0	0	0	0	0	0	0	0
18	Recpt 18	330	0.5	0	0	0	0	0	0	0	0
19	Recpt 19	328	0.4	0	0	0	0	0	0	0	0
20	Recpt 20	327	0.4	0	0	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Fresno Int 25 Existing + Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	I	J	K	L	M	N	O	P	Q	R	S	T
*					CONC/LINK (PPM)								
1	Recpt	1	0	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	0	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	0	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	0	0	0	0	0	0	0.1	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0	0	0
19	Recpt	19	0	0	0	0	0	0	0	0	0	0	0
20	Recpt	20	0	0	0	0	0	0	0	0	0	0	0

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL								
JUNE	1989	VERSION											
PAGE	1												
JOB:	Fresno	Int	25	No	Build								
RUN:	Hour	1	(WORST	CASE	ANGLE)								
POLLUTANT:	Carbon	Monoxide											
I.	SITE	VARIABLES											
U=	1	M/S	Z0=	100	CM	ALT=	0	(M)					
BRG=	WORST	CASE	VD=	0	CM/S								
CLAS=	7	(G)	VS=	0	CM/S								
MIXH=	1000	M	AMB=	0	PPM								
SIGTH=	5	DEGREES	TEMP=	2.2	DEGREE	(C)							
II.	LINK	VARIABLES											
LINK	*		LINK	COORDINATE	(M)						EF	H	W
DESCRIPTION	*		X1	Y1	X2	Y2	TYPE	VPH			(G/MI)	(M)	(M)
A.	Link	A	577	923	659	828	AG	310			1.9	0	10
B.	Link	B	579	926	665	826	AG	310			1.9	0	10
C.	Link	C	582	928	670	826	AG	189			1.8	0	10
D.	Link	D	587	932	671	830	AG	317			2	0	10
E.	Link	E	589	934	670	839	AG	317			2	0	10
F.	Link	F	607	784	659	828	AG	1020			1.4	0	10
G.	Link	G	670	839	742	897	AG	470			1.4	0	10
H.	Link	H	610	782	666	830	AG	1020			1.4	0	10
I.	Link	I	666	830	744	895	AG	470			1.4	0	10
J.	Link	J	665	826	707	771	AG	364			2	0	10
K.	Link	K	665	826	747	893	AG	175			1.4	0	10
L.	Link	L	614	778	671	830	AG	88			1.4	0	10
M.	Link	M	615	775	670	826	AG	456			2	0	10
N.	Link	N	670	826	749	891	AG	558			1.4	0	10
O.	Link	O	617	774	666	815	AG	456			2	0	10
P.	Link	P	666	815	705	770	AG	364			2	0	10
Q.	Link	Q	666	830	710	773	AG	187			1.8	0	10
R.	Link	R	671	830	713	775	AG	233			2	0	10
S.	Link	S	676	826	715	777	AG	233			2	0	10
T.	Link	T	676	826	751	889	AG	558			1.4	0	10

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Fresno Int 25 No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

* RECEPTOR	*	COORDINATES (M) X	Y	Z
1	Recpt 1	708	875	1.8
2	Recpt 2	689	859	1.8
3	Recpt 3	671	844	1.8
4	Recpt 4	657	861	1.8
5	Recpt 5	641	880	1.8
6	Recpt 6	720	853	1.8
7	Recpt 7	701	839	1.8
8	Recpt 8	684	826	1.8
9	Recpt 9	699	807	1.8
10	Recpt 10	716	786	1.8
11	Recpt 11	622	864	1.8
12	Recpt 12	638	845	1.8
13	Recpt 13	652	827	1.8
14	Recpt 14	635	813	1.8
15	Recpt 15	615	798	1.8
16	Recpt 16	631	777	1.8
17	Recpt 17	650	793	1.8
18	Recpt 18	667	807	1.8
19	Recpt 19	682	791	1.8
20	Recpt 20	698	772	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Fresno Int 25 No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

*	*	*	*	PRED			CONC/LINK					
*		*	BRG	CONC			*	(PPM)				
RECEPTOR	*		(DEG)	(PPM)	A	B	C	D	E	F	G	H
1	Recpt	1	222	0.3	0	0	0	0	0	0	0	0
2	Recpt	2	221	0.3	0	0	0	0	0	0	0	0
3	Recpt	3	218	0.3	0	0	0	0	0	0	0	0
4	Recpt	4	194	0.2	0	0	0	0	0	0	0	0
5	Recpt	5	152	0.2	0	0	0	0	0	0	0	0
6	Recpt	6	242	0.2	0	0	0	0	0	0	0	0
7	Recpt	7	244	0.2	0	0	0	0	0	0	0	0
8	Recpt	8	244	0.3	0	0	0	0	0	0	0	0
9	Recpt	9	312	0.2	0	0	0	0	0	0	0	0
10	Recpt	10	312	0.2	0	0	0	0	0	0	0	0
11	Recpt	11	131	0.2	0	0	0	0	0	0	0	0
12	Recpt	12	130	0.2	0	0	0	0	0	0	0	0
13	Recpt	13	61	0.3	0	0	0	0	0	0	0	0
14	Recpt	14	61	0.3	0	0	0	0	0	0.1	0	0
15	Recpt	15	59	0.3	0	0	0	0	0	0.1	0	0
16	Recpt	16	37	0.2	0	0	0	0	0	0	0	0
17	Recpt	17	38	0.2	0	0	0	0	0	0	0	0
18	Recpt	18	331	0.3	0	0	0	0	0	0	0	0
19	Recpt	19	329	0.3	0	0	0	0	0	0	0	0
20	Recpt	20	328	0.3	0	0	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Fresno Int 25 No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

*						CONC/LINK (PPM)							
RECEPTOR	*	I	J	K	L	M	N	O	P	Q	R	S	T
1	Recpt	1	0	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	0	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	0	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	0	0	0	0	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0	0	0
19	Recpt	19	0	0	0	0	0	0	0	0	0	0	0
20	Recpt	20	0	0	0	0	0	0	0	0	0	0	0

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL								
JUNE	1989	VERSION											
PAGE	1												
JOB:	Fresno	Int	25	Build									
RUN:	Hour	1	(WORST	CASE	ANGLE)								
POLLUTANT:	Carbon	Monoxide											
I.	SITE	VARIABLES											
U=	1	M/S	Z0=	100	CM	ALT=	0	(M)					
BRG=	WORST	CASE	VD=	0	CM/S								
CLAS=	7	(G)	VS=	0	CM/S								
MIXH=	1000	M	AMB=	0	PPM								
SIGTH=	5	DEGREES	TEMP=	2.2	DEGREE	(C)							
II.	LINK	VARIABLES											
LINK	*		LINK	COORDINATES	(M)					EF	H	W	
DESCRIPTION	*		X1	Y1	X2	Y2	TYPE	VPH		(G/MI)	(M)	(M)	
A.	Link	A	577	923	659	828	AG	383		2	0	10	
B.	Link	B	579	926	665	826	AG	383		2	0	10	
C.	Link	C	582	928	670	826	AG	250		1.9	0	10	
D.	Link	D	587	932	671	830	AG	349		2	0	10	
E.	Link	E	589	934	670	839	AG	349		2	0	10	
F.	Link	F	607	784	659	828	AG	1065		1	0	10	
G.	Link	G	670	839	742	897	AG	485		1.4	0	10	
H.	Link	H	610	782	666	830	AG	1065		1	0	10	
I.	Link	I	666	830	744	895	AG	485		1.4	0	10	
J.	Link	J	665	826	707	771	AG	393		2	0	10	
K.	Link	K	665	826	747	893	AG	175		1.4	0	10	
L.	Link	L	614	778	671	830	AG	93		1.4	0	10	
M.	Link	M	615	775	670	826	AG	456		1.5	0	10	
N.	Link	N	670	826	749	891	AG	588		1	0	10	
O.	Link	O	617	774	666	815	AG	456		1.5	0	10	
P.	Link	P	666	815	705	770	AG	393		2	0	10	
Q.	Link	Q	666	830	710	773	AG	187		1.8	0	10	
R.	Link	R	671	830	713	775	AG	234		2	0	10	
S.	Link	S	676	826	715	777	AG	234		2	0	10	
T.	Link	T	676	826	751	889	AG	588		1	0	10	

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Fresno Int 25 Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

* RECEPTOR	*	COORDINATES (M) X	Y	Z
1	Recpt 1	708	875	1.8
2	Recpt 2	689	859	1.8
3	Recpt 3	671	844	1.8
4	Recpt 4	657	861	1.8
5	Recpt 5	641	880	1.8
6	Recpt 6	720	853	1.8
7	Recpt 7	701	839	1.8
8	Recpt 8	684	826	1.8
9	Recpt 9	699	807	1.8
10	Recpt 10	716	786	1.8
11	Recpt 11	622	864	1.8
12	Recpt 12	638	845	1.8
13	Recpt 13	652	827	1.8
14	Recpt 14	635	813	1.8
15	Recpt 15	615	798	1.8
16	Recpt 16	631	777	1.8
17	Recpt 17	650	793	1.8
18	Recpt 18	667	807	1.8
19	Recpt 19	682	791	1.8
20	Recpt 20	698	772	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Fresno Int 25 Build
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	Recpt 1	222	0.2	0	0	0	0	0	0	0	0
2	Recpt 2	220	0.2	0	0	0	0	0	0	0	0
3	Recpt 3	218	0.3	0	0	0	0	0	0	0	0
4	Recpt 4	156	0.2	0	0	0	0	0	0	0	0
5	Recpt 5	153	0.2	0	0	0	0	0	0	0	0
6	Recpt 6	243	0.2	0	0	0	0	0	0	0	0
7	Recpt 7	245	0.2	0	0	0	0	0	0	0	0
8	Recpt 8	311	0.3	0	0	0	0	0	0	0	0
9	Recpt 9	312	0.2	0	0	0	0	0	0	0	0
10	Recpt 10	313	0.2	0	0	0	0	0	0	0	0
11	Recpt 11	130	0.2	0	0	0	0	0	0	0	0
12	Recpt 12	128	0.2	0	0	0	0	0	0	0	0
13	Recpt 13	59	0.3	0	0	0	0	0	0	0	0
14	Recpt 14	59	0.3	0	0	0	0	0	0	0	0
15	Recpt 15	59	0.3	0	0	0	0	0	0.1	0	0
16	Recpt 16	38	0.2	0	0	0	0	0	0	0	0
17	Recpt 17	344	0.2	0	0	0	0	0	0	0	0
18	Recpt 18	330	0.3	0	0	0	0	0	0	0	0
19	Recpt 19	329	0.3	0	0	0	0	0	0	0	0
20	Recpt 20	328	0.3	0	0	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Fresno Int 25 Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	I	J	K	L	M	N	O	P	Q	R	S	T
*					CONC/LINK (PPM)								
1	Recpt	1	0	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	0	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	0	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	0	0	0	0	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0	0	0
19	Recpt	19	0	0	0	0	0	0	0	0	0	0	0
20	Recpt	20	0	0	0	0	0	0	0	0	0	0	0

Fresno Station Van Ness Ave./Fresno St. 2009 Existing CALINE Output

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL								
JUNE	1989	VERSION											
PAGE	1												
JOB:	Fresno	Int	42	Existing									
RUN:	Hour	1	(WORST	CASE	ANGLE)								
POLLUTANT:	Carbon	Monoxide											
I.	SITE	VARIABLES											
U=	1	M/S	Z0=	100	CM	ALT=	0	(M)					
BRG=	WORST	CASE	VD=	0	CM/S								
CLAS=	7	(G)	VS=	0	CM/S								
MIXH=	1000	M	AMB=	0	PPM								
SIGTH=	5	DEGREES	TEMP=	2.2	DEGREE	(C)							
II.	LINK	VARIABLES											
LINK	*		LINK	COORDINATES	(M)						EF	H	W
DESCRIPTION	*		X1	Y1	X2	Y2	TYPE	VPH	(G/MI)	(M)	(M)		
A.	Link	A	706	337	745	288	AG	143	10	0	10		
B.	Link	B	709	339	754	284	AG	143	10	0	10		
C.	Link	C	713	341	759	285	AG	62	11.7	0	10		
D.	Link	D	716	342	761	290	AG	264	6	0	10		
E.	Link	E	720	344	758	301	AG	264	6	0	10		
F.	Link	F	703	252	745	288	AG	277	6	0	10		
G.	Link	G	758	301	818	347	AG	183	11.7	0	10		
H.	Link	H	706	249	756	291	AG	277	6	0	10		
I.	Link	I	756	291	821	345	AG	183	11.7	0	10		
J.	Link	J	754	284	807	222	AG	151	11.7	0	10		
K.	Link	K	754	284	823	343	AG	61	11.7	0	10		
L.	Link	L	709	246	761	290	AG	120	11	0	10		
M.	Link	M	712	245	759	285	AG	170	10	0	10		
N.	Link	N	759	285	827	341	AG	214	6	0	10		
O.	Link	O	714	243	757	275	AG	170	10	0	10		
P.	Link	P	757	275	804	220	AG	151	11.7	0	10		
Q.	Link	Q	756	291	810	225	AG	126	11	0	10		
R.	Link	R	761	290	815	228	AG	225	10	0	10		
S.	Link	S	780	295	825	236	AG	225	10	0	10		
T.	Link	T	780	295	830	339	AG	214	6	0	10		

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Fresno Int 42 Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

* RECEPTOR	*	COORDINATES (M) X	Y	Z
1	Recpt 1	708	326	1.8
2	Recpt 2	724	307	1.8
3	Recpt 3	738	290	1.8
4	Recpt 4	722	276	1.8
5	Recpt 5	703	259	1.8
6	Recpt 6	721	237	1.8
7	Recpt 7	740	252	1.8
8	Recpt 8	757	266	1.8
9	Recpt 9	771	249	1.8
10	Recpt 10	787	230	1.8
11	Recpt 11	729	343	1.8
12	Recpt 12	745	324	1.8
13	Recpt 13	759	307	1.8
14	Recpt 14	776	321	1.8
15	Recpt 15	795	338	1.8
16	Recpt 16	832	315	1.8
17	Recpt 17	809	303	1.8
18	Recpt 18	789	293	1.8
19	Recpt 19	804	277	1.8
20	Recpt 20	819	258	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Fresno Int 42 Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	* BRG (DEG)	* PRED CONC (PPM)	A	B	CONC/LINK * C	D	E	(PPM) F	G	H
1	Recpt 1	130	0.6	0.2	0	0	0	0	0	0	0
2	Recpt 2	127	0.6	0.1	0	0	0	0	0	0	0
3	Recpt 3	128	0.6	0	0	0	0	0	0	0	0
4	Recpt 4	60	0.5	0	0	0	0	0	0	0	0
5	Recpt 5	60	0.6	0	0	0	0	0	0.2	0	0
6	Recpt 6	37	0.5	0	0	0	0	0	0	0	0
7	Recpt 7	33	0.5	0	0	0	0	0	0	0	0
8	Recpt 8	335	0.5	0	0	0	0	0	0	0	0
9	Recpt 9	337	0.5	0	0	0	0	0	0	0	0
10	Recpt 10	333	0.6	0	0	0	0	0	0	0	0
11	Recpt 11	151	0.5	0	0	0	0	0.1	0	0	0
12	Recpt 12	154	0.6	0	0	0	0	0.1	0	0	0
13	Recpt 13	157	0.6	0	0	0	0	0	0	0	0
14	Recpt 14	213	0.6	0	0	0	0	0	0	0.2	0
15	Recpt 15	217	0.6	0	0	0	0	0	0	0.2	0
16	Recpt 16	246	0.3	0	0	0	0	0	0	0	0
17	Recpt 17	247	0.4	0	0	0	0	0	0	0	0
18	Recpt 18	246	0.5	0	0	0	0	0	0	0	0
19	Recpt 19	261	0.4	0	0	0	0	0	0	0	0
20	Recpt 20	302	0.4	0	0	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Fresno Int 42 Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

* RECEPTOR	*	I	J	K	L	M	N	O	P	Q	R	S	T
					CONC/LINK (PPM)								
1	Recpt	1	0	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0.1	0	0
3	Recpt	3	0	0.1	0	0	0	0	0	0	0	0	0
4	Recpt	4	0.1	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0.1	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	0	0	0	0	0	0	0	0.1	0	0	0
10	Recpt	10	0	0.1	0	0	0	0	0	0.2	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0.1	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	0	0	0	0	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0	0	0
19	Recpt	19	0	0	0	0	0	0	0	0	0	0	0
20	Recpt	20	0	0	0	0	0	0	0	0	0	0.1	0

Fresno Station Van Ness Ave./Fresno St. 2009 Existing Plus Project CALINE Output

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL							
JUNE	1989	VERSION										
PAGE	1											
JOB:	Fresno	Int	42	Existing	+	Project						
RUN:	Hour	1	(WORST	CASE	ANGLE)							
POLLUTANT:	Carbon	Monoxide										
I.	SITE	VARIABLES										
U=	1	M/S	Z0=	100	CM	ALT=	0	(M)				
BRG=	WORST	CASE	VD=	0	CM/S							
CLAS=	7	(G)	VS=	0	CM/S							
MIXH=	1000	M	AMB=	0	PPM							
SIGTH=	5	DEGREES	TEMP=	2.2	DEGREE	(C)						
II.	LINK	VARIABLES										
LINK	*		LINK	COORDINATES	(M)					EF	H	W
DESCRIPTION	*		X1	Y1	X2	Y2	TYPE	VPH	(G/MI)	(M)	(M)	
A.	Link	A	706	337	745	288	AG	167	10	0	10	
B.	Link	B	709	339	754	284	AG	167	10	0	10	
C.	Link	C	713	341	759	285	AG	62	11.7	0	10	
D.	Link	D	716	342	761	290	AG	306	6	0	10	
E.	Link	E	720	344	758	301	AG	306	6	0	10	
F.	Link	F	703	252	745	288	AG	306	6	0	10	
G.	Link	G	758	301	818	347	AG	188	11.7	0	10	
H.	Link	H	706	249	756	291	AG	306	6	0	10	
I.	Link	I	756	291	821	345	AG	188	11.7	0	10	
J.	Link	J	754	284	807	222	AG	151	11.7	0	10	
K.	Link	K	754	284	823	343	AG	61	11.7	0	10	
L.	Link	L	709	246	761	290	AG	204	11	0	10	
M.	Link	M	712	245	759	285	AG	206	10	0	10	
N.	Link	N	759	285	827	341	AG	250	6	0	10	
O.	Link	O	714	243	757	275	AG	206	10	0	10	
P.	Link	P	757	275	804	220	AG	151	11.7	0	10	
Q.	Link	Q	756	291	810	225	AG	126	11.7	0	10	
R.	Link	R	761	290	815	228	AG	225	10	0	10	
S.	Link	S	780	295	825	236	AG	225	10	0	10	
T.	Link	T	780	295	830	339	AG	250	6	0	10	

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Fresno Int 42 Existing + Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

* RECEPTOR	*	COORDINATES (M) X	Y	Z
1	Recpt 1	708	326	1.8
2	Recpt 2	724	307	1.8
3	Recpt 3	738	290	1.8
4	Recpt 4	722	276	1.8
5	Recpt 5	703	259	1.8
6	Recpt 6	721	237	1.8
7	Recpt 7	740	252	1.8
8	Recpt 8	757	266	1.8
9	Recpt 9	771	249	1.8
10	Recpt 10	787	230	1.8
11	Recpt 11	729	343	1.8
12	Recpt 12	745	324	1.8
13	Recpt 13	759	307	1.8
14	Recpt 14	776	321	1.8
15	Recpt 15	795	338	1.8
16	Recpt 16	832	315	1.8
17	Recpt 17	809	303	1.8
18	Recpt 18	789	293	1.8
19	Recpt 19	804	277	1.8
20	Recpt 20	819	258	1.8

Fresno Station Van Ness Ave./Fresno St. 2009 Existing Plus Project CALINE Output

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Fresno Int 42 Existing + Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	* BRG (DEG)	* PRED CONC (PPM)	A	B	CONC/LINK * C	D	E	(PPM) F	G	H
1	Recpt 1	130	0.6	0.2	0	0	0	0	0	0	0
2	Recpt 2	127	0.6	0.1	0	0	0	0	0	0	0
3	Recpt 3	128	0.7	0	0	0	0	0	0	0	0
4	Recpt 4	61	0.6	0	0	0	0	0	0.1	0	0
5	Recpt 5	61	0.6	0	0	0	0	0	0.2	0	0
6	Recpt 6	36	0.6	0	0	0	0	0	0	0	0
7	Recpt 7	29	0.5	0	0	0	0	0	0	0	0
8	Recpt 8	335	0.6	0	0.1	0	0	0	0	0	0
9	Recpt 9	335	0.6	0	0	0	0	0	0	0	0
10	Recpt 10	332	0.6	0	0	0	0	0	0	0	0
11	Recpt 11	152	0.6	0	0	0	0	0.1	0	0	0
12	Recpt 12	154	0.6	0	0	0	0	0.1	0	0	0
13	Recpt 13	213	0.6	0	0	0	0	0	0	0	0
14	Recpt 14	214	0.6	0	0	0	0	0	0	0.2	0
15	Recpt 15	217	0.6	0	0	0	0	0	0	0.2	0
16	Recpt 16	246	0.4	0	0	0	0	0	0	0	0
17	Recpt 17	246	0.4	0	0	0	0	0	0	0	0
18	Recpt 18	246	0.5	0	0	0	0	0	0	0	0
19	Recpt 19	261	0.5	0	0	0	0	0	0	0	0
20	Recpt 20	277	0.5	0	0	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Fresno Int 42 Existing + Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	I	J	K	L	M	N	O	P	Q	R	S	T
*					CONC/LINK (PPM)								
1	Recpt	1	0	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0.1	0	0	0	0	0	0	0	0	0
4	Recpt	4	0.1	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0.1	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0.1	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	0	0	0	0	0	0	0	0.1	0	0	0
10	Recpt	10	0	0.1	0	0	0	0	0	0.2	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0.1	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0.1	0	0	0	0	0	0	0
15	Recpt	15	0.1	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	0	0	0	0	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0.1	0	0	0	0	0	0	0
19	Recpt	19	0	0	0	0	0	0	0	0	0	0	0
20	Recpt	20	0	0	0	0	0	0	0	0	0	0	0

Fresno Station Van Ness Ave./Fresno St. 2035 No Build CALINE Output

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL							
JUNE	1989	VERSION										
PAGE	1											
JOB:	Fresno	Int	42	No	Build							
RUN:	Hour	1	(WORST	CASE	ANGLE)							
POLLUTANT:	Carbon	Monoxide										
I.	SITE	VARIABLES										
U=	1	M/S	Z0=	100	CM	ALT=	0	(M)				
BRG=	WORST	CASE	VD=	0	CM/S							
CLAS=	7	(G)	VS=	0	CM/S							
MIXH=	1000	M	AMB=	0	PPM							
SIGTH=	5	DEGREES	TEMP=	2.2	DEGREE	(C)						
II.	LINK	VARIABLES										
LINK	*		LINK	COORDINATES	(M)					EF	H	W
DESCRIPTION	*		X1	Y1	X2	Y2	TYPE	VPH		(G/MI)	(M)	(M)
A.	Link	A	706	337	745	288	AG	234		1.8	0	10
B.	Link	B	709	339	754	284	AG	234		1.8	0	10
C.	Link	C	713	341	759	285	AG	106		2	0	10
D.	Link	D	716	342	761	290	AG	365		1.2	0	10
E.	Link	E	720	344	758	301	AG	365		1.2	0	10
F.	Link	F	703	252	745	288	AG	718		2	0	10
G.	Link	G	758	301	818	347	AG	578		2	0	10
H.	Link	H	706	249	756	291	AG	718		2	0	10
I.	Link	I	756	291	821	345	AG	578		2	0	10
J.	Link	J	754	284	807	222	AG	299		2	0	10
K.	Link	K	754	284	823	343	AG	183		2	0	10
L.	Link	L	709	246	761	290	AG	201		2	0	10
M.	Link	M	712	245	759	285	AG	388		2	0	10
N.	Link	N	759	285	827	341	AG	445		2	0	10
O.	Link	O	714	243	757	275	AG	388		2	0	10
P.	Link	P	757	275	804	220	AG	299		2	0	10
Q.	Link	Q	756	291	810	225	AG	203		2	0	10
R.	Link	R	761	290	815	228	AG	280		1.9	0	10
S.	Link	S	780	295	825	236	AG	280		1.9	0	10
T.	Link	T	780	295	830	339	AG	445		2	0	10

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Fresno Int 42 No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

* RECEPTOR	*	COORDINATES (M) X	Y	Z
1	Recpt 1	708	326	1.8
2	Recpt 2	724	307	1.8
3	Recpt 3	738	290	1.8
4	Recpt 4	722	276	1.8
5	Recpt 5	703	259	1.8
6	Recpt 6	721	237	1.8
7	Recpt 7	740	252	1.8
8	Recpt 8	757	266	1.8
9	Recpt 9	771	249	1.8
10	Recpt 10	787	230	1.8
11	Recpt 11	729	343	1.8
12	Recpt 12	745	324	1.8
13	Recpt 13	759	307	1.8
14	Recpt 14	776	321	1.8
15	Recpt 15	795	338	1.8
16	Recpt 16	832	315	1.8
17	Recpt 17	809	303	1.8
18	Recpt 18	789	293	1.8
19	Recpt 19	804	277	1.8
20	Recpt 20	819	258	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Fresno Int 42 No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

*	*	*	*	PRED			CONC/LINK					
*		*	BRG	CONC			*	(PPM)				
RECEPTOR	*		(DEG)	(PPM)	A	B	C	D	E	F	G	H
1	Recpt	1	131	0.2	0	0	0	0	0	0	0	0
2	Recpt	2	133	0.2	0	0	0	0	0	0	0	0
3	Recpt	3	130	0.2	0	0	0	0	0	0	0	0
4	Recpt	4	64	0.3	0	0	0	0	0	0	0	0
5	Recpt	5	60	0.3	0	0	0	0	0	0.1	0	0
6	Recpt	6	37	0.2	0	0	0	0	0	0	0	0
7	Recpt	7	34	0.2	0	0	0	0	0	0	0	0
8	Recpt	8	34	0.2	0	0	0	0	0	0	0	0
9	Recpt	9	19	0.2	0	0	0	0	0	0	0	0
10	Recpt	10	333	0.2	0	0	0	0	0	0	0	0
11	Recpt	11	152	0.2	0	0	0	0	0	0	0	0
12	Recpt	12	154	0.2	0	0	0	0	0	0	0	0
13	Recpt	13	216	0.2	0	0	0	0	0	0	0	0
14	Recpt	14	215	0.3	0	0	0	0	0	0	0	0
15	Recpt	15	218	0.3	0	0	0	0	0	0	0	0
16	Recpt	16	249	0.2	0	0	0	0	0	0	0	0
17	Recpt	17	249	0.2	0	0	0	0	0	0	0	0
18	Recpt	18	251	0.2	0	0	0	0	0	0	0	0
19	Recpt	19	262	0.2	0	0	0	0	0	0	0	0
20	Recpt	20	275	0.1	0	0	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Fresno Int 42 No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

*						CONC/LINK						
*						(PPM)						
RECEPTOR	*	I	J	K	L	M	N	O	P	Q	R	S	T
1	Recpt	1	0	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	0	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	0	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	0	0	0	0	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0	0	0
19	Recpt	19	0	0	0	0	0	0	0	0	0	0	0
20	Recpt	20	0	0	0	0	0	0	0	0	0	0	0

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL								
JUNE	1989	VERSION											
PAGE	1												
JOB:	Fresno	Int	42	Build									
RUN:	Hour	1	(WORST	CASE	ANGLE)								
POLLUTANT:	Carbon	Monoxide											
I.	SITE	VARIABLES											
U=	1	M/S	Z0=	100	CM	ALT=	0	(M)					
BRG=	WORST	CASE	VD=	0	CM/S								
CLAS=	7	(G)	VS=	0	CM/S								
MIXH=	1000	M	AMB=	0	PPM								
SIGTH=	5	DEGREES	TEMP=	2.2	DEGREE	(C)							
II.	LINK	VARIABLES											
LINK	*		LINK	COORDINATES	(M)						EF	H	W
DESCRIPTION	*		X1	Y1	X2	Y2	TYPE	VPH	(G/MI)	(M)	(M)		
A.	Link	A	706	337	745	288	AG	258	1.9	0	10		
B.	Link	B	709	339	754	284	AG	258	1.9	0	10		
C.	Link	C	713	341	759	285	AG	106	2	0	10		
D.	Link	D	716	342	761	290	AG	407	1.2	0	10		
E.	Link	E	720	344	758	301	AG	407	1.2	0	10		
F.	Link	F	703	252	745	288	AG	747	2	0	10		
G.	Link	G	758	301	818	347	AG	583	2	0	10		
H.	Link	H	706	249	756	291	AG	747	2	0	10		
I.	Link	I	756	291	821	345	AG	583	2	0	10		
J.	Link	J	754	284	807	222	AG	299	2	0	10		
K.	Link	K	754	284	823	343	AG	183	2	0	10		
L.	Link	L	709	246	761	290	AG	285	2	0	10		
M.	Link	M	712	245	759	285	AG	424	2	0	10		
N.	Link	N	759	285	827	341	AG	481	2	0	10		
O.	Link	O	714	243	757	275	AG	424	2	0	10		
P.	Link	P	757	275	804	220	AG	299	2	0	10		
Q.	Link	Q	756	291	810	225	AG	203	2	0	10		
R.	Link	R	761	290	815	228	AG	280	1.9	0	10		
S.	Link	S	780	295	825	236	AG	280	1.9	0	10		
T.	Link	T	780	295	830	339	AG	481	2	0	10		

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Fresno Int 42 Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

* RECEPTOR	*	COORDINATES (M) X	Y	Z
1	Recpt 1	708	326	1.8
2	Recpt 2	724	307	1.8
3	Recpt 3	738	290	1.8
4	Recpt 4	722	276	1.8
5	Recpt 5	703	259	1.8
6	Recpt 6	721	237	1.8
7	Recpt 7	740	252	1.8
8	Recpt 8	757	266	1.8
9	Recpt 9	771	249	1.8
10	Recpt 10	787	230	1.8
11	Recpt 11	729	343	1.8
12	Recpt 12	745	324	1.8
13	Recpt 13	759	307	1.8
14	Recpt 14	776	321	1.8
15	Recpt 15	795	338	1.8
16	Recpt 16	832	315	1.8
17	Recpt 17	809	303	1.8
18	Recpt 18	789	293	1.8
19	Recpt 19	804	277	1.8
20	Recpt 20	819	258	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Fresno Int 42 Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	* BRG (DEG)	* PRED CONC (PPM)	A	B	C	D	E	F	G	H
	*	*				CONC/LINK *	(PPM)				
1	Recpt	1	131	0.2	0	0	0	0	0	0	0 0
2	Recpt	2	132	0.2	0	0	0	0	0	0	0 0
3	Recpt	3	130	0.3	0	0	0	0	0	0	0 0
4	Recpt	4	64	0.3	0	0	0	0	0	0	0 0
5	Recpt	5	61	0.4	0	0	0	0	0	0.1	0 0
6	Recpt	6	37	0.2	0	0	0	0	0	0	0 0
7	Recpt	7	34	0.2	0	0	0	0	0	0	0 0
8	Recpt	8	34	0.2	0	0	0	0	0	0	0 0
9	Recpt	9	19	0.2	0	0	0	0	0	0	0 0
10	Recpt	10	332	0.2	0	0	0	0	0	0	0 0
11	Recpt	11	152	0.2	0	0	0	0	0	0	0 0
12	Recpt	12	194	0.2	0	0	0	0	0	0	0 0
13	Recpt	13	216	0.3	0	0	0	0	0	0	0 0
14	Recpt	14	216	0.3	0	0	0	0	0	0	0 0
15	Recpt	15	218	0.3	0	0	0	0	0	0	0 0
16	Recpt	16	248	0.2	0	0	0	0	0	0	0 0
17	Recpt	17	249	0.2	0	0	0	0	0	0	0 0
18	Recpt	18	250	0.2	0	0	0	0	0	0	0 0
19	Recpt	19	262	0.2	0	0	0	0	0	0	0 0
20	Recpt	20	275	0.2	0	0	0	0	0	0	0 0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Fresno Int 42 Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

* RECEPTOR	*	I	J	K	CONC/LINK (PPM) L	M	N	O	P	Q	R	S	T
1	Recpt	1	0	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	0	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	0	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	0	0	0	0	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0	0	0
19	Recpt	19	0	0	0	0	0	0	0	0	0	0	0
20	Recpt	20	0	0	0	0	0	0	0	0	0	0	0

```
CALINE4:  CALIFORNIA      LINE          SOURCE          DISPERSION        MODEL
JUNE                1989  VERSION
PAGE                   1
JOB:      Intersection              23 -               Existing
RUN:      Hour                       1
POLLUTAN  Carbon          Monoxide
I.        SITE            VARIABLES
U=                     1  M/S         Z0=                        100 CM        ALT=          0 (M)
BRG=                   0  DEGREES     VD=                          0 CM/S
CLAS=                  7  (G)         VS=                          0 CM/S
MIXH=               1000  M           AMB=                         0 PPM
SIGTH=                 5  DEGREES     TEMP=                      2.2 DEGREE    (C)
II.       LINK            VARIABLES
LINK      *               LINK        COORDINATES     (M)           *                        EF     H      W
DESCRIPTI *               X1          Y1              X2            Y2          TYPE   VPH   (G/MI)  (M)    (M)
----------------*-------------------------*------------------------------
A.        Link            A                       68665 *****                 68617 AG            29     7.4    0     10
B.        Link            B                       68661 *****                 68616 AG            29     7.4    0     10
C.        Link            C                       68661 *****                 68614 AG             7     7.4    0     10
D.        Link            D                       68619 *****                 68661 AG            16     5.2    0     10
E.        Link            E                       68623 *****                 68664 AG            84     5.2    0     10
F.        Link            F                       68617 *****                 68575 AG            29     5.1    0     10
G.        Link            G                       68668 *****                 68623 AG            84     6.6    0     10
H.        Link            H                       68618 *****                 68581 AG            86     5.1    0     10
I.        Link            I                       68664 *****                 68618 AG            84     6.6    0     10
J.        Link            J                       68616 *****                 68579 AG            40     5.2    0     10
K.        Link            K                       68655 *****                 68616 AG            11     6.6    0     10
L.        Link            L                       68574 *****                 68619 AG             3     6.6    0     10
M.        Link            M                       68572 *****                 68614 AG            90     6.6    0     10
N.        Link            N                       68614 *****                 68656 AG            97     5.1    0     10
O.        Link            O                       68574 *****                 68610 AG            90     6.6    0     10
P.        Link            P                       68610 *****                 68570 AG            90     5.2    0     10
Q.        Link            Q                       68579 *****                 68618 AG             2     7.4    0     10
R.        Link            R                       68584 *****                 68619 AG            13     7.4    0     10
S.        Link            S                       68581 *****                 68614 AG            13     7.4    0     10
T.        Link            T                       68614 *****                 68659 AG            13     5.1    0     10
```

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Intersection 23 - Existing
RUN: Hour 1
POLLUTAN Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	*	COORDINATES X	Y	(M) Z
1	Recpt 1	*	250427	68614	1.8
2	Recpt 2	*	250443	68599	1.8
3	Recpt 3	*	250459	68580	1.8
4	Recpt 4	*	250445	68627	1.8
5	Recpt 5	*	250464	68643	1.8
6	Recpt 6	*	250416	68629	1.8
7	Recpt 7	*	250431	68645	1.8
8	Recpt 8	*	250450	68661	1.8
9	Recpt 9	*	250402	68648	1.8
10	Recpt 10	*	250386	68667	1.8
11	Recpt 11	*	250401	68617	1.8
12	Recpt 12	*	250382	68604	1.8
13	Recpt 13	*	250363	68588	1.8
14	Recpt 14	*	250385	68633	1.8
15	Recpt 15	*	250369	68652	1.8
16	Recpt 16	*	250413	68602	1.8
17	Recpt 17	*	250427	68585	1.8
18	Recpt 18	*	250442	68566	1.8
19	Recpt 19	*	250394	68588	1.8
20	Recpt 20	*	250375	68572	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Intersection 23 - Existing
RUN: Hour 1
POLLUTAN Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.)

*	PRED	*	CONC/LINK										
*	CONC	*	(PPM)										
RECEPTOF *		(PPM)	*	A	B	C	D	E	F	G	H	I	J
1	Recpt	1	0	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	0	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	0	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	0.1	0	0	0	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0	0	0
19	Recpt	19	0.1	0	0	0	0	0	0	0	0	0	0
20	Recpt	20	0	0	0	0	0	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Intersection 23 - Existing
RUN: Hour 1
POLLUTAN Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.) (CONT.)

* CONC/LINK
* (PPM)

RECEPTOR	*	K	L	M	N	O	P	Q	R	S	T
1	Recpt	1	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0
9	Recpt	9	0	0	0	0	0	0	0	0	0
10	Recpt	10	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0
16	Recpt	16	0	0	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0
19	Recpt	19	0	0	0	0	0	0	0	0	0
20	Recpt	20	0	0	0	0	0	0	0	0	0

Fresno Station Van Ness Ave./Fresno St. 2035 Build CALINE Output

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL										
JUNE	1989	VERSION													
PAGE	1														
JOB:	Intersection	23	-	Existing	plus	Project									
RUN:	Hour	1													
POLLUTANT:	Carbon	Monoxide													
I.	SITE	VARIABLES													
U=	1	M/S	Z0=	100	CM	ALT=	0	(M)							
BRG=	0	DEGREES	VD=	0	CM/S										
CLAS=	7	(G)	VS=	0	CM/S										
MIXH=	1000	M	AMB=	0	PPM										
SIGTH=	5	DEGREES	TEMP=	2.2	DEGREE	(C)									
II.	LINK	VARIABLES													
LINK	*	LINK	COORDINATES	(M)	*							EF	H	W	
DESCRIPTION	*				X1	Y1	X2	Y2	TYPE	VPH	(G/MI)	(M)	(M)		
----------*----------*----------															
A.	Link	A	*	*****	68665	*****	68617	*	AG	29	9.1	0	10		
B.	Link	B	*	*****	68661	*****	68616	*	AG	29	9.1	0	10		
C.	Link	C	*	*****	68661	*****	68614	*	AG	24	9.1	0	10		
D.	Link	D	*	*****	68619	*****	68661	*	AG	29	5.6	0	10		
E.	Link	E	*	*****	68623	*****	68664	*	AG	71	5.6	0	10		
F.	Link	F	*	*****	68617	*****	68575	*	AG	29	5.2	0	10		
G.	Link	G	*	*****	68668	*****	68623	*	AG	71	7.4	0	10		
H.	Link	H	*	*****	68618	*****	68581	*	AG	79	5.2	0	10		
I.	Link	I	*	*****	68664	*****	68618	*	AG	71	7.4	0	10		
J.	Link	J	*	*****	68616	*****	68579	*	AG	57	5.6	0	10		
K.	Link	K	*	*****	68655	*****	68616	*	AG	28	7.4	0	10		
L.	Link	L	*	*****	68574	*****	68619	*	AG	16	7.4	0	10		
M.	Link	M	*	*****	68572	*****	68614	*	AG	65	7.4	0	10		
N.	Link	N	*	*****	68614	*****	68656	*	AG	89	5.2	0	10		
O.	Link	O	*	*****	68574	*****	68610	*	AG	65	7.4	0	10		
P.	Link	P	*	*****	68610	*****	68570	*	AG	65	5.6	0	10		
Q.	Link	Q	*	*****	68579	*****	68618	*	AG	8	9.1	0	10		
R.	Link	R	*	*****	68584	*****	68619	*	AG	13	9.1	0	10		
S.	Link	S	*	*****	68581	*****	68614	*	AG	13	9.1	0	10		
T.	Link	T	*	*****	68614	*****	68659	*	AG	13	5.2	0	10		

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Intersection 23 - Existing plus Project
RUN: Hour 1
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

* RECEPTOR	* COORDINATES (M)	X	Y	Z
1	Recpt 1	250427	68614	1.8
2	Recpt 2	250443	68599	1.8
3	Recpt 3	250459	68580	1.8
4	Recpt 4	250445	68627	1.8
5	Recpt 5	250464	68643	1.8
6	Recpt 6	250416	68629	1.8
7	Recpt 7	250431	68645	1.8
8	Recpt 8	250450	68661	1.8
9	Recpt 9	250402	68648	1.8
10	Recpt 10	250386	68667	1.8
11	Recpt 11	250401	68617	1.8
12	Recpt 12	250382	68604	1.8
13	Recpt 13	250363	68588	1.8
14	Recpt 14	250385	68633	1.8
15	Recpt 15	250369	68652	1.8
16	Recpt 16	250413	68602	1.8
17	Recpt 17	250427	68585	1.8
18	Recpt 18	250442	68566	1.8
19	Recpt 19	250394	68588	1.8
20	Recpt 20	250375	68572	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Intersection 23 - Existing plus Project
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.)

RECEPTOR	* PRED CONC * (PPM)	*	* CONC/LINK (PPM) *	A	B	C	D	E	F	G	H	I	J
1	Recpt	1	0	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	0	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	0	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	0.1	0	0	0	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0	0	0
19	Recpt	19	0.1	0	0	0	0	0	0	0	0	0	0
20	Recpt	20	0	0	0	0	0	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Intersection 23 - Existing plus Project
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.) (CONT.)

RECEPTOR	* CONC/LINK (PPM) *	K	L	M	N	O	P	Q	R	S	T
1	Recpt 1	0	0	0	0	0	0	0	0	0	0
2	Recpt 2	0	0	0	0	0	0	0	0	0	0
3	Recpt 3	0	0	0	0	0	0	0	0	0	0
4	Recpt 4	0	0	0	0	0	0	0	0	0	0
5	Recpt 5	0	0	0	0	0	0	0	0	0	0
6	Recpt 6	0	0	0	0	0	0	0	0	0	0
7	Recpt 7	0	0	0	0	0	0	0	0	0	0
8	Recpt 8	0	0	0	0	0	0	0	0	0	0
9	Recpt 9	0	0	0	0	0	0	0	0	0	0
10	Recpt 10	0	0	0	0	0	0	0	0	0	0
11	Recpt 11	0	0	0	0	0	0	0	0	0	0
12	Recpt 12	0	0	0	0	0	0	0	0	0	0
13	Recpt 13	0	0	0	0	0	0	0	0	0	0
14	Recpt 14	0	0	0	0	0	0	0	0	0	0
15	Recpt 15	0	0	0	0	0	0	0	0	0	0
16	Recpt 16	0	0	0	0	0	0	0	0	0	0
17	Recpt 17	0	0	0	0	0	0	0	0	0	0
18	Recpt 18	0	0	0	0	0	0	0	0	0	0
19	Recpt 19	0	0	0	0	0	0	0	0	0	0
20	Recpt 20	0	0	0	0	0	0	0	0	0	0

Fresno Station Van Ness Ave./Fresno St. 2035 Build CALINE Output

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL									
JUNE	1989	VERSION												
PAGE	1													
JOB:	Intersection	23	-	No	Build									
RUN:	Hour	1												
POLLUTANT:	Carbon	Monoxide												
I.	SITE	VARIABLES												
U=	1	M/S	Z0=	100	CM	ALT=	0	(M)						
BRG=	0	DEGREES	VD=	0	CM/S									
CLAS=	7	(G)	VS=	0	CM/S									
MIXH=	1000	M	AMB=	0	PPM									
SIGTH=	5	DEGREES	TEMP=	2.2	DEGREE	(C)								
II.	LINK	VARIABLES												
LINK	*	LINK	COORDINATES	(M)	*							EF	H	W
DESCRIPTION	*			X1	Y1	X2	Y2			TYPE	VPH	(G/MI)	(M)	(M)
----------*----------*----------														
A.	Link	A	*	*****	68665	*****	68617	*		AG	86	1.8	0	10
B.	Link	B	*	*****	68661	*****	68616	*		AG	86	1.8	0	10
C.	Link	C	*	*****	68661	*****	68614	*		AG	14	1.8	0	10
D.	Link	D	*	*****	68619	*****	68661	*		AG	32	1.1	0	10
E.	Link	E	*	*****	68623	*****	68664	*		AG	84	1.1	0	10
F.	Link	F	*	*****	68617	*****	68575	*		AG	86	1	0	10
G.	Link	G	*	*****	68668	*****	68623	*		AG	84	1.4	0	10
H.	Link	H	*	*****	68618	*****	68581	*		AG	87	1	0	10
I.	Link	I	*	*****	68664	*****	68618	*		AG	84	1.4	0	10
J.	Link	J	*	*****	68616	*****	68579	*		AG	150	1.1	0	10
K.	Link	K	*	*****	68655	*****	68616	*		AG	64	1.4	0	10
L.	Link	L	*	*****	68574	*****	68619	*		AG	4	1.4	0	10
M.	Link	M	*	*****	68572	*****	68614	*		AG	689	1.5	0	10
N.	Link	N	*	*****	68614	*****	68656	*		AG	703	1.1	0	10
O.	Link	O	*	*****	68574	*****	68610	*		AG	689	1.5	0	10
P.	Link	P	*	*****	68610	*****	68570	*		AG	689	1.1	0	10
Q.	Link	Q	*	*****	68579	*****	68618	*		AG	3	1.8	0	10
R.	Link	R	*	*****	68584	*****	68619	*		AG	28	1.8	0	10
S.	Link	S	*	*****	68581	*****	68614	*		AG	28	1.8	0	10
T.	Link	T	*	*****	68614	*****	68659	*		AG	28	1.1	0	10

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Intersection 23 - No Build
RUN: Hour 1
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) *	X	Y	Z
1	Recpt	1	250427	68614	1.8
2	Recpt	2	250443	68599	1.8
3	Recpt	3	250459	68580	1.8
4	Recpt	4	250445	68627	1.8
5	Recpt	5	250464	68643	1.8
6	Recpt	6	250416	68629	1.8
7	Recpt	7	250431	68645	1.8
8	Recpt	8	250450	68661	1.8
9	Recpt	9	250402	68648	1.8
10	Recpt	10	250386	68667	1.8
11	Recpt	11	250401	68617	1.8
12	Recpt	12	250382	68604	1.8
13	Recpt	13	250363	68588	1.8
14	Recpt	14	250385	68633	1.8
15	Recpt	15	250369	68652	1.8
16	Recpt	16	250413	68602	1.8
17	Recpt	17	250427	68585	1.8
18	Recpt	18	250442	68566	1.8
19	Recpt	19	250394	68588	1.8
20	Recpt	20	250375	68572	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Intersection 23 - No Build
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.)

RECEPTOR	* PRED CONC *	* CONC/LINK (PPM) * (PPM)	A	B	C	D	E	F	G	H	I	J
1	Recpt	1	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	0.1	0	0	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0	0
19	Recpt	19	0.1	0	0	0	0	0	0	0	0	0
20	Recpt	20	0.1	0	0	0	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Intersection 23 - No Build
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.) (CONT.)

RECEPTOR	* CONC/LINK (PPM) *	K	L	M	N	O	P	Q	R	S	T
1	Recpt 1	0	0	0	0	0	0	0	0	0	0
2	Recpt 2	0	0	0	0	0	0	0	0	0	0
3	Recpt 3	0	0	0	0	0	0	0	0	0	0
4	Recpt 4	0	0	0	0	0	0	0	0	0	0
5	Recpt 5	0	0	0	0	0	0	0	0	0	0
6	Recpt 6	0	0	0	0	0	0	0	0	0	0
7	Recpt 7	0	0	0	0	0	0	0	0	0	0
8	Recpt 8	0	0	0	0	0	0	0	0	0	0
9	Recpt 9	0	0	0	0	0	0	0	0	0	0
10	Recpt 10	0	0	0	0	0	0	0	0	0	0
11	Recpt 11	0	0	0	0	0	0	0	0	0	0
12	Recpt 12	0	0	0	0	0	0	0	0	0	0
13	Recpt 13	0	0	0	0	0	0	0	0	0	0
14	Recpt 14	0	0	0	0	0	0	0	0	0	0
15	Recpt 15	0	0	0	0	0	0	0	0	0	0
16	Recpt 16	0	0	0	0	0	0	0	0	0	0
17	Recpt 17	0	0	0	0	0	0	0	0	0	0
18	Recpt 18	0	0	0	0	0	0	0	0	0	0
19	Recpt 19	0	0	0	0	0	0	0	0	0	0
20	Recpt 20	0	0	0	0	0	0	0	0	0	0

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL									
JUNE	1989	VERSION												
PAGE	1													
JOB:	Intersection	23	-	Build										
RUN:	Hour	1												
POLLUTANT:	Carbon	Monoxide												
I.	SITE	VARIABLES												
U=	1	M/S	Z0=	100	CM	ALT=	0	(M)						
BRG=	0	DEGREES	VD=	0	CM/S									
CLAS=	7	(G)	VS=	0	CM/S									
MIXH=	1000	M	AMB=	0	PPM									
SIGTH=	5	DEGREES	TEMP=	2.2	DEGREE	(C)								
II.	LINK	VARIABLES												
LINK	*	LINK	COORDIN/	(M)	*							EF	H	W
DESCRIPTION	*			X1	Y1	X2	Y2	*	TYPE	VPH		(G/MI)	(M)	(M)
----------*----------*----------														
A.	Link	A	*	*****	68665	*****	68617	*	AG	86		1.8	0	10
B.	Link	B	*	*****	68661	*****	68616	*	AG	86		1.8	0	10
C.	Link	C	*	*****	68661	*****	68614	*	AG	112		1.8	0	10
D.	Link	D	*	*****	68619	*****	68661	*	AG	96		1.1	0	10
E.	Link	E	*	*****	68623	*****	68664	*	AG	70		1.1	0	10
F.	Link	F	*	*****	68617	*****	68575	*	AG	86		1	0	10
G.	Link	G	*	*****	68668	*****	68623	*	AG	70		1.4	0	10
H.	Link	H	*	*****	68618	*****	68581	*	AG	79		1	0	10
I.	Link	I	*	*****	68664	*****	68618	*	AG	70		1.4	0	10
J.	Link	J	*	*****	68616	*****	68579	*	AG	172		1.1	0	10
K.	Link	K	*	*****	68655	*****	68616	*	AG	86		1.4	0	10
L.	Link	L	*	*****	68574	*****	68619	*	AG	68		1.4	0	10
M.	Link	M	*	*****	68572	*****	68614	*	AG	608		1.5	0	10
N.	Link	N	*	*****	68614	*****	68656	*	AG	720		1.1	0	10
O.	Link	O	*	*****	68574	*****	68610	*	AG	608		1.5	0	10
P.	Link	P	*	*****	68610	*****	68570	*	AG	608		1.1	0	10
Q.	Link	Q	*	*****	68579	*****	68618	*	AG	9		1.8	0	10
R.	Link	R	*	*****	68584	*****	68619	*	AG	28		1.8	0	10
S.	Link	S	*	*****	68581	*****	68614	*	AG	28		1.8	0	10
T.	Link	T	*	*****	68614	*****	68659	*	AG	28		1.1	0	10

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Intersection 23 - Build
RUN: Hour 1
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

* RECEPTOR	* COORDINATES (M)	X	Y	Z
1	Recpt 1	250427	68614	1.8
2	Recpt 2	250443	68599	1.8
3	Recpt 3	250459	68580	1.8
4	Recpt 4	250445	68627	1.8
5	Recpt 5	250464	68643	1.8
6	Recpt 6	250416	68629	1.8
7	Recpt 7	250431	68645	1.8
8	Recpt 8	250450	68661	1.8
9	Recpt 9	250402	68648	1.8
10	Recpt 10	250386	68667	1.8
11	Recpt 11	250401	68617	1.8
12	Recpt 12	250382	68604	1.8
13	Recpt 13	250363	68588	1.8
14	Recpt 14	250385	68633	1.8
15	Recpt 15	250369	68652	1.8
16	Recpt 16	250413	68602	1.8
17	Recpt 17	250427	68585	1.8
18	Recpt 18	250442	68566	1.8
19	Recpt 19	250394	68588	1.8
20	Recpt 20	250375	68572	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Intersection 23 - Build
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.)

RECEPTOR	*	PRED CONC * (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H	I	J
1	Recpt	1	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	0.1	0	0	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0	0
19	Recpt	19	0.1	0	0	0	0	0	0	0	0	0
20	Recpt	20	0	0	0	0	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Intersection 23 - Build
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.) (CONT.)

RECEPTOR	* CONC/LINK (PPM) *	K	L	M	N	O	P	Q	R	S	T
1	Recpt 1	0	0	0	0	0	0	0	0	0	0
2	Recpt 2	0	0	0	0	0	0	0	0	0	0
3	Recpt 3	0	0	0	0	0	0	0	0	0	0
4	Recpt 4	0	0	0	0	0	0	0	0	0	0
5	Recpt 5	0	0	0	0	0	0	0	0	0	0
6	Recpt 6	0	0	0	0	0	0	0	0	0	0
7	Recpt 7	0	0	0	0	0	0	0	0	0	0
8	Recpt 8	0	0	0	0	0	0	0	0	0	0
9	Recpt 9	0	0	0	0	0	0	0	0	0	0
10	Recpt 10	0	0	0	0	0	0	0	0	0	0
11	Recpt 11	0	0	0	0	0	0	0	0	0	0
12	Recpt 12	0	0	0	0	0	0	0	0	0	0
13	Recpt 13	0	0	0	0	0	0	0	0	0	0
14	Recpt 14	0	0	0	0	0	0	0	0	0	0
15	Recpt 15	0	0	0	0	0	0	0	0	0	0
16	Recpt 16	0	0	0	0	0	0	0	0	0	0
17	Recpt 17	0	0	0	0	0	0	0	0	0	0
18	Recpt 18	0	0	0	0	0	0	0	0	0	0
19	Recpt 19	0	0	0	0	0	0	0	0	0	0
20	Recpt 20	0	0	0	0	0	0	0	0	0	0

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL										
JUNE	1989	VERSION													
PAGE	1														
JOB:	Intersection	83	-	Existing											
RUN:	Hour	1													
POLLUTANT:	Carbon	Monoxide													
I.	SITE	VARIABLES													
U=	1	M/S	Z0=	100	CM	ALT=	0	(M)							
BRG=	0	DEGREES	VD=	0	CM/S										
CLAS=	7	(G)	VS=	0	CM/S										
MIXH=	1000	M	AMB=	0	PPM										
SIGTH=	5	DEGREES	TEMP=	2.2	DEGREE	(C)									
II.	LINK	VARIABLES													
LINK	*	LINK	COORDINATES (M)		*								EF	H	W
DESCRIPTION	*			X1	Y1	X2	Y2	*	TYPE	VPH	(G/MI)	(M)	(M)		
----------*----------*----------															
A.	Link	A	*	*****	68883	*****	68847	*	AG	4	11	0	10		
B.	Link	B	*	*****	68873	*****	68842	*	AG	9	11	0	10		
C.	Link	C	*	*****	68876	*****	68841	*	AG	8	11	0	10		
D.	Link	D	*	*****	68845	*****	68884	*	AG	89	6	0	10		
E.	Link	E	*	*****	68855	*****	68888	*	AG	6	6	0	10		
F.	Link	F	*	*****	68847	*****	68818	*	AG	4	5	0	10		
G.	Link	G	*	*****	68882	*****	68855	*	AG	6	8	0	10		
H.	Link	H	*	*****	68847	*****	68814	*	AG	269	5	0	10		
I.	Link	I	*	*****	68881	*****	68847	*	AG	254	8	0	10		
J.	Link	J	*	*****	68842	*****	68806	*	AG	30	6	0	10		
K.	Link	K	*	*****	68877	*****	68842	*	AG	21	8	0	10		
L.	Link	L	*	*****	68809	*****	68845	*	AG	77	8	0	10		
M.	Link	M	*	*****	68807	*****	68841	*	AG	768	8.7	0	10		
N.	Link	N	*	*****	68841	*****	68873	*	AG	776	5.1	0	10		
O.	Link	O	*	*****	68806	*****	68833	*	AG	12	8.7	0	10		
P.	Link	P	*	*****	68833	*****	68802	*	AG	12	6	0	10		
Q.	Link	Q	*	*****	68806	*****	68847	*	AG	15	11	0	10		
R.	Link	R	*	*****	68809	*****	68845	*	AG	12	11	0	10		
S.	Link	S	*	*****	68815	*****	68841	*	AG	1	11	0	10		
T.	Link	T	*	*****	68841	*****	68867	*	AG	1	5.1	0	10		

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Intersection 83 - Existing
RUN: Hour 1
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

* RECEPTOR	* COORDINATES (M)	X	Y	Z
1	Recpt 1	250244	68837	1.8
2	Recpt 2	250258	68820	1.8
3	Recpt 3	250274	68800	1.8
4	Recpt 4	250261	68855	1.8
5	Recpt 5	250280	68872	1.8
6	Recpt 6	250226	68866	1.8
7	Recpt 7	250243	68880	1.8
8	Recpt 8	250262	68896	1.8
9	Recpt 9	250206	68883	1.8
10	Recpt 10	250189	68902	1.8
11	Recpt 11	250203	68847	1.8
12	Recpt 12	250187	68833	1.8
13	Recpt 13	250168	68816	1.8
14	Recpt 14	250189	68869	1.8
15	Recpt 15	250174	68888	1.8
16	Recpt 16	250227	68823	1.8
17	Recpt 17	250241	68806	1.8
18	Recpt 18	250258	68787	1.8
19	Recpt 19	250206	68810	1.8
20	Recpt 20	250186	68795	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Intersection 83 - Existing
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.)

*	PRED	*	CONC/LINK										
*	CONC	*	(PPM)										
RECEPTOR	*	(PPM)	*	A	B	C	D	E	F	G	H	I	J
1	Recpt	1	0.2	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	0.1	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	0.2	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	0	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	0	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	0.3	0	0	0	0	0	0	0	0	0	0
17	Recpt	17	0.1	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0	0	0
19	Recpt	19	0.3	0	0	0	0	0	0	0	0	0	0
20	Recpt	20	0.2	0	0	0	0	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Intersection 83 - Existing
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.) (CONT.)

RECEPTOR	* CONC/LINK (PPM) *	K	L	M	N	O	P	Q	R	S	T
1	Recpt	1	0	0	0	0.1	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0.1	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0
9	Recpt	9	0	0	0	0	0	0	0	0	0
10	Recpt	10	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0
16	Recpt	16	0	0	0.1	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0
19	Recpt	19	0	0	0.2	0	0	0	0	0	0
20	Recpt	20	0	0	0.1	0	0	0	0	0	0

CALINE4:	CALIFORNIA		LINE	SOURCE	DISPERSION	MODEL								
JUNE		1989	VERSION											
PAGE		1												
JOB:	Intersection			83 -	Existing	plus	Project							
RUN:	Hour			1										
POLLUTANT:	Carbon		Monoxide											
I.	SITE		VARIABLES											
U=		1	M/S	Z0=	100	CM	ALT=	0	(M)					
BRG=		0	DEGREES	VD=	0	CM/S								
CLAS=		7	(G)	VS=	0	CM/S								
MIXH=		1000	M	AMB=	0	PPM								
SIGTH=		5	DEGREES	TEMP=	2.2	DEGREE	(C)							
II.	LINK		VARIABLES											
LINK	*		LINK	COORDINATES	(M)	*						EF	H	W
DESCRIPTION	*				X1	Y1	X2	Y2	TYPE	VPH		(G/MI)	(M)	(M)
----------*----------*----------														
A.	Link		A	*	*****	68883	*****	68847	AG	49		11	0	10
B.	Link		B	*	*****	68873	*****	68842	AG	9		11	0	10
C.	Link		C	*	*****	68876	*****	68841	AG	41		11	0	10
D.	Link		D	*	*****	68845	*****	68884	AG	89		6	0	10
E.	Link		E	*	*****	68855	*****	68888	AG	319		6	0	10
F.	Link		F	*	*****	68847	*****	68818	AG	49		5	0	10
G.	Link		G	*	*****	68882	*****	68855	AG	319		8	0	10
H.	Link		H	*	*****	68847	*****	68814	AG	316		5	0	10
I.	Link		I	*	*****	68881	*****	68847	AG	284		8	0	10
J.	Link		J	*	*****	68842	*****	68806	AG	30		6	0	10
K.	Link		K	*	*****	68877	*****	68842	AG	21		8	0	10
L.	Link		L	*	*****	68809	*****	68845	AG	77		8	0	10
M.	Link		M	*	*****	68807	*****	68841	AG	814		8.7	0	10
N.	Link		N	*	*****	68841	*****	68873	AG	855		5.1	0	10
O.	Link		O	*	*****	68806	*****	68833	AG	36		8.7	0	10
P.	Link		P	*	*****	68833	*****	68802	AG	36		6	0	10
Q.	Link		Q	*	*****	68806	*****	68847	AG	32		11	0	10
R.	Link		R	*	*****	68809	*****	68845	AG	12		11	0	10
S.	Link		S	*	*****	68815	*****	68841	AG	30		11	0	10
T.	Link		T	*	*****	68841	*****	68867	AG	30		5.1	0	10

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Intersection 83 - Existing plus Project
RUN: Hour 1
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

* RECEPTOR	* COORDINATES (M)	X	Y	Z
1	Recpt 1	250244	68837	1.8
2	Recpt 2	250258	68820	1.8
3	Recpt 3	250274	68800	1.8
4	Recpt 4	250261	68855	1.8
5	Recpt 5	250280	68872	1.8
6	Recpt 6	250226	68866	1.8
7	Recpt 7	250243	68880	1.8
8	Recpt 8	250262	68896	1.8
9	Recpt 9	250206	68883	1.8
10	Recpt 10	250189	68902	1.8
11	Recpt 11	250203	68847	1.8
12	Recpt 12	250187	68833	1.8
13	Recpt 13	250168	68816	1.8
14	Recpt 14	250189	68869	1.8
15	Recpt 15	250174	68888	1.8
16	Recpt 16	250227	68823	1.8
17	Recpt 17	250241	68806	1.8
18	Recpt 18	250258	68787	1.8
19	Recpt 19	250206	68810	1.8
20	Recpt 20	250186	68795	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Intersection 83 - Existing plus Project
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.)

*	PRED	*	CONC/LINK										
*	CONC	*	(PPM)										
RECEPTOR	*	(PPM)	*	A	B	C	D	E	F	G	H	I	J
1	Recpt	1	0.3	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	0.1	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	0.2	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	0	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	0	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	0.1	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	0.4	0	0	0	0	0	0	0	0	0	0
17	Recpt	17	0.2	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	0.1	0	0	0	0	0	0	0	0	0	0
19	Recpt	19	0.4	0	0	0	0	0	0	0	0	0	0
20	Recpt	20	0.2	0	0	0	0	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Intersection 83 - Existing plus Project
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.) (CONT.)

RECEPTOR	* CONC/LINK (PPM) *	K	L	M	N	O	P	Q	R	S	T
1	Recpt 1	0	0	0	0.1	0	0	0	0	0	0
2	Recpt 2	0	0	0	0	0	0	0	0	0	0
3	Recpt 3	0	0	0	0	0	0	0	0	0	0
4	Recpt 4	0	0	0	0.1	0	0	0	0	0	0
5	Recpt 5	0	0	0	0	0	0	0	0	0	0
6	Recpt 6	0	0	0	0	0	0	0	0	0	0
7	Recpt 7	0	0	0	0	0	0	0	0	0	0
8	Recpt 8	0	0	0	0	0	0	0	0	0	0
9	Recpt 9	0	0	0	0	0	0	0	0	0	0
10	Recpt 10	0	0	0	0	0	0	0	0	0	0
11	Recpt 11	0	0	0	0	0	0	0	0	0	0
12	Recpt 12	0	0	0	0	0	0	0	0	0	0
13	Recpt 13	0	0	0	0	0	0	0	0	0	0
14	Recpt 14	0	0	0	0	0	0	0	0	0	0
15	Recpt 15	0	0	0	0	0	0	0	0	0	0
16	Recpt 16	0	0	0.1	0	0	0	0	0	0	0
17	Recpt 17	0	0	0	0	0	0	0	0	0	0
18	Recpt 18	0	0	0	0	0	0	0	0	0	0
19	Recpt 19	0	0	0.3	0	0	0	0	0	0	0
20	Recpt 20	0	0	0.1	0	0	0	0	0	0	0

CALINE4:	CALIFORNIA		LINE	SOURCE	DISPERSION	MODEL							
JUNE		1989	VERSION										
PAGE		1											
JOB:	Intersection		83	-	No	Build							
RUN:	Hour		1										
POLLUTANT:	Carbon		Monoxide										
I.	SITE		VARIABLES										
U=		1	M/S	Z0=	100	CM	ALT=	0	(M)				
BRG=		0	DEGREES	VD=	0	CM/S							
CLAS=		7	(G)	VS=	0	CM/S							
MIXH=		1000	M	AMB=	0	PPM							
SIGTH=		5	DEGREES	TEMP=	2.2	DEGREE	(C)						
II.	LINK		VARIABLES										
LINK	*		LINK	COORDINATES	(M)	*					EF	H	W
DESCRIPTION	*				X1	Y1	X2	Y2	TYPE	VPH	(G/MI)	(M)	(M)
----------*----------*----------													
A.	Link		A	*	*****	68883	*****	68847	AG	36	2	0	10
B.	Link		B	*	*****	68873	*****	68842	AG	46	2	0	10
C.	Link		C	*	*****	68876	*****	68841	AG	11	2	0	10
D.	Link		D	*	*****	68845	*****	68884	AG	89	1.1	0	10
E.	Link		E	*	*****	68855	*****	68888	AG	6	1.1	0	10
F.	Link		F	*	*****	68847	*****	68818	AG	36	1	0	10
G.	Link		G	*	*****	68882	*****	68855	AG	6	1.5	0	10
H.	Link		H	*	*****	68847	*****	68814	AG	681	1	0	10
I.	Link		I	*	*****	68881	*****	68847	AG	592	1.5	0	10
J.	Link		J	*	*****	68842	*****	68806	AG	74	1.1	0	10
K.	Link		K	*	*****	68877	*****	68842	AG	28	1.5	0	10
L.	Link		L	*	*****	68809	*****	68845	AG	77	1.5	0	10
M.	Link		M	*	*****	68807	*****	68841	AG	1039	1.6	0	10
N.	Link		N	*	*****	68841	*****	68873	AG	1050	1	0	10
O.	Link		O	*	*****	68806	*****	68833	AG	59	1.6	0	10
P.	Link		P	*	*****	68833	*****	68802	AG	59	1.1	0	10
Q.	Link		Q	*	*****	68806	*****	68847	AG	89	2	0	10
R.	Link		R	*	*****	68809	*****	68845	AG	12	2	0	10
S.	Link		S	*	*****	68815	*****	68841	AG	1	2	0	10
T.	Link		T	*	*****	68841	*****	68867	AG	1	1	0	10

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Intersection 83 - No Build
RUN: Hour 1
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

* RECEPTOR	* COORDINATES	(M) X	Y	Z
1	Recpt 1	250244	68837	1.8
2	Recpt 2	250258	68820	1.8
3	Recpt 3	250274	68800	1.8
4	Recpt 4	250261	68855	1.8
5	Recpt 5	250280	68872	1.8
6	Recpt 6	250226	68866	1.8
7	Recpt 7	250243	68880	1.8
8	Recpt 8	250262	68896	1.8
9	Recpt 9	250206	68883	1.8
10	Recpt 10	250189	68902	1.8
11	Recpt 11	250203	68847	1.8
12	Recpt 12	250187	68833	1.8
13	Recpt 13	250168	68816	1.8
14	Recpt 14	250189	68869	1.8
15	Recpt 15	250174	68888	1.8
16	Recpt 16	250227	68823	1.8
17	Recpt 17	250241	68806	1.8
18	Recpt 18	250258	68787	1.8
19	Recpt 19	250206	68810	1.8
20	Recpt 20	250186	68795	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Intersection 83 - No Build
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.)

*	PRED	*	CONC/LINK										
*	CONC	*	(PPM)										
RECEPTOR	*	(PPM)	*	A	B	C	D	E	F	G	H	I	J
1	Recpt		1	0	0	0	0	0	0	0	0	0	0 0
2	Recpt		2	0	0	0	0	0	0	0	0	0	0 0
3	Recpt		3	0	0	0	0	0	0	0	0	0	0 0
4	Recpt		4	0	0	0	0	0	0	0	0	0	0 0
5	Recpt		5	0	0	0	0	0	0	0	0	0	0 0
6	Recpt		6	0	0	0	0	0	0	0	0	0	0 0
7	Recpt		7	0	0	0	0	0	0	0	0	0	0 0
8	Recpt		8	0	0	0	0	0	0	0	0	0	0 0
9	Recpt		9	0	0	0	0	0	0	0	0	0	0 0
10	Recpt		10	0	0	0	0	0	0	0	0	0	0 0
11	Recpt		11	0	0	0	0	0	0	0	0	0	0 0
12	Recpt		12	0	0	0	0	0	0	0	0	0	0 0
13	Recpt		13	0	0	0	0	0	0	0	0	0	0 0
14	Recpt		14	0	0	0	0	0	0	0	0	0	0 0
15	Recpt		15	0	0	0	0	0	0	0	0	0	0 0
16	Recpt		16	0	0	0	0	0	0	0	0	0	0 0
17	Recpt		17	0	0	0	0	0	0	0	0	0	0 0
18	Recpt		18	0	0	0	0	0	0	0	0	0	0 0
19	Recpt		19	0	0	0	0	0	0	0	0	0	0 0
20	Recpt		20	0	0	0	0	0	0	0	0	0	0 0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Intersection 83 - No Build
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.) (CONT.)

RECEPTOR	* CONC/LINK (PPM) *	K	L	M	N	O	P	Q	R	S	T
1	Recpt	1	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0
9	Recpt	9	0	0	0	0	0	0	0	0	0
10	Recpt	10	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0
16	Recpt	16	0	0	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0
19	Recpt	19	0	0	0	0	0	0	0	0	0
20	Recpt	20	0	0	0	0	0	0	0	0	0

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL									
JUNE	1989	VERSION												
PAGE	1													
JOB:	Intersection	83	-	Build										
RUN:	Hour	1												
POLLUTANT:	Carbon	Monoxide												
I.	SITE	VARIABLES												
U=	1	M/S	Z0=	100	CM	ALT=	0	(M)						
BRG=	0	DEGREES	VD=	0	CM/S									
CLAS=	7	(G)	VS=	0	CM/S									
MIXH=	1000	M	AMB=	0	PPM									
SIGTH=	5	DEGREES	TEMP=	2.2	DEGREE	(C)								
II.	LINK	VARIABLES												
LINK	*	LINK	COORDINATES	(M)	*							EF	H	W
DESCRIPTION	*			X1	Y1	X2	Y2	*	TYPE	VPH		(G/MI)	(M)	(M)
----------*	----------*	----------												
A.	Link	A	*	*****	68883	*****	68847	*	AG	168		1.7	0	10
B.	Link	B	*	*****	68873	*****	68842	*	AG	115		1.7	0	10
C.	Link	C	*	*****	68876	*****	68841	*	AG	74		1.7	0	10
D.	Link	D	*	*****	68845	*****	68884	*	AG	89		1.1	0	10
E.	Link	E	*	*****	68855	*****	68888	*	AG	779		1.1	0	10
F.	Link	F	*	*****	68847	*****	68818	*	AG	168		1	0	10
G.	Link	G	*	*****	68882	*****	68855	*	AG	779		1.5	0	10
H.	Link	H	*	*****	68847	*****	68814	*	AG	728		1	0	10
I.	Link	I	*	*****	68881	*****	68847	*	AG	622		1.5	0	10
J.	Link	J	*	*****	68842	*****	68806	*	AG	143		1.1	0	10
K.	Link	K	*	*****	68877	*****	68842	*	AG	28		1.5	0	10
L.	Link	L	*	*****	68809	*****	68845	*	AG	77		1.5	0	10
M.	Link	M	*	*****	68807	*****	68841	*	AG	1080		1.6	0	10
N.	Link	N	*	*****	68841	*****	68873	*	AG	1154		1	0	10
O.	Link	O	*	*****	68806	*****	68833	*	AG	88		1.6	0	10
P.	Link	P	*	*****	68833	*****	68802	*	AG	88		1.1	0	10
Q.	Link	Q	*	*****	68806	*****	68847	*	AG	106		1.7	0	10
R.	Link	R	*	*****	68809	*****	68845	*	AG	12		1.7	0	10
S.	Link	S	*	*****	68815	*****	68841	*	AG	30		1.7	0	10
T.	Link	T	*	*****	68841	*****	68867	*	AG	30		1	0	10

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Intersection 83 - Build
RUN: Hour 1
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

* RECEPTOR	* COORDINATES (M)	X	Y	Z
1	Recpt 1	250244	68837	1.8
2	Recpt 2	250258	68820	1.8
3	Recpt 3	250274	68800	1.8
4	Recpt 4	250261	68855	1.8
5	Recpt 5	250280	68872	1.8
6	Recpt 6	250226	68866	1.8
7	Recpt 7	250243	68880	1.8
8	Recpt 8	250262	68896	1.8
9	Recpt 9	250206	68883	1.8
10	Recpt 10	250189	68902	1.8
11	Recpt 11	250203	68847	1.8
12	Recpt 12	250187	68833	1.8
13	Recpt 13	250168	68816	1.8
14	Recpt 14	250189	68869	1.8
15	Recpt 15	250174	68888	1.8
16	Recpt 16	250227	68823	1.8
17	Recpt 17	250241	68806	1.8
18	Recpt 18	250258	68787	1.8
19	Recpt 19	250206	68810	1.8
20	Recpt 20	250186	68795	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Intersection 83 - Build
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.)

*	PRED	*	CONC/LINK										
*	CONC	*	(PPM)										
RECEPTOR	*	(PPM)	*	A	B	C	D	E	F	G	H	I	J
1	Recpt	1	0	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	0	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	0	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	0.1	0	0	0	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0	0	0
19	Recpt	19	0.1	0	0	0	0	0	0	0	0	0	0
20	Recpt	20	0	0	0	0	0	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Intersection 83 - Build
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.) (CONT.)

RECEPTOR	* CONC/LINK (PPM) *	K	L	M	N	O	P	Q	R	S	T
1	Recpt 1	0	0	0	0	0	0	0	0	0	0
2	Recpt 2	0	0	0	0	0	0	0	0	0	0
3	Recpt 3	0	0	0	0	0	0	0	0	0	0
4	Recpt 4	0	0	0	0	0	0	0	0	0	0
5	Recpt 5	0	0	0	0	0	0	0	0	0	0
6	Recpt 6	0	0	0	0	0	0	0	0	0	0
7	Recpt 7	0	0	0	0	0	0	0	0	0	0
8	Recpt 8	0	0	0	0	0	0	0	0	0	0
9	Recpt 9	0	0	0	0	0	0	0	0	0	0
10	Recpt 10	0	0	0	0	0	0	0	0	0	0
11	Recpt 11	0	0	0	0	0	0	0	0	0	0
12	Recpt 12	0	0	0	0	0	0	0	0	0	0
13	Recpt 13	0	0	0	0	0	0	0	0	0	0
14	Recpt 14	0	0	0	0	0	0	0	0	0	0
15	Recpt 15	0	0	0	0	0	0	0	0	0	0
16	Recpt 16	0	0	0	0	0	0	0	0	0	0
17	Recpt 17	0	0	0	0	0	0	0	0	0	0
18	Recpt 18	0	0	0	0	0	0	0	0	0	0
19	Recpt 19	0	0	0	0	0	0	0	0	0	0
20	Recpt 20	0	0	0	0	0	0	0	0	0	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 1
JOB: BKF Int 23 Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide
I. SITE VARIABLES
U= 1 M/S Z0= 100 CM ALT= 0 (M)
BRG= WORST CASE VD= 0 CM/S
CLAS= 7 (G) VS= 0 CM/S
MIXH= 1000 M AMB= 0 PPM
SIGTH= 5 DEGREES TEMP= 5 DEGREE (C)
II. LINK VARIABLES

LINK DESCRIPTION			*	LINK X1	COORDINATES Y1	X2	(M) Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A.	Link	A	*	128	836	126	757	*	AG	305	9.9	0	10
B.	Link	B	*	136	836	137	745	*	AG	1138	9.9	0	10
C.	Link	C	*	144	836	141	739	*	AG	181	11.5	0	10
D.	Link	D	*	150	836	147	743	*	AG	1118	6.6	0	10
E.	Link	E	*	155	836	155	758	*	AG	129	6.6	0	10
F.	Link	F	*	64	757	126	757	*	AG	305	6.3	0	10
G.	Link	G	*	155	758	231	755	*	AG	129	11.5	0	10
H.	Link	H	*	63	753	144	749	*	AG	531	6.3	0	10
I.	Link	I	*	144	749	231	749	*	AG	417	11.5	0	10
J.	Link	J	*	137	745	132	661	*	AG	1449	5.5	0	10
K.	Link	K	*	137	745	231	743	*	AG	311	12	0	10
L.	Link	L	*	63	744	147	743	*	AG	239	12	0	10
M.	Link	M	*	63	738	141	739	*	AG	333	11.5	0	10
N.	Link	N	*	141	739	231	735	*	AG	514	12	0	10
O.	Link	O	*	63	733	128	730	*	AG	106	11.5	0	10
P.	Link	P	*	128	730	126	661	*	AG	106	5.5	0	10
Q.	Link	Q	*	144	749	141	661	*	AG	114	12	0	10
R.	Link	R	*	147	743	145	660	*	AG	879	10.9	0	10
S.	Link	S	*	155	730	151	660	*	AG	115	10.9	0	10
T.	Link	T	*	155	730	231	729	*	AG	115	12	0	10

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 2

JOB: BKF Int 23 Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR		*	COORDINATES X	Y	(M) Z
1	Recpt 1	*	124	809	1.8
2	Recpt 2	*	123	784	1.8
3	Recpt 3	*	122	762	1.8
4	Recpt 4	*	100	762	1.8
5	Recpt 5	*	75	763	1.8
6	Recpt 6	*	74	727	1.8
7	Recpt 7	*	99	726	1.8
8	Recpt 8	*	121	725	1.8
9	Recpt 9	*	120	703	1.8
10	Recpt 10	*	120	679	1.8
11	Recpt 11	*	161	810	1.8
12	Recpt 12	*	161	785	1.8
13	Recpt 13	*	160	763	1.8
14	Recpt 14	*	182	762	1.8
15	Recpt 15	*	207	762	1.8
16	Recpt 16	*	206	724	1.8
17	Recpt 17	*	181	724	1.8
18	Recpt 18	*	159	724	1.8
19	Recpt 19	*	159	702	1.8
20	Recpt 20	*	158	677	1.8

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 3

JOB: BKF Int 23 Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN 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	Recpt	1	*	165	*	1.4	*	0.3	0.4	0	0	0	0	0	0
2	Recpt	2	*	156	*	1.3	*	0.2	0.4	0	0	0	0	0	0
3	Recpt	3	*	110	*	1.2	*	0.1	0.3	0	0.1	0	0	0	0
4	Recpt	4	*	107	*	1.1	*	0	0.2	0	0	0	0.1	0	0.1
5	Recpt	5	*	104	*	1.1	*	0	0.1	0	0	0	0.2	0	0.2
6	Recpt	6	*	78	*	1	*	0	0	0	0	0	0	0	0
7	Recpt	7	*	74	*	1	*	0	0	0	0	0	0	0	0
8	Recpt	8	*	72	*	1.1	*	0	0	0	0	0	0	0	0
9	Recpt	9	*	17	*	1	*	0	0.3	0	0.2	0	0	0	0
10	Recpt	10	*	16	*	1	*	0	0.1	0	0.2	0	0	0	0
11	Recpt	11	*	194	*	1	*	0	0	0	0.3	0	0	0	0
12	Recpt	12	*	198	*	1	*	0	0	0	0.2	0	0	0	0
13	Recpt	13	*	200	*	1.2	*	0	0	0	0	0	0	0	0
14	Recpt	14	*	247	*	1	*	0	0	0	0.1	0	0	0.1	0
15	Recpt	15	*	254	*	1	*	0	0	0	0	0	0	0.1	0
16	Recpt	16	*	288	*	1	*	0	0	0	0	0	0	0	0
17	Recpt	17	*	298	*	1	*	0	0.1	0	0	0	0	0	0
18	Recpt	18	*	340	*	1.3	*	0	0.3	0	0.3	0	0	0	0
19	Recpt	19	*	342	*	1.3	*	0	0.3	0	0.1	0	0	0	0
20	Recpt	20	*	347	*	1.3	*	0	0.3	0	0	0	0	0	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 4

JOB: BKF Int 23 Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR			*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T	
1	Recpt	1	*	0	0	0	0	0	0	0	0	0	0.2	0	0
2	Recpt	2	*	0	0	0	0	0	0	0	0	0	0.2	0	0
3	Recpt	3	*	0.2	0	0.2	0	0	0.2	0	0	0	0	0	0
4	Recpt	4	*	0.1	0	0.2	0	0	0.2	0	0	0	0	0	0
5	Recpt	5	*	0	0	0.1	0	0	0.2	0	0	0	0	0	0
6	Recpt	6	*	0.2	0	0.1	0	0.2	0	0.1	0	0	0	0	0
7	Recpt	7	*	0.2	0.1	0.1	0	0	0.1	0	0	0	0.1	0	0
8	Recpt	8	*	0.2	0.2	0.1	0	0	0.3	0	0	0	0.2	0	0
9	Recpt	9	*	0	0	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	*	0	0.2	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	*	0	0.2	0	0	0	0	0	0	0	0.2	0	0
12	Recpt	12	*	0	0.2	0	0	0	0	0	0	0	0.2	0	0
13	Recpt	13	*	0.1	0.2	0	0	0	0.1	0	0	0	0.4	0	0
14	Recpt	14	*	0.2	0	0	0	0.1	0	0	0	0	0	0	0
15	Recpt	15	*	0.2	0	0.1	0	0.1	0	0	0	0	0	0	0
16	Recpt	16	*	0	0	0	0	0	0.3	0	0	0	0	0	0.1
17	Recpt	17	*	0	0	0	0	0	0.2	0	0	0	0	0	0
18	Recpt	18	*	0	0	0	0	0	0.2	0	0	0	0	0	0
19	Recpt	19	*	0	0	0	0	0	0.1	0	0	0	0.3	0	0
20	Recpt	20	*	0	0	0	0	0	0	0	0	0	0.4	0.1	0

Bakersfield Station Union Ave./California Ave. 2009 Existing Plus Project CALINE Output

```
CALINE4:   CALIFORNI LINE      SOURCE    DISPERSIOI MODEL
JUNE          1989 VERSION
PAGE             1
JOB:       BKF      Int              23 Existing+Proj
RUN:       Hour              1 (WORST  CASE      ANGLE)
POLLUTAN   Carbon   Monoxide
I.         SITE     VARIABLES
U=               1 M/S      Z0=            100 CM       ALT=              0 (M)
BRG=       WORST    CASE     VD=              0 CM/S
CLAS=            7 (G)      VS=              0 CM/S
MIXH=         1000 M        AMB=             0 PPM
SIGTH=           5 DEGREES  TEMP=            5 DEGREE    (C)
II.        LINK     VARIABLES
LINK                        *        LINK     COORDINATES       (M)      *                    EF     H    W
DESCRIPTION                 *        X1       Y1        X2       Y2       *        TYPE  VPH  (G/MI)  (M)  (M)
----------------*-------------------------*------------------------------
A.         Link     A       *              128       836       126      757 *        AG    305    9.9    0   10
B.         Link     B       *              136       836       137      745 *        AG   1155    9.9    0   10
C.         Link     C       *              144       836       141      739 *        AG    188   11.5    0   10
D.         Link     D       *              150       836       147      743 *        AG   1147    6.6    0   10
E.         Link     E       *              155       836       155      758 *        AG    136    6.6    0   10
F.         Link     F       *               64       757       126      757 *        AG    305    6.3    0   10
G.         Link     G       *              155       758       231      755 *        AG    136   11.5    0   10
H.         Link     H       *               63       753       144      749 *        AG    565    6.3    0   10
I.         Link     I       *              144       749       231      749 *        AG    421   11.5    0   10
J.         Link     J       *              137       745       132      661 *        AG   1466    5.5    0   10
K.         Link     K       *              137       745       231      743 *        AG    311     12    0   10
L.         Link     L       *               63       744       147      743 *        AG    239     12    0   10
M.         Link     M       *               63       738       141      739 *        AG    352   11.5    0   10
N.         Link     N       *              141       739       231      735 *        AG    540     12    0   10
O.         Link     O       *               63       733       128      730 *        AG    227   11.5    0   10
P.         Link     P       *              128       730       126      661 *        AG    227    5.5    0   10
Q.         Link     Q       *              144       749       141      661 *        AG    144     12    0   10
R.         Link     R       *              147       743       145      660 *        AG    908   10.9    0   10
S.         Link     S       *              155       730       151      660 *        AG    115   10.9    0   10
T.         Link     T       *              155       730       231      729 *        AG    115     12    0   10
```

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 2

JOB: BKF Int 23 Existing+Proj
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR		*	COORDINATES X	Y	(M) Z
1	Recpt 1	*	124	809	1.8
2	Recpt 2	*	123	784	1.8
3	Recpt 3	*	122	762	1.8
4	Recpt 4	*	100	762	1.8
5	Recpt 5	*	75	763	1.8
6	Recpt 6	*	74	727	1.8
7	Recpt 7	*	99	726	1.8
8	Recpt 8	*	121	725	1.8
9	Recpt 9	*	120	703	1.8
10	Recpt 10	*	120	679	1.8
11	Recpt 11	*	161	810	1.8
12	Recpt 12	*	161	785	1.8
13	Recpt 13	*	160	763	1.8
14	Recpt 14	*	182	762	1.8
15	Recpt 15	*	207	762	1.8
16	Recpt 16	*	206	724	1.8
17	Recpt 17	*	181	724	1.8
18	Recpt 18	*	159	724	1.8
19	Recpt 19	*	159	702	1.8
20	Recpt 20	*	158	677	1.8

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 3

JOB: BKF Int 23 Existing+Proj
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN 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	Recpt	1	*	165	*	1.4	*	0.3	0.4	0	0	0	0	0	0
2	Recpt	2	*	156	*	1.3	*	0.2	0.4	0	0	0	0	0	0
3	Recpt	3	*	110	*	1.3	*	0.1	0.3	0	0.1	0	0	0	0
4	Recpt	4	*	107	*	1.1	*	0	0.2	0	0	0	0.1	0	0.1
5	Recpt	5	*	104	*	1.1	*	0	0.1	0	0	0	0.2	0	0.2
6	Recpt	6	*	79	*	1.2	*	0	0	0	0	0	0	0	0
7	Recpt	7	*	74	*	1.1	*	0	0	0	0	0	0	0	0
8	Recpt	8	*	72	*	1.2	*	0	0	0	0	0	0	0	0
9	Recpt	9	*	17	*	1	*	0	0.3	0	0.2	0	0	0	0
10	Recpt	10	*	16	*	1	*	0	0.1	0	0.2	0	0	0	0
11	Recpt	11	*	195	*	1.1	*	0	0	0	0.3	0	0	0	0
12	Recpt	12	*	198	*	1.1	*	0	0	0	0.2	0	0	0	0
13	Recpt	13	*	200	*	1.2	*	0	0	0	0	0	0	0	0
14	Recpt	14	*	248	*	1	*	0	0	0	0.1	0	0	0.1	0
15	Recpt	15	*	254	*	1	*	0	0	0	0	0	0	0.1	0
16	Recpt	16	*	288	*	1.1	*	0	0	0	0	0	0	0	0.1
17	Recpt	17	*	298	*	1	*	0	0.1	0	0	0	0	0	0
18	Recpt	18	*	322	*	1.3	*	0	0.3	0	0	0	0	0	0
19	Recpt	19	*	342	*	1.3	*	0	0.3	0	0.1	0	0	0	0
20	Recpt	20	*	347	*	1.3	*	0	0.3	0	0	0	0	0	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 4

JOB: BKF Int 23 Existing+Proj
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR			*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T	
1	Recpt	1	*	0	0	0	0	0	0	0	0	0	0.3	0	0
2	Recpt	2	*	0	0	0	0	0	0	0	0	0	0.2	0	0
3	Recpt	3	*	0.2	0	0.2	0	0	0.2	0	0	0	0	0	0
4	Recpt	4	*	0.1	0	0.2	0	0	0.2	0	0	0	0	0	0
5	Recpt	5	*	0	0	0.1	0	0	0.2	0	0	0	0	0	0
6	Recpt	6	*	0.2	0	0.1	0	0.2	0.1	0.3	0	0	0	0	0
7	Recpt	7	*	0.2	0.1	0.1	0	0.1	0.2	0.2	0	0	0.1	0	0
8	Recpt	8	*	0.2	0.2	0.1	0	0	0.3	0	0	0	0.2	0	0
9	Recpt	9	*	0	0	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	*	0	0.2	0	0	0	0	0	0.1	0	0	0	0
11	Recpt	11	*	0	0.2	0	0	0	0	0	0	0	0.1	0	0
12	Recpt	12	*	0	0.2	0	0	0	0	0	0	0	0.2	0	0
13	Recpt	13	*	0.1	0.2	0	0	0	0.1	0	0	0	0.4	0	0
14	Recpt	14	*	0.1	0	0	0	0.1	0	0	0	0	0	0	0
15	Recpt	15	*	0.2	0	0.1	0	0.1	0	0	0	0	0	0	0
16	Recpt	16	*	0	0	0	0	0	0.3	0	0	0	0	0	0.1
17	Recpt	17	*	0	0	0	0	0	0.3	0	0	0	0.1	0	0
18	Recpt	18	*	0	0	0	0	0	0.2	0	0	0	0.3	0	0
19	Recpt	19	*	0	0	0	0	0	0.1	0	0	0	0.3	0	0
20	Recpt	20	*	0	0	0	0	0	0	0	0	0	0.4	0.1	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 1
JOB: BKF Int 23 No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide
I. SITE VARIABLES
U= 1 M/S Z0= 100 CM ALT= 0 (M)
BRG= WORST CASE VD= 0 CM/S
CLAS= 7 (G) VS= 0 CM/S
MIXH= 1000 M AMB= 0 PPM
SIGTH= 5 DEGREES TEMP= 5 DEGREE (C)
II. LINK VARIABLES

LINK DESCRIPTION			*	LINK X1	COORDINATES Y1	X2	(M) Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A.	Link	A	*	128	836	126	757	*	AG	305	2	0	10
B.	Link	B	*	136	836	137	745	*	AG	1853	2	0	10
C.	Link	C	*	144	836	141	739	*	AG	283	2.6	0	10
D.	Link	D	*	150	836	147	743	*	AG	1999	2	0	10
E.	Link	E	*	155	836	155	758	*	AG	158	2	0	10
F.	Link	F	*	64	757	126	757	*	AG	305	1.3	0	10
G.	Link	G	*	155	758	231	755	*	AG	158	2.6	0	10
H.	Link	H	*	63	753	144	749	*	AG	548	1.3	0	10
I.	Link	I	*	144	749	231	749	*	AG	417	2.6	0	10
J.	Link	J	*	137	745	132	661	*	AG	2332	1.2	0	10
K.	Link	K	*	137	745	231	743	*	AG	479	2.6	0	10
L.	Link	L	*	63	744	147	743	*	AG	374	2.6	0	10
M.	Link	M	*	63	738	141	739	*	AG	630	2.6	0	10
N.	Link	N	*	141	739	231	735	*	AG	913	2.6	0	10
O.	Link	O	*	63	733	128	730	*	AG	208	2.6	0	10
P.	Link	P	*	128	730	126	661	*	AG	208	1.2	0	10
Q.	Link	Q	*	144	749	141	661	*	AG	131	2.6	0	10
R.	Link	R	*	147	743	145	660	*	AG	1625	2.6	0	10
S.	Link	S	*	155	730	151	660	*	AG	257	2.6	0	10
T.	Link	T	*	155	730	231	729	*	AG	257	2.6	0	10

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 2

JOB: BKF Int 23 No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR		*	COORDINATES X	Y	(M) Z
1	Recpt 1	*	124	809	1.8
2	Recpt 2	*	123	784	1.8
3	Recpt 3	*	122	762	1.8
4	Recpt 4	*	100	762	1.8
5	Recpt 5	*	75	763	1.8
6	Recpt 6	*	74	727	1.8
7	Recpt 7	*	99	726	1.8
8	Recpt 8	*	121	725	1.8
9	Recpt 9	*	120	703	1.8
10	Recpt 10	*	120	679	1.8
11	Recpt 11	*	161	810	1.8
12	Recpt 12	*	161	785	1.8
13	Recpt 13	*	160	763	1.8
14	Recpt 14	*	182	762	1.8
15	Recpt 15	*	207	762	1.8
16	Recpt 16	*	206	724	1.8
17	Recpt 17	*	181	724	1.8
18	Recpt 18	*	159	724	1.8
19	Recpt 19	*	159	702	1.8
20	Recpt 20	*	158	677	1.8

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 3

JOB: BKF Int 23 No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN 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	Recpt	1	*	164	*	0.4	*	0	0.1	0	0	0	0	0	0
2	Recpt	2	*	155	*	0.4	*	0	0.1	0	0	0	0	0	0
3	Recpt	3	*	111	*	0.4	*	0	0	0	0	0	0	0	0
4	Recpt	4	*	108	*	0.3	*	0	0	0	0	0	0	0	0
5	Recpt	5	*	105	*	0.3	*	0	0	0	0	0	0	0	0
6	Recpt	6	*	78	*	0.3	*	0	0	0	0	0	0	0	0
7	Recpt	7	*	74	*	0.3	*	0	0	0	0	0	0	0	0
8	Recpt	8	*	21	*	0.4	*	0	0.1	0	0	0	0	0	0
9	Recpt	9	*	19	*	0.3	*	0	0	0	0	0	0	0	0
10	Recpt	10	*	16	*	0.3	*	0	0	0	0	0	0	0	0
11	Recpt	11	*	196	*	0.4	*	0	0	0	0.1	0	0	0	0
12	Recpt	12	*	199	*	0.4	*	0	0	0	0	0	0	0	0
13	Recpt	13	*	201	*	0.4	*	0	0	0	0	0	0	0	0
14	Recpt	14	*	248	*	0.3	*	0	0	0	0	0	0	0	0
15	Recpt	15	*	254	*	0.3	*	0	0	0	0	0	0	0	0
16	Recpt	16	*	288	*	0.3	*	0	0	0	0	0	0	0	0
17	Recpt	17	*	298	*	0.3	*	0	0	0	0	0	0	0	0
18	Recpt	18	*	342	*	0.5	*	0	0	0	0.1	0	0	0	0
19	Recpt	19	*	343	*	0.5	*	0	0.1	0	0	0	0	0	0
20	Recpt	20	*	348	*	0.5	*	0	0	0	0	0	0	0	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 4

JOB: BKF Int 23 No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR			*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1	Recpt	1	*	0	0	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	*	0	0	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	*	0	0	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	*	0	0	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	*	0	0	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	*	0	0	0	0	0	0	0	0	0	0	0	0
7	Recpt	7	*	0	0	0	0	0	0	0	0	0	0	0	0
8	Recpt	8	*	0	0	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	*	0	0	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	*	0	0	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	*	0	0	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	*	0	0	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	*	0	0	0	0	0	0	0	0	0	0.2	0	0
14	Recpt	14	*	0	0	0	0	0	0	0	0	0	0	0	0
15	Recpt	15	*	0	0	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	*	0	0	0	0	0	0.1	0	0	0	0	0	0
17	Recpt	17	*	0	0	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	*	0	0	0	0	0	0	0	0	0	0	0	0
19	Recpt	19	*	0	0	0	0	0	0	0	0	0	0.1	0	0
20	Recpt	20	*	0	0	0	0	0	0	0	0	0	0.1	0	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 1
JOB: BKF Int 23 Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide
I. SITE VARIABLES
U= 1 M/S Z0= 100 CM ALT= 0 (M)
BRG= WORST CASE VD= 0 CM/S
CLAS= 7 (G) VS= 0 CM/S
MIXH= 1000 M AMB= 0 PPM
SIGTH= 5 DEGREES TEMP= 5 DEGREE (C)
II. LINK VARIABLES

LINK DESCRIPTION			*	LINK X1	COORDINATES Y1	X2	(M) Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A.	Link	A	*	128	836	126	757	*	AG	305	2.1	0	10
B.	Link	B	*	136	836	137	745	*	AG	1991	2.1	0	10
C.	Link	C	*	144	836	141	739	*	AG	300	2.6	0	10
D.	Link	D	*	150	836	147	743	*	AG	2058	2	0	10
E.	Link	E	*	155	836	155	758	*	AG	165	2	0	10
F.	Link	F	*	64	757	126	757	*	AG	305	1.3	0	10
G.	Link	G	*	155	758	231	755	*	AG	165	2.6	0	10
H.	Link	H	*	63	753	144	749	*	AG	552	1.3	0	10
I.	Link	I	*	144	749	231	749	*	AG	421	2.6	0	10
J.	Link	J	*	137	745	132	661	*	AG	2470	1.2	0	10
K.	Link	K	*	137	745	231	743	*	AG	479	2.6	0	10
L.	Link	L	*	63	744	147	743	*	AG	374	2.6	0	10
M.	Link	M	*	63	738	141	739	*	AG	640	2.6	0	10
N.	Link	N	*	141	739	231	735	*	AG	940	2.6	0	10
O.	Link	O	*	63	733	128	730	*	AG	208	2.6	0	10
P.	Link	P	*	128	730	126	661	*	AG	208	1.2	0	10
Q.	Link	Q	*	144	749	141	661	*	AG	131	2.6	0	10
R.	Link	R	*	147	743	145	660	*	AG	1684	2.6	0	10
S.	Link	S	*	155	730	151	660	*	AG	257	2.6	0	10
T.	Link	T	*	155	730	231	729	*	AG	257	2.6	0	10

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 2

JOB: BKF Int 23 Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR		*	COORDINATES X	Y	(M) Z
1	Recpt 1	*	124	809	1.8
2	Recpt 2	*	123	784	1.8
3	Recpt 3	*	122	762	1.8
4	Recpt 4	*	100	762	1.8
5	Recpt 5	*	75	763	1.8
6	Recpt 6	*	74	727	1.8
7	Recpt 7	*	99	726	1.8
8	Recpt 8	*	121	725	1.8
9	Recpt 9	*	120	703	1.8
10	Recpt 10	*	120	679	1.8
11	Recpt 11	*	161	810	1.8
12	Recpt 12	*	161	785	1.8
13	Recpt 13	*	160	763	1.8
14	Recpt 14	*	182	762	1.8
15	Recpt 15	*	207	762	1.8
16	Recpt 16	*	206	724	1.8
17	Recpt 17	*	181	724	1.8
18	Recpt 18	*	159	724	1.8
19	Recpt 19	*	159	702	1.8
20	Recpt 20	*	158	677	1.8

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 3

JOB: BKF Int 23 Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN 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	Recpt	1	*	164	*	0.4	*	0	0.1	0	0	0	0	0	0
2	Recpt	2	*	155	*	0.4	*	0	0.1	0	0	0	0	0	0
3	Recpt	3	*	111	*	0.4	*	0	0.1	0	0	0	0	0	0
4	Recpt	4	*	108	*	0.4	*	0	0	0	0	0	0	0	0
5	Recpt	5	*	105	*	0.3	*	0	0	0	0	0	0	0	0
6	Recpt	6	*	78	*	0.3	*	0	0	0	0	0	0	0	0
7	Recpt	7	*	74	*	0.3	*	0	0	0	0	0	0	0	0
8	Recpt	8	*	21	*	0.4	*	0	0.1	0	0	0	0	0	0
9	Recpt	9	*	19	*	0.3	*	0	0	0	0.1	0	0	0	0
10	Recpt	10	*	16	*	0.3	*	0	0	0	0	0	0	0	0
11	Recpt	11	*	196	*	0.4	*	0	0	0	0.1	0	0	0	0
12	Recpt	12	*	199	*	0.4	*	0	0	0	0	0	0	0	0
13	Recpt	13	*	201	*	0.4	*	0	0	0	0	0	0	0	0
14	Recpt	14	*	248	*	0.3	*	0	0	0	0	0	0	0	0
15	Recpt	15	*	255	*	0.3	*	0	0	0	0	0	0	0	0
16	Recpt	16	*	288	*	0.4	*	0	0	0	0	0	0	0	0
17	Recpt	17	*	298	*	0.4	*	0	0	0	0	0	0	0	0
18	Recpt	18	*	341	*	0.5	*	0	0.1	0	0.1	0	0	0	0
19	Recpt	19	*	343	*	0.5	*	0	0.1	0	0	0	0	0	0
20	Recpt	20	*	348	*	0.5	*	0	0.1	0	0	0	0	0	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 4

JOB: BKF Int 23 Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR			*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1	Recpt	1	*	0	0	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	*	0	0	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	*	0	0	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	*	0	0	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	*	0	0	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	*	0	0	0	0	0	0	0	0	0	0	0	0
7	Recpt	7	*	0	0	0	0	0	0	0	0	0	0	0	0
8	Recpt	8	*	0	0	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	*	0	0	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	*	0	0	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	*	0	0	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	*	0	0	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	*	0	0	0	0	0	0	0	0	0	0.2	0	0
14	Recpt	14	*	0	0	0	0	0	0	0	0	0	0	0	0
15	Recpt	15	*	0	0	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	*	0	0	0	0	0	0.1	0	0	0	0	0	0
17	Recpt	17	*	0	0	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	*	0	0	0	0	0	0	0	0	0	0	0	0
19	Recpt	19	*	0	0	0	0	0	0	0	0	0	0.1	0	0
20	Recpt	20	*	0	0	0	0	0	0	0	0	0	0.1	0	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 1
JOB: BKF Int 30 Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide
I. SITE VARIABLES
U= 1 M/S Z0= 100 CM ALT= 0 (M)
BRG= WORST CASE VD= 0 CM/S
CLAS= 7 (G) VS= 0 CM/S
MIXH= 1000 M AMB= 0 PPM
SIGTH= 5 DEGREES TEMP= 5 DEGREE (C)
II. LINK VARIABLES

LINK DESCRIPTION			*	LINK X1	COORDINATES Y1	X2	(M) Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A.	Link	A	*	796	447	791	382	*	AG	545	11.7	0	10
B.	Link	B	*	802	446	799	368	*	AG	706	11.7	0	10
C.	Link	C	*	807	445	804	364	*	AG	46	12	0	10
D.	Link	D	*	813	445	809	367	*	AG	1292	12	0	10
E.	Link	E	*	816	445	813	379	*	AG	69	12	0	10
F.	Link	F	*	726	384	791	382	*	AG	545	5.6	0	10
G.	Link	G	*	813	379	882	371	*	AG	69	11.7	0	10
H.	Link	H	*	726	379	805	374	*	AG	1311	5.6	0	10
I.	Link	I	*	805	374	881	366	*	AG	1028	11.7	0	10
J.	Link	J	*	799	368	797	298	*	AG	1153	5.6	0	10
K.	Link	K	*	799	368	881	360	*	AG	447	11.5	0	10
L.	Link	L	*	726	376	809	367	*	AG	689	12	0	10
M.	Link	M	*	725	367	804	364	*	AG	662	10.9	0	10
N.	Link	N	*	804	364	882	354	*	AG	708	12	0	10
O.	Link	O	*	725	362	794	357	*	AG	331	10.9	0	10
P.	Link	P	*	793	357	793	298	*	AG	331	5.6	0	10
Q.	Link	Q	*	805	374	801	298	*	AG	283	12	0	10
R.	Link	R	*	809	367	808	297	*	AG	603	10.9	0	10
S.	Link	S	*	816	357	813	296	*	AG	224	10.9	0	10
T.	Link	T	*	816	357	881	350	*	AG	224	12	0	10

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 2

JOB: BKF Int 30 Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR		*	COORDINATES X	Y	(M) Z
1	Recpt 1	*	789	435	1.8
2	Recpt 2	*	788	410	1.8
3	Recpt 3	*	786	388	1.8
4	Recpt 4	*	764	389	1.8
5	Recpt 5	*	740	384	1.8
6	Recpt 6	*	741	355	1.8
7	Recpt 7	*	766	353	1.8
8	Recpt 8	*	788	351	1.8
9	Recpt 9	*	788	329	1.8
10	Recpt 10	*	787	304	1.8
11	Recpt 11	*	821	430	1.8
12	Recpt 12	*	821	404	1.8
13	Recpt 13	*	820	383	1.8
14	Recpt 14	*	842	380	1.8
15	Recpt 15	*	867	377	1.8
16	Recpt 16	*	866	347	1.8
17	Recpt 17	*	842	348	1.8
18	Recpt 18	*	820	352	1.8
19	Recpt 19	*	819	330	1.8
20	Recpt 20	*	819	305	1.8

Table C-10.5
Bakersfield Station Oak St./Truxton Ave. 2009 Existing CALINE Output

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 3

JOB: BKF Int 30 Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN 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	Recpt	1	*	166	*	1.7	*	0.5	0.3	0	0.1	0	0	0	0
2	Recpt	2	*	161	*	1.7	*	0.5	0.3	0	0	0	0	0	0.1
3	Recpt	3	*	114	*	1.9	*	0.3	0.2	0	0.3	0	0	0	0
4	Recpt	4	*	111	*	1.7	*	0	0.1	0	0.2	0	0.2	0	0.2
5	Recpt	5	*	103	*	2.3	*	0	0	0	0	0	0.2	0	0.7
6	Recpt	6	*	78	*	1.6	*	0	0	0	0.1	0	0	0	0
7	Recpt	7	*	69	*	1.6	*	0	0	0	0.2	0	0	0	0
8	Recpt	8	*	43	*	1.7	*	0	0	0	0.4	0	0	0	0
9	Recpt	9	*	20	*	1.6	*	0	0.1	0	0.5	0	0	0	0
10	Recpt	10	*	15	*	1.5	*	0	0	0	0.4	0	0	0	0
11	Recpt	11	*	196	*	1.7	*	0	0	0	0.8	0	0	0	0
12	Recpt	12	*	203	*	1.7	*	0	0	0	0.7	0	0	0	0
13	Recpt	13	*	228	*	2	*	0	0	0	0.6	0	0	0	0
14	Recpt	14	*	256	*	1.8	*	0	0	0	0.2	0	0	0	0
15	Recpt	15	*	262	*	1.8	*	0	0	0	0.1	0	0	0	0
16	Recpt	16	*	289	*	1.8	*	0	0	0	0	0	0	0	0.2
17	Recpt	17	*	298	*	1.6	*	0	0	0	0	0	0	0	0.2
18	Recpt	18	*	343	*	2	*	0.1	0.3	0	0.7	0	0	0	0
19	Recpt	19	*	347	*	1.7	*	0.1	0.3	0	0.4	0	0	0	0
20	Recpt	20	*	350	*	1.6	*	0.1	0.2	0	0.3	0	0	0	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 4

JOB: BKF Int 30 Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR			* CONC/LINK (PPM)	I	J	K	L	M	N	O	P	Q	R	S	T
1	Recpt	1	*	0	0	0	0	0	0	0	0	0	0.2	0	0
2	Recpt	2	*	0	0	0	0.1	0	0	0	0	0.1	0.2	0	0
3	Recpt	3	*	0.5	0	0.2	0	0	0.3	0	0	0	0	0	0
4	Recpt	4	*	0.3	0	0.2	0	0	0.3	0	0	0	0	0	0
5	Recpt	5	*	0.2	0	0.2	0.3	0	0.3	0	0	0	0	0	0
6	Recpt	6	*	0.3	0	0.1	0.2	0.3	0	0.3	0	0	0	0	0
7	Recpt	7	*	0.3	0	0.1	0.2	0.3	0	0.2	0	0	0	0	0
8	Recpt	8	*	0.2	0.2	0.1	0.2	0.2	0	0	0	0.1	0	0	0
9	Recpt	9	*	0	0.3	0	0.1	0.1	0	0	0.1	0	0	0	0
10	Recpt	10	*	0	0.3	0	0	0	0	0	0.2	0	0	0	0
11	Recpt	11	*	0	0.2	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	*	0.2	0.2	0	0.1	0	0	0	0	0.1	0	0	0
13	Recpt	13	*	0.4	0.1	0.1	0.2	0.2	0	0	0	0.1	0	0	0
14	Recpt	14	*	0.5	0	0	0.3	0.3	0	0.1	0	0	0	0	0
15	Recpt	15	*	0.6	0	0.1	0.2	0.2	0	0	0	0	0	0	0
16	Recpt	16	*	0	0	0.2	0.2	0	0.5	0	0	0	0	0	0.3
17	Recpt	17	*	0	0	0.2	0.2	0	0.4	0	0	0	0	0	0.2
18	Recpt	18	*	0.3	0	0.1	0	0	0.3	0	0	0	0	0	0.1
19	Recpt	19	*	0.2	0	0	0	0	0.1	0	0	0	0.2	0.2	0
20	Recpt	20	*	0	0	0	0	0	0	0	0	0	0.3	0.2	0

Bakersfield Station Oak St./Truxton Ave. 2009 Existing Plus Project CALINE Output

```
CALINE4:  CALIFORNI LINE     SOURCE   DISPERSIOI MODEL
JUNE          1989 VERSION
PAGE             1
JOB:      BKF      Int              30 Existing+Proj
RUN:      Hour              1 (WORST  CASE     ANGLE)
POLLUTAN Carbon    Monoxide
I.        SITE     VARIABLES
U=               1 M/S      Z0=            100 CM       ALT=            0 (M)
BRG=      WORST    CASE     VD=              0 CM/S
CLAS=            7 (G)      VS=              0 CM/S
MIXH=         1000 M        AMB=             0 PPM
SIGTH=           5 DEGREES  TEMP=            5 DEGREE   (C)
II.       LINK     VARIABLES
LINK                        *        LINK     COORDINATES       (M)      *                          EF       H    W
DESCRIPTION                 *        X1       Y1       X2       Y2       *        TYPE     VPH      (G/MI)   (M)  (M)
----------------*------------------------*------------------------------
A.        Link     A        *           796      447      791      382 *        AG           545      11.7     0    10
B.        Link     B        *           802      446      799      368 *        AG           706      11.7     0    10
C.        Link     C        *           807      445      804      364 *        AG            51       12      0    10
D.        Link     D        *           813      445      809      367 *        AG          1292       12      0    10
E.        Link     E        *           816      445      813      379 *        AG            80       12      0    10
F.        Link     F        *           726      384      791      382 *        AG           545      5.6      0    10
G.        Link     G        *           813      379      882      371 *        AG            80      11.7     0    10
H.        Link     H        *           726      379      805      374 *        AG          1330      5.6      0    10
I.        Link     I        *           805      374      881      366 *        AG          1047      11.7     0    10
J.        Link     J        *           799      368      797      298 *        AG          1153      5.6      0    10
K.        Link     K        *           799      368      881      360 *        AG           447      11.5     0    10
L.        Link     L        *           726      376      809      367 *        AG           689       12      0    10
M.        Link     M        *           725      367      804      364 *        AG           670      10.9     0    10
N.        Link     N        *           804      364      882      354 *        AG           721       12      0    10
O.        Link     O        *           725      362      794      357 *        AG           331      10.9     0    10
P.        Link     P        *           793      357      793      298 *        AG           331      5.6      0    10
Q.        Link     Q        *           805      374      801      298 *        AG           283       12      0    10
R.        Link     R        *           809      367      808      297 *        AG           603      10.9     0    10
S.        Link     S        *           816      357      813      296 *        AG           224      10.9     0    10
T.        Link     T        *           816      357      881      350 *        AG           224       12      0    10
```

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 2

JOB: BKF Int 30 Existing+Proj
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR		*	COORDINATES X	Y	(M) Z
1	Recpt 1	*	789	435	1.8
2	Recpt 2	*	788	410	1.8
3	Recpt 3	*	786	388	1.8
4	Recpt 4	*	764	389	1.8
5	Recpt 5	*	740	384	1.8
6	Recpt 6	*	741	355	1.8
7	Recpt 7	*	766	353	1.8
8	Recpt 8	*	788	351	1.8
9	Recpt 9	*	788	329	1.8
10	Recpt 10	*	787	304	1.8
11	Recpt 11	*	821	430	1.8
12	Recpt 12	*	821	404	1.8
13	Recpt 13	*	820	383	1.8
14	Recpt 14	*	842	380	1.8
15	Recpt 15	*	867	377	1.8
16	Recpt 16	*	866	347	1.8
17	Recpt 17	*	842	348	1.8
18	Recpt 18	*	820	352	1.8
19	Recpt 19	*	819	330	1.8
20	Recpt 20	*	819	305	1.8

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 3

JOB: BKF Int 30 Existing+Proj
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN 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	Recpt	1	*	166	*	1.7	*	0.5	0.3	0	0.1	0	0	0	0
2	Recpt	2	*	161	*	1.7	*	0.5	0.3	0	0	0	0	0	0.1
3	Recpt	3	*	114	*	2	*	0.3	0.2	0	0.3	0	0	0	0
4	Recpt	4	*	111	*	1.7	*	0	0.1	0	0.2	0	0.2	0	0.2
5	Recpt	5	*	103	*	2.3	*	0	0	0	0	0	0.2	0	0.7
6	Recpt	6	*	78	*	1.6	*	0	0	0	0.1	0	0	0	0
7	Recpt	7	*	69	*	1.6	*	0	0	0	0.2	0	0	0	0
8	Recpt	8	*	43	*	1.8	*	0	0	0	0.4	0	0	0	0
9	Recpt	9	*	20	*	1.6	*	0	0.1	0	0.5	0	0	0	0
10	Recpt	10	*	15	*	1.5	*	0	0	0	0.4	0	0	0	0
11	Recpt	11	*	196	*	1.7	*	0	0	0	0.8	0	0	0	0
12	Recpt	12	*	203	*	1.7	*	0	0	0	0.7	0	0	0	0
13	Recpt	13	*	228	*	2	*	0	0	0	0.6	0	0	0	0
14	Recpt	14	*	256	*	1.8	*	0	0	0	0.2	0	0	0	0
15	Recpt	15	*	262	*	1.8	*	0	0	0	0.1	0	0	0	0
16	Recpt	16	*	289	*	1.8	*	0	0	0	0	0	0	0	0.2
17	Recpt	17	*	298	*	1.6	*	0	0	0	0	0	0	0	0.2
18	Recpt	18	*	343	*	2	*	0.1	0.3	0	0.7	0	0	0	0
19	Recpt	19	*	347	*	1.7	*	0.1	0.3	0	0.4	0	0	0	0
20	Recpt	20	*	350	*	1.6	*	0.1	0.2	0	0.3	0	0	0	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 4

JOB: BKF Int 30 Existing+Proj
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1 Recpt 1	*	0	0	0	0	0	0	0	0	0	0.2	0	0
2 Recpt 2	*	0	0	0	0.1	0	0	0	0	0.1	0.2	0	0
3 Recpt 3	*	0.5	0	0.2	0	0	0.3	0	0	0	0	0	0
4 Recpt 4	*	0.3	0	0.2	0	0	0.3	0	0	0	0	0	0
5 Recpt 5	*	0.2	0	0.2	0.3	0	0.3	0	0	0	0	0	0
6 Recpt 6	*	0.3	0	0.1	0.2	0.3	0	0.3	0	0	0	0	0
7 Recpt 7	*	0.3	0	0.1	0.2	0.3	0	0.2	0	0	0	0	0
8 Recpt 8	*	0.2	0.2	0.1	0.2	0.2	0	0	0	0.1	0	0	0
9 Recpt 9	*	0	0.3	0	0.1	0.1	0	0	0.1	0	0	0	0
10 Recpt 10	*	0	0.3	0	0	0	0	0	0.2	0	0	0	0
11 Recpt 11	*	0	0.2	0	0	0	0	0	0	0	0	0	0
12 Recpt 12	*	0.2	0.2	0	0.1	0	0	0	0	0.1	0	0	0
13 Recpt 13	*	0.4	0.1	0.1	0.2	0.2	0	0	0	0.1	0	0	0
14 Recpt 14	*	0.5	0	0	0.3	0.3	0	0.1	0	0	0	0	0
15 Recpt 15	*	0.6	0	0.1	0.2	0.2	0	0	0	0	0	0	0
16 Recpt 16	*	0	0	0.2	0.2	0	0.5	0	0	0	0	0	0.3
17 Recpt 17	*	0	0	0.2	0.2	0	0.4	0	0	0	0	0	0.2
18 Recpt 18	*	0.3	0	0.1	0	0	0.3	0	0	0	0	0	0.1
19 Recpt 19	*	0.2	0	0	0	0	0.1	0	0	0	0.2	0.2	0
20 Recpt 20	*	0	0	0	0	0	0	0	0	0	0.3	0.2	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 1
JOB: BKF Int 30 No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide
I. SITE VARIABLES
U= 1 M/S Z0= 100 CM ALT= 0 (M)
BRG= WORST CASE VD= 0 CM/S
CLAS= 7 (G) VS= 0 CM/S
MIXH= 1000 M AMB= 0 PPM
SIGTH= 5 DEGREES TEMP= 5 DEGREE (C)
II. LINK VARIABLES

LINK DESCRIPTION			*	LINK X1	COORDINATES Y1	X2	(M) Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A.	Link	A	*	796	447	791	382	*	AG	949	2.6	0	10
B.	Link	B	*	802	446	799	368	*	AG	822	2.6	0	10
C.	Link	C	*	807	445	804	364	*	AG	108	2.6	0	10
D.	Link	D	*	813	445	809	367	*	AG	1604	2.6	0	10
E.	Link	E	*	816	445	813	379	*	AG	77	2.6	0	10
F.	Link	F	*	726	384	791	382	*	AG	949	1.2	0	10
G.	Link	G	*	813	379	882	371	*	AG	77	2.6	0	10
H.	Link	H	*	726	379	805	374	*	AG	1485	1.2	0	10
I.	Link	I	*	805	374	881	366	*	AG	1202	2.6	0	10
J.	Link	J	*	799	368	797	298	*	AG	1269	1.2	0	10
K.	Link	K	*	799	368	881	360	*	AG	447	2.6	0	10
L.	Link	L	*	726	376	809	367	*	AG	1001	2.6	0	10
M.	Link	M	*	725	367	804	364	*	AG	1359	2.6	0	10
N.	Link	N	*	804	364	882	354	*	AG	1467	2.6	0	10
O.	Link	O	*	725	362	794	357	*	AG	335	2.6	0	10
P.	Link	P	*	793	357	793	298	*	AG	335	1.2	0	10
Q.	Link	Q	*	805	374	801	298	*	AG	283	2.6	0	10
R.	Link	R	*	809	367	808	297	*	AG	603	2.6	0	10
S.	Link	S	*	816	357	813	296	*	AG	299	2.6	0	10
T.	Link	T	*	816	357	881	350	*	AG	299	2.6	0	10

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 2

JOB: BKF Int 30 No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR		*	COORDINATES X	Y	(M) Z
1	Recpt 1	*	789	435	1.8
2	Recpt 2	*	788	410	1.8
3	Recpt 3	*	786	388	1.8
4	Recpt 4	*	764	389	1.8
5	Recpt 5	*	740	384	1.8
6	Recpt 6	*	741	355	1.8
7	Recpt 7	*	766	353	1.8
8	Recpt 8	*	788	351	1.8
9	Recpt 9	*	788	329	1.8
10	Recpt 10	*	787	304	1.8
11	Recpt 11	*	821	430	1.8
12	Recpt 12	*	821	404	1.8
13	Recpt 13	*	820	383	1.8
14	Recpt 14	*	842	380	1.8
15	Recpt 15	*	867	377	1.8
16	Recpt 16	*	866	347	1.8
17	Recpt 17	*	842	348	1.8
18	Recpt 18	*	820	352	1.8
19	Recpt 19	*	819	330	1.8
20	Recpt 20	*	819	305	1.8

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 3

JOB: BKF Int 30 No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN 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	Recpt	1	*	166	*	0.5	*	0.2	0	0	0	0	0	0	0
2	Recpt	2	*	161	*	0.5	*	0.2	0	0	0	0	0	0	0
3	Recpt	3	*	115	*	0.6	*	0	0	0	0	0	0	0	0
4	Recpt	4	*	112	*	0.5	*	0	0	0	0	0	0	0	0
5	Recpt	5	*	104	*	0.7	*	0	0	0	0	0	0	0	0.2
6	Recpt	6	*	77	*	0.5	*	0	0	0	0	0	0	0	0
7	Recpt	7	*	68	*	0.5	*	0	0	0	0	0	0	0	0
8	Recpt	8	*	42	*	0.5	*	0	0	0	0	0	0	0	0
9	Recpt	9	*	20	*	0.4	*	0	0	0	0.1	0	0	0	0
10	Recpt	10	*	15	*	0.4	*	0	0	0	0.1	0	0	0	0
11	Recpt	11	*	196	*	0.4	*	0	0	0	0.2	0	0	0	0
12	Recpt	12	*	204	*	0.5	*	0	0	0	0.2	0	0	0	0
13	Recpt	13	*	229	*	0.6	*	0	0	0	0.1	0	0	0	0
14	Recpt	14	*	256	*	0.5	*	0	0	0	0	0	0	0	0
15	Recpt	15	*	262	*	0.5	*	0	0	0	0	0	0	0	0
16	Recpt	16	*	289	*	0.5	*	0	0	0	0	0	0	0	0
17	Recpt	17	*	298	*	0.5	*	0	0	0	0	0	0	0	0
18	Recpt	18	*	342	*	0.6	*	0	0	0	0.2	0	0	0	0
19	Recpt	19	*	346	*	0.5	*	0	0	0	0	0	0	0	0
20	Recpt	20	*	349	*	0.4	*	0	0	0	0	0	0	0	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 4

JOB: BKF Int 30 No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR			*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1	Recpt	1	*	0	0	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	*	0	0	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	*	0.1	0	0	0	0	0.1	0	0	0	0	0	0
4	Recpt	4	*	0	0	0	0	0	0.1	0	0	0	0	0	0
5	Recpt	5	*	0	0	0	0.1	0	0.1	0	0	0	0	0	0
6	Recpt	6	*	0	0	0	0	0.1	0	0	0	0	0	0	0
7	Recpt	7	*	0	0	0	0	0.1	0	0	0	0	0	0	0
8	Recpt	8	*	0	0	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	*	0	0	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	*	0	0	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	*	0	0	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	*	0	0	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	*	0.1	0	0	0	0	0	0	0	0	0	0	0
14	Recpt	14	*	0.1	0	0	0	0.1	0	0	0	0	0	0	0
15	Recpt	15	*	0.1	0	0	0	0.1	0	0	0	0	0	0	0
16	Recpt	16	*	0	0	0	0	0	0.2	0	0	0	0	0	0
17	Recpt	17	*	0	0	0	0	0	0.1	0	0	0	0	0	0
18	Recpt	18	*	0	0	0	0	0	0.1	0	0	0	0	0	0
19	Recpt	19	*	0	0	0	0	0	0	0	0	0	0	0	0
20	Recpt	20	*	0	0	0	0	0	0	0	0	0	0	0	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 1
JOB: BKF Int 30 Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide
I. SITE VARIABLES
U= 1 M/S Z0= 100 CM ALT= 0 (M)
BRG= WORST CASE VD= 0 CM/S
CLAS= 7 (G) VS= 0 CM/S
MIXH= 1000 M AMB= 0 PPM
SIGTH= 5 DEGREES TEMP= 5 DEGREE (C)
II. LINK VARIABLES

LINK DESCRIPTION			*	LINK X1	COORDINATES Y1	X2	(M) Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A.	Link	A	*	796	447	791	382	*	AG	949	2.6	0	10
B.	Link	B	*	802	446	799	368	*	AG	822	2.6	0	10
C.	Link	C	*	807	445	804	364	*	AG	113	2.6	0	10
D.	Link	D	*	813	445	809	367	*	AG	1604	2.6	0	10
E.	Link	E	*	816	445	813	379	*	AG	88	2.6	0	10
F.	Link	F	*	726	384	791	382	*	AG	949	1.2	0	10
G.	Link	G	*	813	379	882	371	*	AG	88	2.6	0	10
H.	Link	H	*	726	379	805	374	*	AG	1504	1.2	0	10
I.	Link	I	*	805	374	881	366	*	AG	1221	2.6	0	10
J.	Link	J	*	799	368	797	298	*	AG	1269	1.2	0	10
K.	Link	K	*	799	368	881	360	*	AG	447	2.6	0	10
L.	Link	L	*	726	376	809	367	*	AG	1001	2.6	0	10
M.	Link	M	*	725	367	804	364	*	AG	1367	2.6	0	10
N.	Link	N	*	804	364	882	354	*	AG	1480	2.6	0	10
O.	Link	O	*	725	362	794	357	*	AG	335	2.6	0	10
P.	Link	P	*	793	357	793	298	*	AG	335	1.2	0	10
Q.	Link	Q	*	805	374	801	298	*	AG	283	2.6	0	10
R.	Link	R	*	809	367	808	297	*	AG	603	2.6	0	10
S.	Link	S	*	816	357	813	296	*	AG	299	2.6	0	10
T.	Link	T	*	816	357	881	350	*	AG	299	2.6	0	10

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 2

JOB: BKF Int 30 Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR		*	COORDINATES X	Y	(M) Z
1	Recpt 1	*	789	435	1.8
2	Recpt 2	*	788	410	1.8
3	Recpt 3	*	786	388	1.8
4	Recpt 4	*	764	389	1.8
5	Recpt 5	*	740	384	1.8
6	Recpt 6	*	741	355	1.8
7	Recpt 7	*	766	353	1.8
8	Recpt 8	*	788	351	1.8
9	Recpt 9	*	788	329	1.8
10	Recpt 10	*	787	304	1.8
11	Recpt 11	*	821	430	1.8
12	Recpt 12	*	821	404	1.8
13	Recpt 13	*	820	383	1.8
14	Recpt 14	*	842	380	1.8
15	Recpt 15	*	867	377	1.8
16	Recpt 16	*	866	347	1.8
17	Recpt 17	*	842	348	1.8
18	Recpt 18	*	820	352	1.8
19	Recpt 19	*	819	330	1.8
20	Recpt 20	*	819	305	1.8

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 3

JOB: BKF Int 30 Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN 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	Recpt	1	*	166	*	0.5	*	0.2	0	0	0	0	0	0	0
2	Recpt	2	*	161	*	0.5	*	0.2	0	0	0	0	0	0	0
3	Recpt	3	*	115	*	0.6	*	0	0	0	0	0	0	0	0
4	Recpt	4	*	112	*	0.5	*	0	0	0	0	0	0	0	0
5	Recpt	5	*	104	*	0.7	*	0	0	0	0	0	0	0	0.2
6	Recpt	6	*	77	*	0.5	*	0	0	0	0	0	0	0	0
7	Recpt	7	*	68	*	0.5	*	0	0	0	0	0	0	0	0
8	Recpt	8	*	42	*	0.5	*	0	0	0	0	0	0	0	0
9	Recpt	9	*	20	*	0.4	*	0	0	0	0.1	0	0	0	0
10	Recpt	10	*	15	*	0.4	*	0	0	0	0.1	0	0	0	0
11	Recpt	11	*	196	*	0.4	*	0	0	0	0.2	0	0	0	0
12	Recpt	12	*	204	*	0.5	*	0	0	0	0.2	0	0	0	0
13	Recpt	13	*	229	*	0.6	*	0	0	0	0.1	0	0	0	0
14	Recpt	14	*	256	*	0.5	*	0	0	0	0	0	0	0	0
15	Recpt	15	*	262	*	0.5	*	0	0	0	0	0	0	0	0
16	Recpt	16	*	289	*	0.5	*	0	0	0	0	0	0	0	0
17	Recpt	17	*	298	*	0.5	*	0	0	0	0	0	0	0	0
18	Recpt	18	*	342	*	0.6	*	0	0	0	0.2	0	0	0	0
19	Recpt	19	*	346	*	0.5	*	0	0	0	0	0	0	0	0
20	Recpt	20	*	350	*	0.4	*	0	0	0	0	0	0	0	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 4

JOB: BKF Int 30 Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR			*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1	Recpt	1	*	0	0	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	*	0	0	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	*	0.1	0	0	0	0	0.1	0	0	0	0	0	0
4	Recpt	4	*	0	0	0	0	0	0.1	0	0	0	0	0	0
5	Recpt	5	*	0	0	0	0.1	0	0.1	0	0	0	0	0	0
6	Recpt	6	*	0	0	0	0	0.1	0	0	0	0	0	0	0
7	Recpt	7	*	0	0	0	0	0.1	0	0	0	0	0	0	0
8	Recpt	8	*	0	0	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	*	0	0	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	*	0	0	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	*	0	0	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	*	0	0	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	*	0.1	0	0	0	0	0	0	0	0	0	0	0
14	Recpt	14	*	0.1	0	0	0	0.1	0	0	0	0	0	0	0
15	Recpt	15	*	0.2	0	0	0	0.1	0	0	0	0	0	0	0
16	Recpt	16	*	0	0	0	0	0	0.2	0	0	0	0	0	0
17	Recpt	17	*	0	0	0	0	0	0.1	0	0	0	0	0	0
18	Recpt	18	*	0	0	0	0	0	0.1	0	0	0	0	0	0
19	Recpt	19	*	0	0	0	0	0	0	0	0	0	0	0	0
20	Recpt	20	*	0	0	0	0	0	0	0	0	0	0	0	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 1
JOB: BKF Int 47 Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide
I. SITE VARIABLES
U= 1 M/S Z0= 100 CM ALT= 0 (M)
BRG= WORST CASE VD= 0 CM/S
CLAS= 7 (G) VS= 0 CM/S
MIXH= 1000 M AMB= 0 PPM
SIGTH= 5 DEGREES TEMP= 5 DEGREE (C)
II. LINK VARIABLES

LINK DESCRIPTION			*	LINK X1	COORDINATES Y1	X2	(M) Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A.	Link	A	*	825	293	823	228	*	AG	17	12	0	10
B.	Link	B	*	827	292	827	215	*	AG	20	12	0	10
C.	Link	C	*	830	293	828	206	*	AG	19	12	0	10
D.	Link	D	*	832	292	831	210	*	AG	45	6.3	0	10
E.	Link	E	*	836	292	835	227	*	AG	12	6.3	0	10
F.	Link	F	*	765	252	823	228	*	AG	17	5.3	0	10
G.	Link	G	*	835	227	936	217	*	AG	12	12	0	10
H.	Link	H	*	760	247	832	217	*	AG	2202	5.3	0	10
I.	Link	I	*	832	217	936	212	*	AG	1637	12	0	10
J.	Link	J	*	827	215	823	130	*	AG	516	12	0	10
K.	Link	K	*	827	215	936	205	*	AG	496	11.5	0	10
L.	Link	L	*	755	240	831	210	*	AG	36	12	0	10
M.	Link	M	*	751	235	828	206	*	AG	1543	12	0	10
N.	Link	N	*	828	206	935	198	*	AG	1562	5.9	0	10
O.	Link	O	*	749	230	820	200	*	AG	423	12	0	10
P.	Link	P	*	820	200	818	132	*	AG	423	12	0	10
Q.	Link	Q	*	832	217	829	131	*	AG	565	12	0	10
R.	Link	R	*	831	210	832	131	*	AG	9	11.5	0	10
S.	Link	S	*	842	200	836	131	*	AG	437	11.5	0	10
T.	Link	T	*	842	200	935	194	*	AG	437	5.9	0	10

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 2

JOB: BKF Int 47 Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR		*	COORDINATES X	Y	(M) Z
1	Recpt 1	*	819	284	1.8
2	Recpt 2	*	819	259	1.8
3	Recpt 3	*	818	237	1.8
4	Recpt 4	*	797	244	1.8
5	Recpt 5	*	774	255	1.8
6	Recpt 6	*	770	210	1.8
7	Recpt 7	*	794	202	1.8
8	Recpt 8	*	814	195	1.8
9	Recpt 9	*	813	173	1.8
10	Recpt 10	*	813	148	1.8
11	Recpt 11	*	842	278	1.8
12	Recpt 12	*	841	253	1.8
13	Recpt 13	*	840	231	1.8
14	Recpt 14	*	862	227	1.8
15	Recpt 15	*	886	224	1.8
16	Recpt 16	*	895	189	1.8
17	Recpt 17	*	870	190	1.8
18	Recpt 18	*	848	192	1.8
19	Recpt 19	*	847	170	1.8
20	Recpt 20	*	845	145	1.8

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 3

JOB: BKF Int 47 Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN 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	Recpt	1	*	174	*	0.9	*	0	0	0	0	0	0	0	0.1
2	Recpt	2	*	173	*	1.1	*	0	0	0	0	0	0	0	0.2
3	Recpt	3	*	171	*	1.5	*	0	0	0	0	0	0	0	0.3
4	Recpt	4	*	157	*	1.5	*	0	0	0	0	0	0	0	0.4
5	Recpt	5	*	146	*	1.3	*	0	0	0	0	0	0	0	0.4
6	Recpt	6	*	88	*	2	*	0	0	0	0	0	0	0	0
7	Recpt	7	*	81	*	2	*	0	0	0	0	0	0	0	0
8	Recpt	8	*	77	*	1.8	*	0	0	0	0	0	0	0	0
9	Recpt	9	*	55	*	1.4	*	0	0	0	0	0	0	0	0
10	Recpt	10	*	28	*	1.3	*	0	0	0	0	0	0	0	0
11	Recpt	11	*	188	*	1	*	0	0	0	0	0	0	0	0
12	Recpt	12	*	191	*	1.2	*	0	0	0	0	0	0	0	0
13	Recpt	13	*	194	*	1.7	*	0	0	0	0	0	0	0	0
14	Recpt	14	*	242	*	1.6	*	0	0	0	0	0	0	0	0
15	Recpt	15	*	255	*	1.8	*	0	0	0	0	0	0	0	0
16	Recpt	16	*	289	*	1.5	*	0	0	0	0	0	0	0	0.1
17	Recpt	17	*	291	*	1.5	*	0	0	0	0	0	0	0	0
18	Recpt	18	*	297	*	1.8	*	0	0	0	0	0	0	0	0
19	Recpt	19	*	314	*	1.4	*	0	0	0	0	0	0	0	0.2
20	Recpt	20	*	329	*	1.3	*	0	0	0	0	0	0	0	0.1

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 4

JOB: BKF Int 47 Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR			*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1	Recpt	1	*	0	0.2	0	0	0.1	0	0	0	0.2	0	0	0
2	Recpt	2	*	0	0.3	0	0	0.2	0	0	0	0.3	0	0	0
3	Recpt	3	*	0	0.4	0	0	0.3	0	0	0.1	0.3	0	0	0
4	Recpt	4	*	0	0.2	0	0	0.4	0	0	0.1	0.2	0	0	0
5	Recpt	5	*	0	0.1	0	0	0.4	0	0.1	0	0.1	0	0	0
6	Recpt	6	*	0.6	0	0.2	0	0.6	0.1	0.3	0	0	0	0	0
7	Recpt	7	*	0.7	0.1	0.3	0	0.3	0.2	0.2	0	0.1	0	0	0
8	Recpt	8	*	0.5	0.2	0.2	0	0	0.4	0	0.2	0.2	0	0	0
9	Recpt	9	*	0.3	0.2	0.1	0	0	0.2	0	0.2	0.2	0	0.1	0
10	Recpt	10	*	0.2	0.3	0	0	0	0.1	0	0.3	0.2	0	0	0
11	Recpt	11	*	0.1	0.2	0	0	0	0	0	0	0.2	0	0	0
12	Recpt	12	*	0.2	0.3	0	0	0	0	0	0.1	0.3	0	0	0
13	Recpt	13	*	0.5	0.3	0.1	0	0	0.2	0	0.2	0.5	0	0	0
14	Recpt	14	*	0.7	0.1	0.2	0	0.3	0	0	0	0.1	0	0	0
15	Recpt	15	*	0.9	0	0.2	0	0.2	0	0	0	0	0	0	0
16	Recpt	16	*	0	0	0	0	0.4	0.4	0	0	0	0	0	0.2
17	Recpt	17	*	0	0	0	0	0.8	0.2	0.1	0	0.1	0	0	0.1
18	Recpt	18	*	0	0.1	0	0	1.1	0	0.1	0	0.2	0	0.2	0
19	Recpt	19	*	0	0.2	0	0	0.4	0	0.2	0	0.2	0	0.2	0
20	Recpt	20	*	0	0.2	0	0	0.3	0	0	0.1	0.2	0	0.2	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 1
JOB: BKF Int 47 Existing+Proj
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide
I. SITE VARIABLES
U= 1 M/S Z0= 100 CM ALT= 0 (M)
BRG= WORST CASE VD= 0 CM/S
CLAS= 7 (G) VS= 0 CM/S
MIXH= 1000 M AMB= 0 PPM
SIGTH= 5 DEGREES TEMP= 5 DEGREE (C)
II. LINK VARIABLES

LINK DESCRIPTION			*	LINK X1	COORDINATES Y1	X2	(M) Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A.	Link	A	*	825	293	823	228	*	AG	17	12	0	10
B.	Link	B	*	827	292	827	215	*	AG	20	12	0	10
C.	Link	C	*	830	293	828	206	*	AG	19	12	0	10
D.	Link	D	*	832	292	831	210	*	AG	45	6.3	0	10
E.	Link	E	*	836	292	835	227	*	AG	12	6.3	0	10
F.	Link	F	*	765	252	823	228	*	AG	17	5.3	0	10
G.	Link	G	*	835	227	936	217	*	AG	12	12	0	10
H.	Link	H	*	760	247	832	217	*	AG	2213	5.3	0	10
I.	Link	I	*	832	217	936	212	*	AG	1637	12	0	10
J.	Link	J	*	827	215	823	130	*	AG	516	12	0	10
K.	Link	K	*	827	215	936	205	*	AG	496	11.5	0	10
L.	Link	L	*	755	240	831	210	*	AG	36	12	0	10
M.	Link	M	*	751	235	828	206	*	AG	1543	12	0	10
N.	Link	N	*	828	206	935	198	*	AG	1562	5.9	0	10
O.	Link	O	*	749	230	820	200	*	AG	428	12	0	10
P.	Link	P	*	820	200	818	132	*	AG	428	12	0	10
Q.	Link	Q	*	832	217	829	131	*	AG	576	12	0	10
R.	Link	R	*	831	210	832	131	*	AG	9	11.5	0	10
S.	Link	S	*	842	200	836	131	*	AG	437	11.5	0	10
T.	Link	T	*	842	200	935	194	*	AG	437	5.9	0	10

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 2

JOB: BKF Int 47 Existing+Proj
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR		*	COORDINATES X	Y	(M) Z
1	Recpt 1	*	819	284	1.8
2	Recpt 2	*	819	259	1.8
3	Recpt 3	*	818	237	1.8
4	Recpt 4	*	797	244	1.8
5	Recpt 5	*	774	255	1.8
6	Recpt 6	*	770	210	1.8
7	Recpt 7	*	794	202	1.8
8	Recpt 8	*	814	195	1.8
9	Recpt 9	*	813	173	1.8
10	Recpt 10	*	813	148	1.8
11	Recpt 11	*	842	278	1.8
12	Recpt 12	*	841	253	1.8
13	Recpt 13	*	840	231	1.8
14	Recpt 14	*	862	227	1.8
15	Recpt 15	*	886	224	1.8
16	Recpt 16	*	895	189	1.8
17	Recpt 17	*	870	190	1.8
18	Recpt 18	*	848	192	1.8
19	Recpt 19	*	847	170	1.8
20	Recpt 20	*	845	145	1.8

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 3

JOB: BKF Int 47 Existing+Proj
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN 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	Recpt	1	*	174	*	0.9	*	0	0	0	0	0	0	0	0.1
2	Recpt	2	*	173	*	1.1	*	0	0	0	0	0	0	0	0.2
3	Recpt	3	*	171	*	1.5	*	0	0	0	0	0	0	0	0.3
4	Recpt	4	*	157	*	1.5	*	0	0	0	0	0	0	0	0.4
5	Recpt	5	*	146	*	1.3	*	0	0	0	0	0	0	0	0.4
6	Recpt	6	*	88	*	2	*	0	0	0	0	0	0	0	0
7	Recpt	7	*	81	*	2	*	0	0	0	0	0	0	0	0
8	Recpt	8	*	77	*	1.8	*	0	0	0	0	0	0	0	0
9	Recpt	9	*	55	*	1.4	*	0	0	0	0	0	0	0	0
10	Recpt	10	*	28	*	1.3	*	0	0	0	0	0	0	0	0
11	Recpt	11	*	188	*	1	*	0	0	0	0	0	0	0	0
12	Recpt	12	*	191	*	1.2	*	0	0	0	0	0	0	0	0
13	Recpt	13	*	194	*	1.8	*	0	0	0	0	0	0	0	0
14	Recpt	14	*	242	*	1.6	*	0	0	0	0	0	0	0	0
15	Recpt	15	*	255	*	1.8	*	0	0	0	0	0	0	0	0
16	Recpt	16	*	289	*	1.5	*	0	0	0	0	0	0	0	0.1
17	Recpt	17	*	291	*	1.5	*	0	0	0	0	0	0	0	0
18	Recpt	18	*	297	*	1.8	*	0	0	0	0	0	0	0	0
19	Recpt	19	*	314	*	1.5	*	0	0	0	0	0	0	0	0.2
20	Recpt	20	*	329	*	1.3	*	0	0	0	0	0	0	0	0.1

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 4

JOB: BKF Int 47 Existing+Proj
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR			*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1	Recpt	1	*	0	0.2	0	0	0.1	0	0	0	0.2	0	0	0
2	Recpt	2	*	0	0.3	0	0	0.2	0	0	0	0.3	0	0	0
3	Recpt	3	*	0	0.4	0	0	0.3	0	0	0.1	0.3	0	0	0
4	Recpt	4	*	0	0.2	0	0	0.4	0	0.1	0.1	0.2	0	0	0
5	Recpt	5	*	0	0.1	0	0	0.4	0	0.1	0	0.1	0	0	0
6	Recpt	6	*	0.6	0	0.2	0	0.6	0.1	0.3	0	0	0	0	0
7	Recpt	7	*	0.7	0.1	0.3	0	0.3	0.2	0.2	0	0.1	0	0	0
8	Recpt	8	*	0.5	0.2	0.2	0	0	0.4	0	0.2	0.2	0	0	0
9	Recpt	9	*	0.3	0.2	0.1	0	0	0.2	0	0.2	0.2	0	0.1	0
10	Recpt	10	*	0.2	0.3	0	0	0	0.1	0	0.3	0.2	0	0	0
11	Recpt	11	*	0.1	0.2	0	0	0	0	0	0	0.3	0	0	0
12	Recpt	12	*	0.2	0.3	0	0	0	0	0	0.1	0.3	0	0	0
13	Recpt	13	*	0.5	0.3	0.1	0	0	0.2	0	0.2	0.5	0	0	0
14	Recpt	14	*	0.7	0.1	0.2	0	0.3	0	0	0	0.1	0	0	0
15	Recpt	15	*	0.9	0	0.2	0	0.2	0	0	0	0	0	0	0
16	Recpt	16	*	0	0	0	0	0.4	0.4	0	0	0	0	0	0.2
17	Recpt	17	*	0	0	0	0	0.8	0.2	0.1	0	0.1	0	0	0.1
18	Recpt	18	*	0	0.1	0	0	1.1	0	0.1	0	0.2	0	0.2	0
19	Recpt	19	*	0	0.2	0	0	0.4	0	0.2	0	0.2	0	0.2	0
20	Recpt	20	*	0	0.2	0	0	0.3	0	0.1	0.1	0.2	0	0.2	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 1
JOB: BKF Int 47 No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide
I. SITE VARIABLES
U= 1 M/S Z0= 100 CM ALT= 0 (M)
BRG= WORST CASE VD= 0 CM/S
CLAS= 7 (G) VS= 0 CM/S
MIXH= 1000 M AMB= 0 PPM
SIGTH= 5 DEGREES TEMP= 5 DEGREE (C)
II. LINK VARIABLES

LINK DESCRIPTION			*	LINK X1	COORDINATES Y1	X2	(M) Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A.	Link	A	*	825	293	823	228	*	AG	17	2.6	0	10
B.	Link	B	*	827	292	827	215	*	AG	20	2.6	0	10
C.	Link	C	*	830	293	828	206	*	AG	52	2.6	0	10
D.	Link	D	*	832	292	831	210	*	AG	47	1.3	0	10
E.	Link	E	*	836	292	835	227	*	AG	42	1.3	0	10
F.	Link	F	*	765	252	823	228	*	AG	17	1.2	0	10
G.	Link	G	*	835	227	936	217	*	AG	42	2	0	10
H.	Link	H	*	760	247	832	217	*	AG	3362	1.2	0	10
I.	Link	I	*	832	217	936	212	*	AG	2797	2	0	10
J.	Link	J	*	827	215	823	130	*	AG	1369	2.6	0	10
K.	Link	K	*	827	215	936	205	*	AG	1349	2.6	0	10
L.	Link	L	*	755	240	831	210	*	AG	36	2.6	0	10
M.	Link	M	*	751	235	828	206	*	AG	2797	2	0	10
N.	Link	N	*	828	206	935	198	*	AG	2849	2.6	0	10
O.	Link	O	*	749	230	820	200	*	AG	423	2	0	10
P.	Link	P	*	820	200	818	132	*	AG	423	2.6	0	10
Q.	Link	Q	*	832	217	829	131	*	AG	565	2.6	0	10
R.	Link	R	*	831	210	832	131	*	AG	11	2.6	0	10
S.	Link	S	*	842	200	836	131	*	AG	1265	2.6	0	10
T.	Link	T	*	842	200	935	194	*	AG	1265	2.6	0	10

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 2

JOB: BKF Int 47 No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR		*	COORDINATES X	Y	(M) Z
1	Recpt 1	*	819	284	1.8
2	Recpt 2	*	819	259	1.8
3	Recpt 3	*	818	237	1.8
4	Recpt 4	*	797	244	1.8
5	Recpt 5	*	774	255	1.8
6	Recpt 6	*	770	210	1.8
7	Recpt 7	*	794	202	1.8
8	Recpt 8	*	814	195	1.8
9	Recpt 9	*	813	173	1.8
10	Recpt 10	*	813	148	1.8
11	Recpt 11	*	842	278	1.8
12	Recpt 12	*	841	253	1.8
13	Recpt 13	*	840	231	1.8
14	Recpt 14	*	862	227	1.8
15	Recpt 15	*	886	224	1.8
16	Recpt 16	*	895	189	1.8
17	Recpt 17	*	870	190	1.8
18	Recpt 18	*	848	192	1.8
19	Recpt 19	*	847	170	1.8
20	Recpt 20	*	845	145	1.8

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 3

JOB: BKF Int 47 No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN 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	Recpt	1	*	173	*	0.3	*	0	0	0	0	0	0	0	0
2	Recpt	2	*	171	*	0.4	*	0	0	0	0	0	0	0	0
3	Recpt	3	*	169	*	0.5	*	0	0	0	0	0	0	0	0.1
4	Recpt	4	*	156	*	0.5	*	0	0	0	0	0	0	0	0.1
5	Recpt	5	*	146	*	0.4	*	0	0	0	0	0	0	0	0.1
6	Recpt	6	*	91	*	0.7	*	0	0	0	0	0	0	0	0
7	Recpt	7	*	86	*	0.7	*	0	0	0	0	0	0	0	0
8	Recpt	8	*	81	*	0.8	*	0	0	0	0	0	0	0	0
9	Recpt	9	*	63	*	0.6	*	0	0	0	0	0	0	0	0
10	Recpt	10	*	35	*	0.5	*	0	0	0	0	0	0	0	0
11	Recpt	11	*	188	*	0.3	*	0	0	0	0	0	0	0	0
12	Recpt	12	*	191	*	0.4	*	0	0	0	0	0	0	0	0
13	Recpt	13	*	195	*	0.6	*	0	0	0	0	0	0	0	0
14	Recpt	14	*	208	*	0.7	*	0	0	0	0	0	0	0	0
15	Recpt	15	*	230	*	0.7	*	0	0	0	0	0	0	0	0
16	Recpt	16	*	293	*	0.8	*	0	0	0	0	0	0	0	0
17	Recpt	17	*	300	*	0.7	*	0	0	0	0	0	0	0	0.1
18	Recpt	18	*	307	*	0.7	*	0	0	0	0	0	0	0	0.1
19	Recpt	19	*	317	*	0.5	*	0	0	0	0	0	0	0	0
20	Recpt	20	*	335	*	0.5	*	0	0	0	0	0	0	0	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 4

JOB: BKF Int 47 No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR			*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1	Recpt	1	*	0	0	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	*	0	0.1	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	*	0	0.2	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	*	0	0	0	0	0.1	0	0	0	0	0	0	0
5	Recpt	5	*	0	0	0	0	0.1	0	0	0	0	0	0	0
6	Recpt	6	*	0	0	0.1	0	0.1	0.2	0	0	0	0	0	0
7	Recpt	7	*	0	0	0.1	0	0	0.3	0	0	0	0	0	0
8	Recpt	8	*	0	0	0.1	0	0	0.3	0	0	0	0	0	0.1
9	Recpt	9	*	0	0.1	0	0	0	0.1	0	0	0	0	0	0
10	Recpt	10	*	0	0.1	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	*	0	0.1	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	*	0	0.1	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	*	0.1	0.2	0	0	0	0.1	0	0	0	0	0	0
14	Recpt	14	*	0.2	0	0	0	0	0.1	0	0	0	0	0	0
15	Recpt	15	*	0.2	0	0.1	0	0	0.2	0	0	0	0	0	0
16	Recpt	16	*	0	0	0	0	0	0.3	0	0	0	0	0	0.2
17	Recpt	17	*	0	0	0	0	0	0.3	0	0	0	0	0	0.2
18	Recpt	18	*	0	0	0	0	0.1	0.2	0	0	0	0	0.1	0
19	Recpt	19	*	0	0	0	0	0.1	0	0	0	0	0	0.1	0
20	Recpt	20	*	0	0	0	0	0	0	0	0	0	0	0.2	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 1
JOB: BKF Int 47 Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide
I. SITE VARIABLES
U= 1 M/S Z0= 100 CM ALT= 0 (M)
BRG= WORST CASE VD= 0 CM/S
CLAS= 7 (G) VS= 0 CM/S
MIXH= 1000 M AMB= 0 PPM
SIGTH= 5 DEGREES TEMP= 5 DEGREE (C)
II. LINK VARIABLES

LINK DESCRIPTION			*	LINK X1	COORDINATES Y1	X2	(M) Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A.	Link	A	*	825	293	823	228	*	AG	17	2.6	0	10
B.	Link	B	*	827	292	827	215	*	AG	20	2.6	0	10
C.	Link	C	*	830	293	828	206	*	AG	52	2.6	0	10
D.	Link	D	*	832	292	831	210	*	AG	47	1.3	0	10
E.	Link	E	*	836	292	835	227	*	AG	42	1.3	0	10
F.	Link	F	*	765	252	823	228	*	AG	17	1.2	0	10
G.	Link	G	*	835	227	936	217	*	AG	42	2.6	0	10
H.	Link	H	*	760	247	832	217	*	AG	3373	1.2	0	10
I.	Link	I	*	832	217	936	212	*	AG	2797	2.6	0	10
J.	Link	J	*	827	215	823	130	*	AG	1369	2.6	0	10
K.	Link	K	*	827	215	936	205	*	AG	1349	2.6	0	10
L.	Link	L	*	755	240	831	210	*	AG	36	2.6	0	10
M.	Link	M	*	751	235	828	206	*	AG	2797	2.6	0	10
N.	Link	N	*	828	206	935	198	*	AG	2849	2.6	0	10
O.	Link	O	*	749	230	820	200	*	AG	428	2.6	0	10
P.	Link	P	*	820	200	818	132	*	AG	428	2.6	0	10
Q.	Link	Q	*	832	217	829	131	*	AG	576	2.6	0	10
R.	Link	R	*	831	210	832	131	*	AG	11	2.6	0	10
S.	Link	S	*	842	200	836	131	*	AG	1265	2.6	0	10
T.	Link	T	*	842	200	935	194	*	AG	1265	2.6	0	10

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 2

JOB: BKF Int 47 Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR		*	COORDINATES X	Y	(M) Z
1	Recpt 1	*	819	284	1.8
2	Recpt 2	*	819	259	1.8
3	Recpt 3	*	818	237	1.8
4	Recpt 4	*	797	244	1.8
5	Recpt 5	*	774	255	1.8
6	Recpt 6	*	770	210	1.8
7	Recpt 7	*	794	202	1.8
8	Recpt 8	*	814	195	1.8
9	Recpt 9	*	813	173	1.8
10	Recpt 10	*	813	148	1.8
11	Recpt 11	*	842	278	1.8
12	Recpt 12	*	841	253	1.8
13	Recpt 13	*	840	231	1.8
14	Recpt 14	*	862	227	1.8
15	Recpt 15	*	886	224	1.8
16	Recpt 16	*	895	189	1.8
17	Recpt 17	*	870	190	1.8
18	Recpt 18	*	848	192	1.8
19	Recpt 19	*	847	170	1.8
20	Recpt 20	*	845	145	1.8

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 3

JOB: BKF Int 47 Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN 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	Recpt	1	*	173	*	0.3	*	0	0	0	0	0	0	0	0
2	Recpt	2	*	172	*	0.4	*	0	0	0	0	0	0	0	0
3	Recpt	3	*	169	*	0.6	*	0	0	0	0	0	0	0	0.1
4	Recpt	4	*	156	*	0.5	*	0	0	0	0	0	0	0	0.1
5	Recpt	5	*	146	*	0.4	*	0	0	0	0	0	0	0	0.1
6	Recpt	6	*	90	*	0.7	*	0	0	0	0	0	0	0	0
7	Recpt	7	*	84	*	0.8	*	0	0	0	0	0	0	0	0
8	Recpt	8	*	80	*	0.9	*	0	0	0	0	0	0	0	0
9	Recpt	9	*	63	*	0.6	*	0	0	0	0	0	0	0	0
10	Recpt	10	*	47	*	0.6	*	0	0	0	0	0	0	0	0
11	Recpt	11	*	188	*	0.4	*	0	0	0	0	0	0	0	0
12	Recpt	12	*	191	*	0.5	*	0	0	0	0	0	0	0	0
13	Recpt	13	*	195	*	0.7	*	0	0	0	0	0	0	0	0
14	Recpt	14	*	208	*	0.7	*	0	0	0	0	0	0	0	0
15	Recpt	15	*	231	*	0.7	*	0	0	0	0	0	0	0	0
16	Recpt	16	*	293	*	0.8	*	0	0	0	0	0	0	0	0
17	Recpt	17	*	298	*	0.7	*	0	0	0	0	0	0	0	0.1
18	Recpt	18	*	305	*	0.7	*	0	0	0	0	0	0	0	0.1
19	Recpt	19	*	317	*	0.5	*	0	0	0	0	0	0	0	0
20	Recpt	20	*	335	*	0.5	*	0	0	0	0	0	0	0	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 4

JOB: BKF Int 47 Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR			*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1	Recpt	1	*	0	0	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	*	0	0.1	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	*	0	0.2	0	0	0.1	0	0	0	0	0	0	0
4	Recpt	4	*	0	0	0	0	0.1	0	0	0	0	0	0	0
5	Recpt	5	*	0	0	0	0	0.1	0	0	0	0	0	0	0
6	Recpt	6	*	0.1	0	0.1	0	0.2	0.1	0	0	0	0	0	0
7	Recpt	7	*	0.2	0	0.1	0	0	0.2	0	0	0	0	0	0
8	Recpt	8	*	0.1	0	0.1	0	0	0.3	0	0	0	0	0	0.1
9	Recpt	9	*	0.1	0.1	0	0	0	0.1	0	0	0	0	0	0
10	Recpt	10	*	0	0.1	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	*	0	0.1	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	*	0	0.1	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	*	0.2	0.2	0	0	0	0.1	0	0	0.1	0	0	0
14	Recpt	14	*	0.2	0	0	0	0	0.1	0	0	0	0	0	0
15	Recpt	15	*	0.3	0	0.1	0	0	0.2	0	0	0	0	0	0
16	Recpt	16	*	0	0	0	0	0	0.3	0	0	0	0	0	0.2
17	Recpt	17	*	0	0	0	0	0	0.2	0	0	0	0	0	0.2
18	Recpt	18	*	0	0	0	0	0.2	0.1	0	0	0	0	0.1	0
19	Recpt	19	*	0	0	0	0	0.1	0	0	0	0	0	0.1	0
20	Recpt	20	*	0	0	0	0	0	0	0	0	0	0	0.2	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: BKF Int 15 Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 5. DEGREES TEMP= 5.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	* LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Link A	634	909	635	842	AG	60	9.3	.0	10.0
B. Link B	637	909	640	821	AG	18	9.3	.0	10.0
C. Link C	640	909	646	825	AG	78	9.3	.0	10.0
D. Link D	642	909	648	844	AG	31	9.3	.0	10.0
E. Link E	575	833	635	842	AG	60	9.3	.0	10.0
F. Link F	648	844	720	844	AG	31	9.3	.0	10.0
G. Link G	567	824	642	831	AG	662	9.3	.0	10.0
H. Link H	542	831	720	839	AG	316	9.3	.0	10.0
I. Link I	580	817	646	825	AG	69	9.3	.0	10.0
J. Link J	580	811	640	821	AG	1127	9.3	.0	10.0
K. Link K	640	821	720	828	AG	1145	9.3	.0	10.0
L. Link L	575	801	602	805	AG	686	9.3	.0	10.0
M. Link M	602	805	636	776	AG	686	9.3	.0	10.0
N. Link N	636	776	617	728	AG	686	9.3	.0	10.0
O. Link O	617	728	571	728	AG	686	9.3	.0	10.0
P. Link P	642	831	636	726	AG	301	9.3	.0	10.0
Q. Link Q	641	725	646	825	AG	9	9.3	.0	10.0
R. Link R	641	725	653	816	AG	334	9.3	.0	10.0
S. Link S	653	816	720	820	AG	334	9.3	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: BKF Int 15 Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. Recpt 1	*	629	894	1.8
2. Recpt 2	*	629	869	1.8
3. Recpt 3	*	630	847	1.8
4. Recpt 4	*	608	845	1.8
5. Recpt 5	*	583	843	1.8
6. Recpt 6	*	594	793	1.8
7. Recpt 7	*	616	806	1.8
8. Recpt 8	*	638	809	1.8
9. Recpt 9	*	637	787	1.8
10. Recpt 10	*	635	762	1.8
11. Recpt 11	*	652	896	1.8
12. Recpt 12	*	653	871	1.8
13. Recpt 13	*	653	849	1.8
14. Recpt 14	*	674	851	1.8
15. Recpt 15	*	699	853	1.8
16. Recpt 16	*	707	813	1.8
17. Recpt 17	*	682	812	1.8
18. Recpt 18	*	660	809	1.8
19. Recpt 19	*	659	787	1.8
20. Recpt 20	*	657	762	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: BKF Int 15 Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOI	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Recpt 1	176	0.6	.0	.0	.0	.0	.0	.0	.0	.0
2. Recpt 2	174	0.6	.0	.0	.0	.0	.0	.0	.0	.0
3. Recpt 3	175	0.8	.0	.0	.0	.0	.0	.0	.1	.0
4. Recpt 4	163	0.8	.0	.0	.0	.0	.0	.0	.1	.0
5. Recpt 5	147	0.9	.0	.0	.0	.0	.0	.0	.2	.1
6. Recpt 6	39	0.7	.0	.0	.0	.0	.0	.0	.1	.0
7. Recpt 7	73	0.7	.0	.0	.0	.0	.0	.0	.0	.0
8. Recpt 8	71	0.9	.0	.0	.0	.0	.0	.0	.0	.0
9. Recpt 9	199	0.9	.0	.0	.0	.0	.0	.0	.0	.0
10. Recpt 1	3	1	.0	.0	.0	.0	.0	.0	.0	.0
11. Recpt 1	190	0.6	.0	.0	.0	.0	.0	.0	.0	.0
12. Recpt 1	193	0.6	.0	.0	.0	.0	.0	.0	.0	.0
13. Recpt 1	234	0.8	.0	.0	.0	.0	.0	.0	.2	.1
14. Recpt 1	242	0.7	.0	.0	.0	.0	.0	.0	.2	.1
15. Recpt 1	218	0.7	.0	.0	.0	.0	.0	.0	.0	.0
16. Recpt 1	280	1	.0	.0	.0	.0	.0	.0	.2	.0
17. Recpt 1	283	1.1	.0	.0	.0	.0	.0	.0	.2	.1
18. Recpt 1	291	0.9	.0	.0	.0	.0	.0	.0	.2	.0
19. Recpt 1	300	0.6	.0	.0	.0	.0	.0	.0	.1	.0
20. Recpt 2	307	0.8	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: BKF Int 15 Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S
1. Recpt 1	*	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0
2. Recpt 2	*	.0	.1	.0	.0	.0	.0	.0	.1	.0	.0	.0
3. Recpt 3	*	.0	.2	.0	.0	.0	.0	.0	.1	.0	.0	.0
4. Recpt 4	*	.0	.2	.0	.0	.1	.0	.0	.0	.0	.0	.0
5. Recpt 5	*	.0	.2	.0	.0	.2	.0	.0	.0	.0	.0	.0
6. Recpt 6	*	.0	.3	.0	.0	.1	.0	.0	.0	.0	.0	.0
7. Recpt 7	*	.0	.0	.5	.0	.0	.0	.0	.0	.0	.0	.0
8. Recpt 8	*	.0	.0	.5	.0	.0	.0	.0	.0	.0	.0	.2
9. Recpt 9	*	.0	.0	.0	.0	.2	.5	.0	.1	.0	.0	.0
10. Recpt 10	*	.0	.0	.0	.0	.0	.3	.0	.3	.0	.0	.0
11. Recpt 11	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. Recpt 12	*	.0	.0	.0	.0	.0	.1	.0	.1	.0	.0	.0
13. Recpt 13	*	.0	.3	.0	.1	.0	.0	.0	.0	.0	.0	.0
14. Recpt 14	*	.0	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0
15. Recpt 15	*	.0	.0	.2	.0	.0	.1	.0	.0	.0	.0	.0
16. Recpt 16	*	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0	.2
17. Recpt 17	*	.0	.2	.3	.0	.0	.0	.0	.0	.0	.0	.2
18. Recpt 18	*	.0	.3	.0	.0	.0	.0	.0	.0	.0	.1	.0
19. Recpt 19	*	.0	.2	.0	.0	.0	.0	.0	.0	.0	.1	.0
20. Recpt 20	*	.0	.1	.0	.0	.3	.0	.0	.0	.0	.1	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: BKF Int 15 Existing + Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 5. DEGREES TEMP= 5.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	* LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Link A	634	909	635	842	AG	60	9.3	.0	10.0
B. Link B	637	909	640	821	AG	18	9.3	.0	10.0
C. Link C	640	909	646	825	AG	78	9.3	.0	10.0
D. Link D	642	909	648	844	AG	31	9.3	.0	10.0
E. Link E	575	833	635	842	AG	60	9.3	.0	10.0
F. Link F	648	844	720	844	AG	31	9.3	.0	10.0
G. Link G	567	824	642	831	AG	633	9.3	.0	10.0
H. Link H	542	831	720	839	AG	332	9.3	.0	10.0
I. Link I	580	817	646	825	AG	69	9.3	.0	10.0
J. Link J	580	811	640	821	AG	1168	9.3	.0	10.0
K. Link K	640	821	720	828	AG	1186	9.3	.0	10.0
L. Link L	575	801	602	805	AG	686	9.3	.0	10.0
M. Link M	602	805	636	776	AG	686	9.3	.0	10.0
N. Link N	636	776	617	728	AG	686	9.3	.0	10.0
O. Link O	617	728	571	728	AG	686	9.3	.0	10.0
P. Link P	642	831	636	726	AG	301	9.3	.0	10.0
Q. Link Q	641	725	646	825	AG	9	9.3	.0	10.0
R. Link R	641	725	653	816	AG	356	9.3	.0	10.0
S. Link S	653	816	720	820	AG	356	9.3	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: BKF Int 15 Existing + Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. Recpt 1	*	629	894	1.8
2. Recpt 2	*	629	869	1.8
3. Recpt 3	*	630	847	1.8
4. Recpt 4	*	608	845	1.8
5. Recpt 5	*	583	843	1.8
6. Recpt 6	*	594	793	1.8
7. Recpt 7	*	616	806	1.8
8. Recpt 8	*	638	809	1.8
9. Recpt 9	*	637	787	1.8
10. Recpt 10	*	635	762	1.8
11. Recpt 11	*	652	896	1.8
12. Recpt 12	*	653	871	1.8
13. Recpt 13	*	653	849	1.8
14. Recpt 14	*	674	851	1.8
15. Recpt 15	*	699	853	1.8
16. Recpt 16	*	707	813	1.8
17. Recpt 17	*	682	812	1.8
18. Recpt 18	*	660	809	1.8
19. Recpt 19	*	659	787	1.8
20. Recpt 20	*	657	762	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: BKF Int 15 Existing + Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOI	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Recpt 1	175	1	.1	.0	.0	.0	.0	.0	.1	.0
2. Recpt 2	174	1.1	.0	.0	.0	.0	.0	.0	.2	.0
3. Recpt 3	175	1.3	.0	.0	.0	.0	.0	.0	.2	.1
4. Recpt 4	163	1.4	.0	.0	.0	.0	.0	.0	.2	.2
5. Recpt 5	146	1.5	.0	.0	.0	.0	.0	.0	.3	.2
6. Recpt 6	38	1.2	.0	.0	.0	.0	.0	.0	.2	.0
7. Recpt 7	73	1.2	.0	.0	.0	.0	.0	.0	.0	.0
8. Recpt 8	72	1.5	.0	.0	.0	.0	.0	.0	.0	.0
9. Recpt 9	200	1.4	.0	.0	.0	.0	.0	.0	.0	.0
10. Recpt 1	3	1.8	.0	.0	.0	.0	.0	.0	.0	.0
11. Recpt 1	190	1	.0	.0	.0	.0	.0	.0	.0	.0
12. Recpt 1	193	1.1	.0	.0	.0	.0	.0	.0	.0	.0
13. Recpt 1	234	1.3	.0	.0	.0	.0	.0	.0	.3	.2
14. Recpt 1	242	1.3	.0	.0	.0	.0	.0	.0	.2	.2
15. Recpt 1	218	1.2	.0	.0	.0	.0	.0	.0	.0	.2
16. Recpt 1	280	1.8	.0	.0	.0	.0	.0	.0	.3	.2
17. Recpt 1	283	1.8	.0	.0	.0	.0	.0	.0	.3	.2
18. Recpt 1	292	1.5	.0	.0	.0	.0	.0	.0	.3	.2
19. Recpt 1	300	1	.0	.0	.0	.0	.0	.0	.2	.1
20. Recpt 2	307	1.4	.0	.0	.0	.0	.0	.0	.1	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: BKF Int 15 Existing + Project
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S
1. Recpt 1	*	.0	.2	.0	.0	.0	.0	.0	.2	.0	.1	.0
2. Recpt 2	*	.0	.2	.0	.0	.0	.0	.0	.2	.0	.1	.0
3. Recpt 3	*	.0	.3	.0	.0	.0	.1	.0	.2	.0	.0	.0
4. Recpt 4	*	.0	.3	.0	.0	.2	.2	.0	.1	.0	.0	.0
5. Recpt 5	*	.0	.3	.0	.0	.4	.1	.0	.0	.0	.0	.0
6. Recpt 6	*	.0	.5	.0	.1	.2	.0	.0	.0	.0	.0	.0
7. Recpt 7	*	.0	.0	.8	.0	.0	.0	.0	.1	.0	.0	.1
8. Recpt 8	*	.0	.0	.8	.0	.0	.0	.0	.2	.0	.1	.3
9. Recpt 9	*	.0	.0	.0	.0	.3	.8	.0	.2	.0	.0	.0
10. Recpt 10	*	.0	.1	.0	.0	.2	.5	.0	.6	.0	.0	.0
11. Recpt 11	*	.0	.1	.0	.0	.0	.2	.0	.2	.0	.0	.0
12. Recpt 12	*	.0	.0	.2	.0	.1	.2	.0	.2	.0	.0	.0
13. Recpt 13	*	.0	.5	.0	.2	.0	.0	.0	.0	.0	.0	.0
14. Recpt 14	*	.0	.5	.0	.2	.0	.0	.0	.0	.0	.0	.0
15. Recpt 15	*	.0	.0	.4	.0	.0	.2	.1	.0	.0	.1	.1
16. Recpt 16	*	.0	.1	.6	.0	.0	.0	.0	.0	.0	.0	.4
17. Recpt 17	*	.0	.3	.5	.0	.0	.0	.0	.0	.0	.0	.4
18. Recpt 18	*	.0	.5	.1	.0	.0	.0	.0	.1	.0	.2	.0
19. Recpt 19	*	.0	.3	.0	.0	.0	.0	.0	.1	.0	.2	.0
20. Recpt 20	*	.0	.2	.0	.1	.5	.0	.0	.1	.0	.2	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: BKF Int 15 No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 5. DEGREES TEMP= 5.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	* LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Link A	634	909	635	842	AG	74	2.0	.0	10.0
B. Link B	637	909	640	821	AG	55	2.0	.0	10.0
C. Link C	640	909	646	825	AG	78	2.0	.0	10.0
D. Link D	642	909	648	844	AG	68	2.0	.0	10.0
E. Link E	575	833	635	842	AG	74	2.0	.0	10.0
F. Link F	648	844	720	844	AG	68	2.0	.0	10.0
G. Link G	567	824	642	831	AG	916	2.0	.0	10.0
H. Link H	542	831	720	839	AG	615	2.0	.0	10.0
I. Link I	580	817	646	825	AG	69	2.0	.0	10.0
J. Link J	580	811	640	821	AG	1127	2.0	.0	10.0
K. Link K	640	821	720	828	AG	1182	2.0	.0	10.0
L. Link L	575	801	602	805	AG	1202	2.0	.0	10.0
M. Link M	602	805	636	776	AG	1202	2.0	.0	10.0
N. Link N	636	776	617	728	AG	1202	2.0	.0	10.0
O. Link O	617	728	571	728	AG	1202	2.0	.0	10.0
P. Link P	642	831	636	726	AG	301	2.0	.0	10.0
Q. Link Q	641	725	646	825	AG	9	2.0	.0	10.0
R. Link R	641	725	653	816	AG	564	2.0	.0	10.0
S. Link S	653	816	720	820	AG	564	2.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: BKF Int 15 No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	* COORDINATES (M) X	Y	Z
1. Recpt 1	629	894	1.8
2. Recpt 2	629	869	1.8
3. Recpt 3	630	847	1.8
4. Recpt 4	608	845	1.8
5. Recpt 5	583	843	1.8
6. Recpt 6	594	793	1.8
7. Recpt 7	616	806	1.8
8. Recpt 8	638	809	1.8
9. Recpt 9	637	787	1.8
10. Recpt 10	635	762	1.8
11. Recpt 11	652	896	1.8
12. Recpt 12	653	871	1.8
13. Recpt 13	653	849	1.8
14. Recpt 14	674	851	1.8
15. Recpt 15	699	853	1.8
16. Recpt 16	707	813	1.8
17. Recpt 17	682	812	1.8
18. Recpt 18	660	809	1.8
19. Recpt 19	659	787	1.8
20. Recpt 20	657	762	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: BKF Int 15 No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOI	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Recpt 1	176	0.2	.0	.0	.0	.0	.0	.0	.0	.0
2. Recpt 2	176	0.2	.0	.0	.0	.0	.0	.0	.0	.0
3. Recpt 3	178	0.2	.0	.0	.0	.0	.0	.0	.0	.0
4. Recpt 4	163	0.2	.0	.0	.0	.0	.0	.0	.0	.0
5. Recpt 5	147	0.3	.0	.0	.0	.0	.0	.0	.0	.0
6. Recpt 6	39	0.2	.0	.0	.0	.0	.0	.0	.0	.0
7. Recpt 7	157	0.2	.0	.0	.0	.0	.0	.0	.0	.0
8. Recpt 8	71	0.2	.0	.0	.0	.0	.0	.0	.0	.0
9. Recpt 9	200	0.3	.0	.0	.0	.0	.0	.0	.0	.0
10. Recpt 1	338	0.3	.0	.0	.0	.0	.0	.0	.0	.0
11. Recpt 1	190	0.2	.0	.0	.0	.0	.0	.0	.0	.0
12. Recpt 1	193	0.2	.0	.0	.0	.0	.0	.0	.0	.0
13. Recpt 1	234	0.2	.0	.0	.0	.0	.0	.0	.0	.0
14. Recpt 1	207	0.2	.0	.0	.0	.0	.0	.0	.0	.0
15. Recpt 1	218	0.2	.0	.0	.0	.0	.0	.0	.0	.0
16. Recpt 1	280	0.3	.0	.0	.0	.0	.0	.0	.0	.0
17. Recpt 1	284	0.3	.0	.0	.0	.0	.0	.0	.0	.0
18. Recpt 1	294	0.2	.0	.0	.0	.0	.0	.0	.0	.0
19. Recpt 1	224	0.2	.0	.0	.0	.0	.0	.0	.0	.0
20. Recpt 2	306	0.3	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: BKF Int 15 No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S
1. Recpt 1	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. Recpt 2	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. Recpt 3	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. Recpt 4	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. Recpt 5	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. Recpt 6	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. Recpt 7	*	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0
8. Recpt 8	*	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0
9. Recpt 9	*	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0
10. Recpt 10	*	.0	.0	.0	.0	.1	.1	.0	.0	.0	.0	.0
11. Recpt 11	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. Recpt 12	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. Recpt 13	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
14. Recpt 14	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15. Recpt 15	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
16. Recpt 16	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. Recpt 17	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. Recpt 18	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. Recpt 19	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. Recpt 20	*	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: BKF Int 15 Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 5. DEGREES TEMP= 5.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	* LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Link A	634	909	635	842	AG	74	2.0	.0	10.0
B. Link B	637	909	640	821	AG	55	2.0	.0	10.0
C. Link C	640	909	646	825	AG	78	2.0	.0	10.0
D. Link D	642	909	648	844	AG	68	2.0	.0	10.0
E. Link E	575	833	635	842	AG	74	2.0	.0	10.0
F. Link F	648	844	720	844	AG	68	2.0	.0	10.0
G. Link G	567	824	642	831	AG	932	2.0	.0	10.0
H. Link H	542	831	720	839	AG	631	2.0	.0	10.0
I. Link I	580	817	646	825	AG	69	2.0	.0	10.0
J. Link J	580	811	640	821	AG	1168	2.0	.0	10.0
K. Link K	640	821	720	828	AG	1223	2.0	.0	10.0
L. Link L	575	801	602	805	AG	1202	2.0	.0	10.0
M. Link M	602	805	636	776	AG	1202	2.0	.0	10.0
N. Link N	636	776	617	728	AG	1202	2.0	.0	10.0
O. Link O	617	728	571	728	AG	1202	2.0	.0	10.0
P. Link P	642	831	636	726	AG	301	2.0	.0	10.0
Q. Link Q	641	725	646	825	AG	9	2.0	.0	10.0
R. Link R	641	725	653	816	AG	586	2.0	.0	10.0
S. Link S	653	816	720	820	AG	586	2.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: BKF Int 15 Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	* COORDINATES (M) X	Y	Z
1. Recpt 1	629	894	1.8
2. Recpt 2	629	869	1.8
3. Recpt 3	630	847	1.8
4. Recpt 4	608	845	1.8
5. Recpt 5	583	843	1.8
6. Recpt 6	594	793	1.8
7. Recpt 7	616	806	1.8
8. Recpt 8	638	809	1.8
9. Recpt 9	637	787	1.8
10. Recpt 10	635	762	1.8
11. Recpt 11	652	896	1.8
12. Recpt 12	653	871	1.8
13. Recpt 13	653	849	1.8
14. Recpt 14	674	851	1.8
15. Recpt 15	699	853	1.8
16. Recpt 16	707	813	1.8
17. Recpt 17	682	812	1.8
18. Recpt 18	660	809	1.8
19. Recpt 19	659	787	1.8
20. Recpt 20	657	762	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: BKF Int 15 Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOI	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Recpt 1	176	0.2	.0	.0	.0	.0	.0	.0	.0	.0
2. Recpt 2	176	0.2	.0	.0	.0	.0	.0	.0	.0	.0
3. Recpt 3	178	0.2	.0	.0	.0	.0	.0	.0	.0	.0
4. Recpt 4	163	0.2	.0	.0	.0	.0	.0	.0	.0	.0
5. Recpt 5	147	0.3	.0	.0	.0	.0	.0	.0	.0	.0
6. Recpt 6	39	0.2	.0	.0	.0	.0	.0	.0	.0	.0
7. Recpt 7	157	0.2	.0	.0	.0	.0	.0	.0	.0	.0
8. Recpt 8	71	0.2	.0	.0	.0	.0	.0	.0	.0	.0
9. Recpt 9	200	0.3	.0	.0	.0	.0	.0	.0	.0	.0
10. Recpt 1	338	0.3	.0	.0	.0	.0	.0	.0	.0	.0
11. Recpt 1	190	0.2	.0	.0	.0	.0	.0	.0	.0	.0
12. Recpt 1	193	0.2	.0	.0	.0	.0	.0	.0	.0	.0
13. Recpt 1	234	0.2	.0	.0	.0	.0	.0	.0	.0	.0
14. Recpt 1	207	0.2	.0	.0	.0	.0	.0	.0	.0	.0
15. Recpt 1	218	0.2	.0	.0	.0	.0	.0	.0	.0	.0
16. Recpt 1	280	0.3	.0	.0	.0	.0	.0	.0	.0	.0
17. Recpt 1	284	0.3	.0	.0	.0	.0	.0	.0	.0	.0
18. Recpt 1	294	0.2	.0	.0	.0	.0	.0	.0	.0	.0
19. Recpt 1	224	0.2	.0	.0	.0	.0	.0	.0	.0	.0
20. Recpt 2	306	0.3	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: BKF Int 15 Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S
1. Recpt 1	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. Recpt 2	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. Recpt 3	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. Recpt 4	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. Recpt 5	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. Recpt 6	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. Recpt 7	*	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0
8. Recpt 8	*	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0
9. Recpt 9	*	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0
10. Recpt 10	*	.0	.0	.0	.0	.1	.1	.0	.0	.0	.0	.0
11. Recpt 11	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. Recpt 12	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. Recpt 13	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
14. Recpt 14	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15. Recpt 15	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
16. Recpt 16	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. Recpt 17	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. Recpt 18	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. Recpt 19	*	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. Recpt 20	*	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0

KTR Station 8th Ave./SR 198 WB Ramps 2009 Existing CALINE Output

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL								
JUNE	1989	VERSION											
PAGE	1												
JOB:	KTH	Int	2	Existing									
RUN:	Hour	1											
POLLUTANT:	Carbon	Monoxide											
I.	SITE	VARIABLES											
U=	1	M/S	Z0=	100	CM	ALT=	0	(M)					
BRG=	0	DEGREES	VD=	0	CM/S								
CLAS=	7	(G)	VS=	0	CM/S								
MIXH=	1000	M	AMB=	0	PPM								
SIGTH=	5	DEGREES	TEMP=	4.4	DEGREE	(C)							
II.	LINK	VARIABLES											
LINK	*		LINK	COORDINATES	(M)					EF	H	W	
DESCRIPTION	*		X1	Y1	X2	Y2	TYPE	VPH		(G/MI)	(M)	(M)	
A.	Link	A	529	461	523	364	AG	67		6	0	10	
B.	Link	B	532	461	523	217	AG	251		6	0	10	
C.	Link	C	535	461	529	217	AG	414		6	0	10	
D.	Link	D	539	461	542	361	AG	142		6	0	10	
E.	Link	E	523	364	393	256	AG	67		6	0	10	
F.	Link	F	542	361	683	334	AG	142		6	0	10	
G.	Link	G	530	358	526	217	AG	21		6	0	10	
H.	Link	H	530	358	683	330	AG	21		6	0	10	
I.	Link	I	529	217	559	311	AG	98		6	0	10	
J.	Link	J	559	311	636	324	AG	98		6	0	10	

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: KTH Int 2 Existing
RUN: Hour 1
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS
* COORDINATES (M)

RECEPTOR	*	X	Y	Z
1	Recpt 1	521	413	1.8
2	Recpt 2	519	389	1.8
3	Recpt 3	516	367	1.8
4	Recpt 4	500	351	1.8
5	Recpt 5	482	335	1.8
6	Recpt 6	546	411	1.8
7	Recpt 7	545	386	1.8
8	Recpt 8	551	367	1.8
9	Recpt 9	568	360	1.8
10	Recpt 10	593	356	1.8
11	Recpt 11	484	319	1.8
12	Recpt 12	504	335	1.8
13	Recpt 13	521	348	1.8
14	Recpt 14	520	327	1.8
15	Recpt 15	519	302	1.8
16	Recpt 16	544	349	1.8
17	Recpt 17	543	271	1.8
18	Recpt 18	543	297	1.8
19	Recpt 19	565	345	1.8
20	Recpt 20	588	338	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: KTH Int 2 Existing
RUN: Hour 1
POLLUTANT: Carbon Monoxide
IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.)
* * PRED CONC/LINK
* * CONC (PPM)

RECEPTOR	*	(PPM)	A	B	C	D	E	F	G	H	I	J
1	Recpt 1	0	0	0	0	0	0	0	0	0	0	0
2	Recpt 2	0	0	0	0	0	0	0	0	0	0	0
3	Recpt 3	0	0	0	0	0	0	0	0	0	0	0
4	Recpt 4	0	0	0	0	0	0	0	0	0	0	0
5	Recpt 5	0	0	0	0	0	0	0	0	0	0	0
6	Recpt 6	0	0	0	0	0	0	0	0	0	0	0
7	Recpt 7	0	0	0	0	0	0	0	0	0	0	0
8	Recpt 8	0	0	0	0	0	0	0	0	0	0	0
9	Recpt 9	0	0	0	0	0	0	0	0	0	0	0
10	Recpt 10	0	0	0	0	0	0	0	0	0	0	0
11	Recpt 11	0	0	0	0	0	0	0	0	0	0	0
12	Recpt 12	0	0	0	0	0	0	0	0	0	0	0
13	Recpt 13	0	0	0	0	0	0	0	0	0	0	0
14	Recpt 14	0	0	0	0	0	0	0	0	0	0	0
15	Recpt 15	0	0	0	0	0	0	0	0	0	0	0
16	Recpt 16	0.2	0	0	0	0	0	0	0	0	0	0
17	Recpt 17	0.1	0	0	0	0	0	0	0	0	0	0
18	Recpt 18	0.1	0	0	0	0	0	0	0	0	0	0
19	Recpt 19	0	0	0	0	0	0	0	0	0	0	0
20	Recpt 20	0	0	0	0	0	0	0	0	0	0	0

KTR Station 8th Ave./SR 198 WB Ramps 2009 Existing Plus Project CALINE Output

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL		
JUNE	1989	VERSION					
PAGE	1						
JOB:	KTH	Int	2	Existing	+	Project	
RUN:	Hour	1					
POLLUTANT:	Carbon	Monoxide					
I.	SITE	VARIABLES					
U=	1	M/S	Z0=	100	CM	ALT=	0 (M)
BRG=	0	DEGREES	VD=	0	CM/S		
CLAS=	7	(G)	VS=	0	CM/S		
MIXH=	1000	M	AMB=	0	PPM		
SIGTH=	5	DEGREES	TEMP=	4.4	DEGREE	(C)	

II. LINK VARIABLES

LINK DESCRIPTION	* *	LINK X1	COORDINATES (M) Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A.	Link A	529	461	523	364	AG	134	6	0	10
B.	Link B	532	461	523	217	AG	332	6	0	10
C.	Link C	535	461	529	217	AG	450	6	0	10
D.	Link D	539	461	542	361	AG	169	6	0	10
E.	Link E	523	364	393	256	AG	134	6	0	10
F.	Link F	542	361	683	334	AG	169	6	0	10
G.	Link G	530	358	526	217	AG	98	6	0	10
H.	Link H	530	358	683	330	AG	98	6	0	10
I.	Link I	529	217	559	311	AG	98	6	0	10
J.	Link J	559	311	636	324	AG	98	6	0	10

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: KTH Int 2 Existing + Project
RUN: Hour 1
POLLUTANT: Carbon Monoxide
III. RECEPTOR LOCATIONS

*	COORDINATES (M)			
RECEPTOR	*	X	Y	Z
1	Recpt 1	521	413	1.8
2	Recpt 2	519	389	1.8
3	Recpt 3	516	367	1.8
4	Recpt 4	500	351	1.8
5	Recpt 5	482	335	1.8
6	Recpt 6	546	411	1.8
7	Recpt 7	545	386	1.8
8	Recpt 8	551	367	1.8
9	Recpt 9	568	360	1.8
10	Recpt 10	593	356	1.8
11	Recpt 11	484	319	1.8
12	Recpt 12	504	335	1.8
13	Recpt 13	521	348	1.8
14	Recpt 14	520	327	1.8
15	Recpt 15	519	302	1.8
16	Recpt 16	544	349	1.8
17	Recpt 17	543	271	1.8
18	Recpt 18	543	297	1.8
19	Recpt 19	565	345	1.8
20	Recpt 20	588	338	1.8

KTR Station 8th Ave./SR 198 WB Ramps 2009 Existing Plus Project CALINE Output

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL	
JUNE	1989	VERSION				
PAGE	3					
JOB:	KTH	Int	2	Existing	+	Project
RUN:	Hour	1				
POLLUTANT:	Carbon	Monoxide				
IV.	MODEL	RESULTS	(PRED.	CONC.	INCLUDES	AMB.)

*		*	PRED			CONC/LINK								
*		*	CONC			(PPM)								
RECEPTOR	*		(PPM)	A	B	C	D	E	F	G	H	I	J	
1	Recpt	1	0	0	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0	0	0	0
7	Recpt	7	0.1	0	0	0	0.1	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	0	0	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	0	0	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	0.1	0	0	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	0.2	0	0	0	0.1	0	0	0	0	0	0	0
17	Recpt	17	0.1	0	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	0.1	0	0	0	0	0	0	0	0	0	0	0
19	Recpt	19	0	0	0	0	0	0	0	0	0	0	0	0
20	Recpt	20	0	0	0	0	0	0	0	0	0	0	0	0

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL
JUNE	1989	VERSION			
PAGE	1				
JOB:	KTH	Int	2	No	Build
RUN:	Hour	1			
POLLUTANT:	Carbon	Monoxide			

I.	SITE	VARIABLES					
U=	1	M/S	Z0=	100	CM	ALT=	0 (M)
BRG=	0	DEGREES	VD=	0	CM/S		
CLAS=	7	(G)	VS=	0	CM/S		
MIXH=	1000	M	AMB=	0	PPM		
SIGTH=	5	DEGREES	TEMP=	4.4	DEGREE	(C)	

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK X1	COORDINATES (M) Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A.	Link A	529	461	523	364	AG	67	1.2	0	10
B.	Link B	532	461	523	217	AG	251	1.2	0	10
C.	Link C	535	461	529	217	AG	710	1.2	0	10
D.	Link D	539	461	542	361	AG	182	1.2	0	10
E.	Link E	523	364	393	256	AG	67	1.2	0	10
F.	Link F	542	361	683	334	AG	182	1.2	0	10
G.	Link G	530	358	526	217	AG	48	1.2	0	10
H.	Link H	530	358	683	330	AG	48	1.2	0	10
I.	Link I	529	217	559	311	AG	126	1.2	0	10
J.	Link J	559	311	636	324	AG	126	1.2	0	10

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: KTH Int 2 No Build
RUN: Hour 1
POLLUTANT: Carbon Monoxide
III. RECEPTOR LOCATIONS

*		COORDINATES (M)		
RECEPTOR	*	X	Y	Z
1	Recpt 1	521	413	1.8
2	Recpt 2	519	389	1.8
3	Recpt 3	516	367	1.8
4	Recpt 4	500	351	1.8
5	Recpt 5	482	335	1.8
6	Recpt 6	546	411	1.8
7	Recpt 7	545	386	1.8
8	Recpt 8	551	367	1.8
9	Recpt 9	568	360	1.8
10	Recpt 10	593	356	1.8
11	Recpt 11	484	319	1.8
12	Recpt 12	504	335	1.8
13	Recpt 13	521	348	1.8
14	Recpt 14	520	327	1.8
15	Recpt 15	519	302	1.8
16	Recpt 16	544	349	1.8
17	Recpt 17	543	271	1.8
18	Recpt 18	543	297	1.8
19	Recpt 19	565	345	1.8
20	Recpt 20	588	338	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3
JOB: KTH Int 2 No Build
RUN: Hour 1
POLLUTANT: Carbon Monoxide
IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.)

*		*	PRED		CONC/LINK								
*		*	CONC		(PPM)								
RECEPTOR	*		(PPM)	A	B	C	D	E	F	G	H	I	J
1	Recpt	1	0	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	0	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	0	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	0	0	0	0	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0	0	0
19	Recpt	19	0	0	0	0	0	0	0	0	0	0	0
20	Recpt	20	0	0	0	0	0	0	0	0	0	0	0

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL
JUNE	1989	VERSION			
PAGE	1				

JOB:	KTH	Int	2	Build
RUN:	Hour	1		
POLLUTANT:	Carbon	Monoxide		

I. SITE VARIABLES

U=	1	M/S	Z0=	100	CM	ALT=	0 (M)
BRG=	0	DEGREES	VD=	0	CM/S		
CLAS=	7	(G)	VS=	0	CM/S		
MIXH=	1000	M	AMB=	0	PPM		
SIGTH=	5	DEGREES	TEMP=	4.4	DEGREE	(C)	

II. LINK VARIABLES

LINK	*	LINK	COORDINAT (M)						EF	H	W
DESCRIPTION	*	X1	Y1	X2	Y2	TYPE	VPH	(G/MI)	(M)	(M)	
A.	Link	A	529	461	523	364	AG	134	1.2	0	10
B.	Link	B	532	461	523	217	AG	332	1.2	0	10
C.	Link	C	535	461	529	217	AG	746	1.2	0	10
D.	Link	D	539	461	542	361	AG	209	1.2	0	10
E.	Link	E	523	364	393	256	AG	134	1.2	0	10
F.	Link	F	542	361	683	334	AG	209	1.2	0	10
G.	Link	G	530	358	526	217	AG	48	1.2	0	10
H.	Link	H	530	358	683	330	AG	48	1.2	0	10
I.	Link	I	529	217	559	311	AG	126	1.2	0	10
J.	Link	J	559	311	636	324	AG	126	1.2	0	10

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: KTH Int 2 Build
RUN: Hour 1
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

* RECEPTOR	*	COORDINATES (M) X	Y	Z
1	Recpt 1	521	413	1.8
2	Recpt 2	519	389	1.8
3	Recpt 3	516	367	1.8
4	Recpt 4	500	351	1.8
5	Recpt 5	482	335	1.8
6	Recpt 6	546	411	1.8
7	Recpt 7	545	386	1.8
8	Recpt 8	551	367	1.8
9	Recpt 9	568	360	1.8
10	Recpt 10	593	356	1.8
11	Recpt 11	484	319	1.8
12	Recpt 12	504	335	1.8
13	Recpt 13	521	348	1.8
14	Recpt 14	520	327	1.8
15	Recpt 15	519	302	1.8
16	Recpt 16	544	349	1.8
17	Recpt 17	543	271	1.8
18	Recpt 18	543	297	1.8
19	Recpt 19	565	345	1.8
20	Recpt 20	588	338	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3
JOB: KTH Int 2 Build
RUN: Hour 1
POLLUTANT: Carbon Monoxide
IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.)
* * PRED CONC/LINK
* * CONC (PPM)

RECEPTOR	*			A	B	C	D	E	F	G	H	I	J
1	Recpt	1	0	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	0	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	0	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	0	0	0	0	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0	0	0
19	Recpt	19	0	0	0	0	0	0	0	0	0	0	0
20	Recpt	20	0	0	0	0	0	0	0	0	0	0	0

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL				
JUNE	1989	VERSION							
PAGE	1								
JOB:	KTH	Int	3	Existing					
RUN:	Hour	1							
POLLUTANT:	Carbon	Monoxide							
I.	SITE	VARIABLES							
U=	1	M/S	Z0=	100	CM	ALT=	0	(M)	
BRG=	0	DEGREES	VD=	0	CM/S				
CLAS=	7	(G)	VS=	0	CM/S				
MIXH=	1000	M	AMB=	0	PPM				
SIGTH=	5	DEGREES	TEMP=	4.4	DEGREE	(C)			

II. LINK VARIABLES

LINK DESCRIPTION	* *	LINK	COORDINATES (M) X1	Y1	* X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A.	Link	A	521	1106	515	758	AG	166	6	0	10
B.	Link	B	525	1106	519	758	AG	431	6	0	10
C.	Link	C	528	1106	524	982	AG	77	6	0	10
D.	Link	D	370	1010	524	982	AG	77	6	0	10
E.	Link	E	370	1008	515	978	AG	85	6	0	10
F.	Link	F	515	978	512	758	AG	85	6	0	10
G.	Link	G	550	935	519	758	AG	57	6	0	10
H.	Link	H	550	935	678	1084	AG	57	6	0	10
I.	Link	I	521	1106	460	1003	AG	106	6	0	10
J.	Link	J	460	1003	398	1044	AG	106	6	0	10

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2
JOB: KTH Int 3 Existing
RUN: Hour 1
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

*		COORDINATES (M)		
RECEPTOR	*	X	Y	Z
1	Recpt 1	516	1039	1.8
2	Recpt 2	515	1014	1.8
3	Recpt 3	511	991	1.8
4	Recpt 4	493	991	1.8
5	Recpt 5	463	994	1.8
6	Recpt 6	462	986	1.8
7	Recpt 7	486	982	1.8
8	Recpt 8	506	974	1.8
9	Recpt 9	512	954	1.8
10	Recpt 10	511	929	1.8
11	Recpt 11	531	1031	1.8
12	Recpt 12	531	1007	1.8
13	Recpt 13	530	982	1.8
14	Recpt 14	540	948	1.8
15	Recpt 15	574	980	1.8
16	Recpt 16	529	871	1.8
17	Recpt 17	559	931	1.8
18	Recpt 18	573	953	1.8
19	Recpt 19	541	905	1.8
20	Recpt 20	540	847	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3
JOB: KTH Int 3 Existing
RUN: Hour 1
POLLUTANT: Carbon Monoxide
IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.)

*		*	PRED			CONC/LINK							
*		*	CONC			(PPM)							
RECEPTOR	*		(PPM)	A	B	C	D	E	F	G	H	I	J
1	Recpt	1	0.1	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	0.1	0.1	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	0.1	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	0.1	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	0.1	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	0.2	0	0.1	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	0.2	0	0.1	0	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0	0	0
19	Recpt	19	0	0	0	0	0	0	0	0	0	0	0
20	Recpt	20	0	0	0	0	0	0	0	0	0	0	0

KTR Station 9th Ave./SR 198 EB Ramps 2009 Existing Plus Project CALINE Output

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL							
JUNE	1989	VERSION										
PAGE	1											
JOB:	KTH	Int	3	Existing	+	Project						
RUN:	Hour	1										
POLLUTANT:	Carbon	Monoxide										
I.	SITE	VARIABLES										
U=	1	M/S	Z0=	100	CM	ALT=	0	(M)				
BRG=	0	DEGREES	VD=	0	CM/S							
CLAS=	7	(G)	VS=	0	CM/S							
MIXH=	1000	M	AMB=	0	PPM							
SIGTH=	5	DEGREES	TEMP=	4.4	DEGREE	(C)						
II.	LINK	VARIABLES										
LINK	*		LINK	COORDINATES	(M)					EF	H	W
DESCRIPTION	*		X1	Y1	X2	Y2	TYPE	VPH		(G/MI)	(M)	(M)
A.	Link	A	521	1106	515	758	AG	184		6	0	10
B.	Link	B	525	1106	519	758	AG	439		6	0	10
C.	Link	C	528	1106	524	982	AG	105		6	0	10
D.	Link	D	370	1010	524	982	AG	105		6	0	10
E.	Link	E	370	1008	515	978	AG	85		6	0	10
F.	Link	F	515	978	512	758	AG	85		6	0	10
G.	Link	G	550	935	519	758	AG	57		6	0	10
H.	Link	H	550	935	678	1084	AG	57		6	0	10
I.	Link	I	521	1106	460	1003	AG	168		6	0	10
J.	Link	J	460	1003	398	1044	AG	168		6	0	10

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: KTH Int 3 Existing + Project
RUN: Hour 1
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

* RECEPTOR	*	COORDINATES (M) X	Y	Z
1	Recpt 1	516	1039	1.8
2	Recpt 2	515	1014	1.8
3	Recpt 3	511	991	1.8
4	Recpt 4	493	991	1.8
5	Recpt 5	463	994	1.8
6	Recpt 6	462	986	1.8
7	Recpt 7	486	982	1.8
8	Recpt 8	506	974	1.8
9	Recpt 9	512	954	1.8
10	Recpt 10	511	929	1.8
11	Recpt 11	531	1031	1.8
12	Recpt 12	531	1007	1.8
13	Recpt 13	530	982	1.8
14	Recpt 14	540	948	1.8
15	Recpt 15	574	980	1.8
16	Recpt 16	529	871	1.8
17	Recpt 17	559	931	1.8
18	Recpt 18	573	953	1.8
19	Recpt 19	541	905	1.8
20	Recpt 20	540	847	1.8

KTR Station 9th Ave./SR 198 EB Ramps 2009 Existing Plus Project CALINE Output

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL									
JUNE	1989	VERSION												
PAGE	3													
JOB:	KTH	Int	3	Existing	+	Project								
RUN:	Hour	1												
POLLUTANT:	Carbon	Monoxide												
IV.	MODEL	RESULTS	(PRED.	CONC.	INCLUDES	AMB.)								
*		*	PRED		CONC/LINK									
*		*	CONC		(PPM)									
RECEPTOR	*		(PPM)	A	B	C	D	E	F	G	H	I	J	
1	Recpt	1	0.1	0	0	0	0	0	0	0	0	0	0	
2	Recpt	2	0.2	0.1	0	0	0	0	0	0	0	0	0	
3	Recpt	3	0	0	0	0	0	0	0	0	0	0	0	
4	Recpt	4	0	0	0	0	0	0	0	0	0	0	0	
5	Recpt	5	0	0	0	0	0	0	0	0	0	0	0	
6	Recpt	6	0	0	0	0	0	0	0	0	0	0	0	
7	Recpt	7	0	0	0	0	0	0	0	0	0	0	0	
8	Recpt	8	0	0	0	0	0	0	0	0	0	0	0	
9	Recpt	9	0.1	0	0	0	0	0	0	0	0	0	0	
10	Recpt	10	0.1	0	0	0	0	0	0	0	0	0	0	
11	Recpt	11	0	0	0	0	0	0	0	0	0	0	0	
12	Recpt	12	0.1	0	0	0	0	0	0	0	0	0	0	
13	Recpt	13	0.2	0	0.1	0	0	0	0	0	0	0	0	
14	Recpt	14	0	0	0	0	0	0	0	0	0	0	0	
15	Recpt	15	0	0	0	0	0	0	0	0	0	0	0	
16	Recpt	16	0.2	0	0.1	0	0	0	0	0	0	0	0	
17	Recpt	17	0	0	0	0	0	0	0	0	0	0	0	
18	Recpt	18	0	0	0	0	0	0	0	0	0	0	0	
19	Recpt	19	0	0	0	0	0	0	0	0	0	0	0	
20	Recpt	20	0	0	0	0	0	0	0	0	0	0	0	

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL						
JUNE	1989	VERSION									
PAGE	1										
JOB:	KTH	Int	3	No	Build						
RUN:	Hour	1									
POLLUTANT:	Carbon	Monoxide									
I.	SITE	VARIABLES									
U=	1	M/S	Z0=	100	CM	ALT=	0	(M)			
BRG=	0	DEGREES	VD=	0	CM/S						
CLAS=	7	(G)	VS=	0	CM/S						
MIXH=	1000	M	AMB=	0	PPM						
SIGTH=	5	DEGREES	TEMP=	4.4	DEGREE	(C)					
II.	LINK	VARIABLES									
LINK	*		LINK	COORDINATES (M)					EF	H	W
DESCRIPTION	*		X1	Y1	X2	Y2	TYPE	VPH	(G/MI)	(M)	(M)
A.	Link	A	521	1106	515	758	AG	290	1.2	0	10
B.	Link	B	525	1106	519	758	AG	822	1.2	0	10
C.	Link	C	528	1106	524	982	AG	105	1.2	0	10
D.	Link	D	370	1010	524	982	AG	105	1.2	0	10
E.	Link	E	370	1008	515	978	AG	213	1.2	0	10
F.	Link	F	515	978	512	758	AG	213	1.2	0	10
G.	Link	G	550	935	519	758	AG	109	1.2	0	10
H.	Link	H	550	935	678	1084	AG	109	1.2	0	10
I.	Link	I	521	1106	460	1003	AG	168	1.2	0	10
J.	Link	J	460	1003	398	1044	AG	168	1.2	0	10

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: KTH Int 3 No Build
RUN: Hour 1
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS
* COORDINATES (M)

RECEPTOR *		X	Y	Z
1	Recpt 1	516	1039	1.8
2	Recpt 2	515	1014	1.8
3	Recpt 3	511	991	1.8
4	Recpt 4	493	991	1.8
5	Recpt 5	463	994	1.8
6	Recpt 6	462	986	1.8
7	Recpt 7	486	982	1.8
8	Recpt 8	506	974	1.8
9	Recpt 9	512	954	1.8
10	Recpt 10	511	929	1.8
11	Recpt 11	531	1031	1.8
12	Recpt 12	531	1007	1.8
13	Recpt 13	530	982	1.8
14	Recpt 14	540	948	1.8
15	Recpt 15	574	980	1.8
16	Recpt 16	529	871	1.8
17	Recpt 17	559	931	1.8
18	Recpt 18	573	953	1.8
19	Recpt 19	541	905	1.8
20	Recpt 20	540	847	1.8

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL									
JUNE	1989	VERSION												
PAGE	3													
JOB:	KTH	Int	3	No	Build									
RUN:	Hour	1												
POLLUTANT:	Carbon	Monoxide												
IV.	MODEL	RESULTS	(PRED.	CONC.	INCLUDES AMB.)									
*		*	PRED		CONC/LINK									
*		*	CONC		(PPM)									
RECEPTOR	*		(PPM)	A	B	C	D	E	F	G	H	I	J	
1	Recpt	1	0	0	0	0	0	0	0	0	0	0	0	
2	Recpt	2	0	0	0	0	0	0	0	0	0	0	0	
3	Recpt	3	0	0	0	0	0	0	0	0	0	0	0	
4	Recpt	4	0	0	0	0	0	0	0	0	0	0	0	
5	Recpt	5	0	0	0	0	0	0	0	0	0	0	0	
6	Recpt	6	0	0	0	0	0	0	0	0	0	0	0	
7	Recpt	7	0	0	0	0	0	0	0	0	0	0	0	
8	Recpt	8	0	0	0	0	0	0	0	0	0	0	0	
9	Recpt	9	0	0	0	0	0	0	0	0	0	0	0	
10	Recpt	10	0	0	0	0	0	0	0	0	0	0	0	
11	Recpt	11	0	0	0	0	0	0	0	0	0	0	0	
12	Recpt	12	0	0	0	0	0	0	0	0	0	0	0	
13	Recpt	13	0	0	0	0	0	0	0	0	0	0	0	
14	Recpt	14	0	0	0	0	0	0	0	0	0	0	0	
15	Recpt	15	0	0	0	0	0	0	0	0	0	0	0	
16	Recpt	16	0	0	0	0	0	0	0	0	0	0	0	
17	Recpt	17	0	0	0	0	0	0	0	0	0	0	0	
18	Recpt	18	0	0	0	0	0	0	0	0	0	0	0	
19	Recpt	19	0	0	0	0	0	0	0	0	0	0	0	
20	Recpt	20	0	0	0	0	0	0	0	0	0	0	0	

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL				
JUNE	1989	VERSION							
PAGE	1								
JOB:	KTH	Int	3	Build					
RUN:	Hour	1							
POLLUTANT:	Carbon	Monoxide							
I.	SITE	VARIABLES							
U=	1	M/S	Z0=	100	CM	ALT=	0	(M)	
BRG=	0	DEGREES	VD=	0	CM/S				
CLAS=	7	(G)	VS=	0	CM/S				
MIXH=	1000	M	AMB=	0	PPM				
SIGTH=	5	DEGREES	TEMP=	4.4	DEGREE	(C)			
II.	LINK		VARIABLES						

LINK	*	LINK	COORDINATES	(M)				EF	H	W
DESCRIPTION	*	X1	Y1	X2	Y2	TYPE	VPH	(G/MI)	(M)	(M)
A.	Link	A	521	1106	515	758	AG	290	1.2	0	10
B.	Link	B	525	1106	519	758	AG	822	1.2	0	10
C.	Link	C	528	1106	524	982	AG	105	1.2	0	10
D.	Link	D	370	1010	524	982	AG	105	1.2	0	10
E.	Link	E	370	1008	515	978	AG	213	1.2	0	10
F.	Link	F	515	978	512	758	AG	213	1.2	0	10
G.	Link	G	550	935	519	758	AG	109	1.2	0	10
H.	Link	H	550	935	678	1084	AG	109	1.2	0	10
I.	Link	I	521	1106	460	1003	AG	168	1.2	0	10
J.	Link	J	460	1003	398	1044	AG	168	1.2	0	10

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2
JOB: KTH Int 3 Build
RUN: Hour 1
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

* RECEPTOR	*		COORDINATES (M) X	Y	Z
1	Recpt	1	516	1039	1.8
2	Recpt	2	515	1014	1.8
3	Recpt	3	511	991	1.8
4	Recpt	4	493	991	1.8
5	Recpt	5	463	994	1.8
6	Recpt	6	462	986	1.8
7	Recpt	7	486	982	1.8
8	Recpt	8	506	974	1.8
9	Recpt	9	512	954	1.8
10	Recpt	10	511	929	1.8
11	Recpt	11	531	1031	1.8
12	Recpt	12	531	1007	1.8
13	Recpt	13	530	982	1.8
14	Recpt	14	540	948	1.8
15	Recpt	15	574	980	1.8
16	Recpt	16	529	871	1.8
17	Recpt	17	559	931	1.8
18	Recpt	18	573	953	1.8
19	Recpt	19	541	905	1.8
20	Recpt	20	540	847	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3
JOB: KTH Int 3 Build
RUN: Hour 1
POLLUTANT: Carbon Monoxide
IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.)

*		*	PRED			CONC/LINK							
*		*	CONC			(PPM)							
RECEPTOR	*		(PPM)	A	B	C	D	E	F	G	H	I	J
1	Recpt	1	0	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	0	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	0	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	0	0	0	0	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0	0	0
19	Recpt	19	0	0	0	0	0	0	0	0	0	0	0
20	Recpt	20	0	0	0	0	0	0	0	0	0	0	0

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL							
JUNE	1989	VERSION										
PAGE	1											
JOB:	KTH	Int	8	Existing								
RUN:	Hour	1										
POLLUTANT:	Carbon	Monoxide										
I.	SITE	VARIABLES										
U=	1	M/S	Z0=	100	CM	ALT=	0 (M)					
BRG=	0	DEGREES	VD=	0	CM/S							
CLAS=	7	(G)	VS=	0	CM/S							
MIXH=	1000	M	AMB=	0	PPM							
SIGTH=	5	DEGREES	TEMP=	4.4	DEGREE	(C)						
II.	LINK	VARIABLES										
LINK	*		LINK	COORDINATES	(M)				EF	H	W	
DESCRIPTION	*		X1	Y1	X2	Y2	TYPE	VPH	(G/MI)	(M)	(M)	
A.	Link	A	534	580	527	476	AG	14	6	0	10	
B.	Link	B	534	580	532	469	AG	471	6	0	10	
C.	Link	C	538	580	536	466	AG	18	6	0	10	
D.	Link	D	541	580	538	467	AG	245	6	0	10	
E.	Link	E	545	580	546	477	AG	20	6	0	10	
F.	Link	F	394	476	527	476	AG	14	6	0	10	
G.	Link	G	546	477	705	473	AG	20	6	0	10	
H.	Link	H	394	473	534	471	AG	76	6	0	10	
I.	Link	I	534	471	533	385	AG	65	6	0	10	
J.	Link	J	534	471	705	473	AG	11	6	0	10	
K.	Link	K	532	469	529	385	AG	515	6	0	10	
L.	Link	L	532	469	705	462	AG	44	6	0	10	
M.	Link	M	394	470	538	467	AG	14	6	0	10	
N.	Link	N	538	467	536	385	AG	231	6	0	10	
O.	Link	O	394	469	525	459	AG	66	6	0	10	
P.	Link	P	394	469	536	466	AG	7	6	0	10	
Q.	Link	Q	536	466	705	462	AG	25	6	0	10	
R.	Link	R	525	459	527	385	AG	66	6	0	10	
S.	Link	S	544	461	536	385	AG	41	6	0	10	
T.	Link	T	544	461	705	457	AG	41	6	0	10	

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: KTH Int 8 Existing
RUN: Hour 1
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

* RECEPTOR	*	COORDINATES (M) X	Y	Z
1	Recpt 1	524	531	1.8
2	Recpt 2	522	506	1.8
3	Recpt 3	519	485	1.8
4	Recpt 4	499	483	1.8
5	Recpt 5	474	483	1.8
6	Recpt 6	474	461	1.8
7	Recpt 7	499	461	1.8
8	Recpt 8	520	456	1.8
9	Recpt 9	526	435	1.8
10	Recpt 10	525	410	1.8
11	Recpt 11	552	530	1.8
12	Recpt 12	552	505	1.8
13	Recpt 13	552	483	1.8
14	Recpt 14	574	482	1.8
15	Recpt 15	599	483	1.8
16	Recpt 16	550	455	1.8
17	Recpt 17	571	458	1.8
18	Recpt 18	596	457	1.8
19	Recpt 19	546	434	1.8
20	Recpt 20	546	408	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: KTH Int 8 Existing
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.)

*		*	PRED		CONC/LINK								
*		*	CONC		(PPM)								
RECEPTOR	*		(PPM)	A	B	C	D	E	F	G	H	I	J
1	Recpt	1	0	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	0.3	0	0.1	0	0	0	0	0	0	0	0
10	Recpt	10	0.2	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	0	0	0	0	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0	0	0
19	Recpt	19	0.1	0	0	0	0	0	0	0	0	0	0
20	Recpt	20	0.1	0	0	0	0	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: KTH Int 8 Existing
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.) (CONT.)

*		CONC/LINK									
*		(PPM)									
RECEPTOR	*	K	L	M	N	O	P	Q	R	S	T
1	Recpt	1	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0
9	Recpt	9	0.1	0	0	0	0	0	0	0	0
10	Recpt	10	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0
16	Recpt	16	0	0	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0
19	Recpt	19	0	0	0	0	0	0	0	0	0
20	Recpt	20	0	0	0	0	0	0	0	0	0

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL							
JUNE	1989	VERSION										
PAGE	1											
JOB:	KTH	Int	8	Existing	+	Project						
RUN:	Hour	1										
POLLUTANT:	Carbon	Monoxide										
I.	SITE	VARIABLES										
U=	1	M/S	Z0=	100	CM	ALT=	0 (M)					
BRG=	0	DEGREES	VD=	0	CM/S							
CLAS=	7	(G)	VS=	0	CM/S							
MIXH=	1000	M	AMB=	0	PPM							
SIGTH=	5	DEGREES	TEMP=	4.4	DEGREE	(C)						
II.	LINK	VARIABLES										
LINK	*		LINK	COORDINATES (M)					EF	H	W	
DESCRIPTION	*		X1	Y1	X2	Y2	TYPE	VPH	(G/MI)	(M)	(M)	
A.	Link	A	534	580	527	476	AG	14	6	0	10	
B.	Link	B	534	580	532	469	AG	471	6	0	10	
C.	Link	C	538	580	536	466	AG	18	6	0	10	
D.	Link	D	541	580	538	467	AG	245	6	0	10	
E.	Link	E	545	580	546	477	AG	20	6	0	10	
F.	Link	F	394	476	527	476	AG	14	6	0	10	
G.	Link	G	546	477	705	473	AG	20	6	0	10	
H.	Link	H	394	473	534	471	AG	83	6	0	10	
I.	Link	I	534	471	533	385	AG	65	6	0	10	
J.	Link	J	534	471	705	473	AG	18	6	0	10	
K.	Link	K	532	469	529	385	AG	578	6	0	10	
L.	Link	L	532	469	705	462	AG	107	6	0	10	
M.	Link	M	394	470	538	467	AG	14	6	0	10	
N.	Link	N	538	467	536	385	AG	231	6	0	10	
O.	Link	O	394	469	525	459	AG	66	6	0	10	
P.	Link	P	394	469	536	466	AG	24	6	0	10	
Q.	Link	Q	536	466	705	462	AG	42	6	0	10	
R.	Link	R	525	459	527	385	AG	66	6	0	10	
S.	Link	S	544	461	536	385	AG	189	6	0	10	
T.	Link	T	544	461	705	457	AG	189	6	0	10	

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: KTH Int 8 Existing + Project
RUN: Hour 1
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

* RECEPTOR	*	COORDINA (M) X	Y	Z
1	Recpt 1	524	531	1.8
2	Recpt 2	522	506	1.8
3	Recpt 3	519	485	1.8
4	Recpt 4	499	483	1.8
5	Recpt 5	474	483	1.8
6	Recpt 6	474	461	1.8
7	Recpt 7	499	461	1.8
8	Recpt 8	520	456	1.8
9	Recpt 9	526	435	1.8
10	Recpt 10	525	410	1.8
11	Recpt 11	552	530	1.8
12	Recpt 12	552	505	1.8
13	Recpt 13	552	483	1.8
14	Recpt 14	574	482	1.8
15	Recpt 15	599	483	1.8
16	Recpt 16	550	455	1.8
17	Recpt 17	571	458	1.8
18	Recpt 18	596	457	1.8
19	Recpt 19	546	434	1.8
20	Recpt 20	546	408	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: KTH Int 8 Existing + Project
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.)

*		*	PRED		CONC/LINK								
*		*	CONC		(PPM)								
RECEPTOR	*		(PPM)	A	B	C	D	E	F	G	H	I	J
1	Recpt	1	0	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	0.3	0	0.1	0	0	0	0	0	0	0	0
10	Recpt	10	0.3	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	0.1	0	0	0	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0	0	0
19	Recpt	19	0.2	0	0	0	0	0	0	0	0	0	0
20	Recpt	20	0.2	0	0	0	0	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: KTH Int 8 Existing + Project
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.) (CONT.)

*				CONC/LINK								
*				(PPM)								
RECEPTOR	*		K	L	M	N	O	P	Q	R	S	T
1	Recpt	1	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	0.2	0	0	0	0	0	0	0	0	0
10	Recpt	10	0.1	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	0	0	0	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0	0
19	Recpt	19	0	0	0	0	0	0	0	0	0	0
20	Recpt	20	0	0	0	0	0	0	0	0	0	0

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL							
JUNE	1989	VERSION										
PAGE	1											
JOB:	KTH	Int	8	No	Build							
RUN:	Hour	1										
POLLUTANT:	Carbon	Monoxide										
I.	SITE	VARIABLES										
U=	1	M/S	Z0=	100	CM	ALT=	0	(M)				
BRG=	0	DEGREES	VD=	0	CM/S							
CLAS=	7	(G)	VS=	0	CM/S							
MIXH=	1000	M	AMB=	0	PPM							
SIGTH=	5	DEGREES	TEMP=	4.4	DEGREE	(C)						
II.	LINK	VARIABLES										
LINK	*		LINK	COORDINATES	(M)					EF	H	W
DESCRIPTION	*		X1	Y1	X2	Y2	TYPE	VPH		(G/MI)	(M)	(M)
A.	Link	A	534	580	527	476	AG	14		1.2	0	10
B.	Link	B	534	580	532	469	AG	513		1.2	0	10
C.	Link	C	538	580	536	466	AG	55		1.2	0	10
D.	Link	D	541	580	538	467	AG	245		1.2	0	10
E.	Link	E	545	580	546	477	AG	20		1.2	0	10
F.	Link	F	394	476	527	476	AG	14		1.2	0	10
G.	Link	G	546	477	705	473	AG	20		1.2	0	10
H.	Link	H	394	473	534	471	AG	76		1.2	0	10
I.	Link	I	534	471	533	385	AG	65		1.2	0	10
J.	Link	J	534	471	705	473	AG	11		1.2	0	10
K.	Link	K	532	469	529	385	AG	557		1.2	0	10
L.	Link	L	532	469	705	462	AG	44		1.2	0	10
M.	Link	M	394	470	538	467	AG	14		1.2	0	10
N.	Link	N	538	467	536	385	AG	231		1.2	0	10
O.	Link	O	394	469	525	459	AG	66		1.2	0	10
P.	Link	P	394	469	536	466	AG	7		1.2	0	10
Q.	Link	Q	536	466	705	462	AG	62		1.2	0	10
R.	Link	R	525	459	527	385	AG	66		1.2	0	10
S.	Link	S	544	461	536	385	AG	43		1.2	0	10
T.	Link	T	544	461	705	457	AG	43		1.2	0	10

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: KTH Int 8 No Build
RUN: Hour 1
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

* RECEPTOR	*	COORDINATES (M) X	Y	Z
1	Recpt 1	524	531	1.8
2	Recpt 2	522	506	1.8
3	Recpt 3	519	485	1.8
4	Recpt 4	499	483	1.8
5	Recpt 5	474	483	1.8
6	Recpt 6	474	461	1.8
7	Recpt 7	499	461	1.8
8	Recpt 8	520	456	1.8
9	Recpt 9	526	435	1.8
10	Recpt 10	525	410	1.8
11	Recpt 11	552	530	1.8
12	Recpt 12	552	505	1.8
13	Recpt 13	552	483	1.8
14	Recpt 14	574	482	1.8
15	Recpt 15	599	483	1.8
16	Recpt 16	550	455	1.8
17	Recpt 17	571	458	1.8
18	Recpt 18	596	457	1.8
19	Recpt 19	546	434	1.8
20	Recpt 20	546	408	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: KTH Int 8 No Build
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.)

*			PRED		CONC/LINK								
*			CONC		(PPM)								
RECEPTOR	*		(PPM)	A	B	C	D	E	F	G	H	I	J
1	Recpt	1	0	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	0	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	0	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	0	0	0	0	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0	0	0
19	Recpt	19	0	0	0	0	0	0	0	0	0	0	0
20	Recpt	20	0	0	0	0	0	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: KTH Int 8 No Build
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.) (CONT.)

*			CONC/LINK								
*			(PPM)								
RECEPTOR	*	K	L	M	N	O	P	Q	R	S	T
1	Recpt	1	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0
9	Recpt	9	0	0	0	0	0	0	0	0	0
10	Recpt	10	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0
16	Recpt	16	0	0	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0
19	Recpt	19	0	0	0	0	0	0	0	0	0
20	Recpt	20	0	0	0	0	0	0	0	0	0

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL							
JUNE	1989	VERSION										
PAGE	1											
JOB:	KTH	Int	8	B								
RUN:	Hour	1										
POLLUTANT:	Carbon	Monoxide										
I.	SITE	VARIABLES										
U=	1	M/S	Z0=	100	CM	ALT=	0	(M)				
BRG=	0	DEGREES	VD=	0	CM/S							
CLAS=	7	(G)	VS=	0	CM/S							
MIXH=	1000	M	AMB=	0	PPM							
SIGTH=	5	DEGREES	TEMP=	4.4	DEGREE	(C)						
II.	LINK	VARIABLES										
LINK	*		LINK	COORDINATES	(M)			*	EF	H	W	
DESCRIPTION	*		X1	Y1	X2	Y2	TYPE	VPH	(G/MI)	(M)	(M)	
A.	Link	A	534	580	527	476	AG	14	1.2	0	10	
B.	Link	B	534	580	532	469	AG	513	1.2	0	10	
C.	Link	C	538	580	536	466	AG	55	1.2	0	10	
D.	Link	D	541	580	538	467	AG	245	1.2	0	10	
E.	Link	E	545	580	546	477	AG	20	1.2	0	10	
F.	Link	F	394	476	527	476	AG	14	1.2	0	10	
G.	Link	G	546	477	705	473	AG	20	1.2	0	10	
H.	Link	H	394	473	534	471	AG	83	1.2	0	10	
I.	Link	I	534	471	533	385	AG	65	1.2	0	10	
J.	Link	J	534	471	705	473	AG	18	1.2	0	10	
K.	Link	K	532	469	529	385	AG	620	1.2	0	10	
L.	Link	L	532	469	705	462	AG	107	1.2	0	10	
M.	Link	M	394	470	538	467	AG	14	1.2	0	10	
N.	Link	N	538	467	536	385	AG	231	1.2	0	10	
O.	Link	O	394	469	525	459	AG	66	1.2	0	10	
P.	Link	P	394	469	536	466	AG	24	1.2	0	10	
Q.	Link	Q	536	466	705	462	AG	79	1.2	0	10	
R.	Link	R	525	459	527	385	AG	66	1.2	0	10	
S.	Link	S	544	461	536	385	AG	191	1.2	0	10	
T.	Link	T	544	461	705	457	AG	191	1.2	0	10	

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: KTH Int 8 B
RUN: Hour 1
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

*	COORDINATES (M)			
RECEPTOR	*	X	Y	Z
1	Recpt 1	524	531	1.8
2	Recpt 2	522	506	1.8
3	Recpt 3	519	485	1.8
4	Recpt 4	499	483	1.8
5	Recpt 5	474	483	1.8
6	Recpt 6	474	461	1.8
7	Recpt 7	499	461	1.8
8	Recpt 8	520	456	1.8
9	Recpt 9	526	435	1.8
10	Recpt 10	525	410	1.8
11	Recpt 11	552	530	1.8
12	Recpt 12	552	505	1.8
13	Recpt 13	552	483	1.8
14	Recpt 14	574	482	1.8
15	Recpt 15	599	483	1.8
16	Recpt 16	550	455	1.8
17	Recpt 17	571	458	1.8
18	Recpt 18	596	457	1.8
19	Recpt 19	546	434	1.8
20	Recpt 20	546	408	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: KTH Int 8 B
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.)

RECEPTOR	* PRED CONC *	* CONC/LINK (PPM) (PPM)	A	B	C	D	E	F	G	H	I	J
1	Recpt 1	0	0	0	0	0	0	0	0	0	0	0
2	Recpt 2	0	0	0	0	0	0	0	0	0	0	0
3	Recpt 3	0	0	0	0	0	0	0	0	0	0	0
4	Recpt 4	0	0	0	0	0	0	0	0	0	0	0
5	Recpt 5	0	0	0	0	0	0	0	0	0	0	0
6	Recpt 6	0	0	0	0	0	0	0	0	0	0	0
7	Recpt 7	0	0	0	0	0	0	0	0	0	0	0
8	Recpt 8	0	0	0	0	0	0	0	0	0	0	0
9	Recpt 9	0	0	0	0	0	0	0	0	0	0	0
10	Recpt 10	0	0	0	0	0	0	0	0	0	0	0
11	Recpt 11	0	0	0	0	0	0	0	0	0	0	0
12	Recpt 12	0	0	0	0	0	0	0	0	0	0	0
13	Recpt 13	0	0	0	0	0	0	0	0	0	0	0
14	Recpt 14	0	0	0	0	0	0	0	0	0	0	0
15	Recpt 15	0	0	0	0	0	0	0	0	0	0	0
16	Recpt 16	0	0	0	0	0	0	0	0	0	0	0
17	Recpt 17	0	0	0	0	0	0	0	0	0	0	0
18	Recpt 18	0	0	0	0	0	0	0	0	0	0	0
19	Recpt 19	0	0	0	0	0	0	0	0	0	0	0
20	Recpt 20	0	0	0	0	0	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: KTH Int 8 B
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.) (CONT.)

RECEPTOR	*	K	L	M	N	O	P	Q	R	S	T		
*	CONC/LINK (PPM)												
1	Recpt	1	*	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	*	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	*	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	*	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	*	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	*	0	0	0	0	0	0	0	0	0	0
7	Recpt	7	*	0	0	0	0	0	0	0	0	0	0
8	Recpt	8	*	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	*	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	*	0	0	0	0	0	0	0	0	0	
11	Recpt	11	*	0	0	0	0	0	0	0	0	0	
12	Recpt	12	*	0	0	0	0	0	0	0	0	0	
13	Recpt	13	*	0	0	0	0	0	0	0	0	0	
14	Recpt	14	*	0	0	0	0	0	0	0	0	0	
15	Recpt	15	*	0	0	0	0	0	0	0	0	0	
16	Recpt	16	*	0	0	0	0	0	0	0	0	0	
17	Recpt	17	*	0	0	0	0	0	0	0	0	0	
18	Recpt	18	*	0	0	0	0	0	0	0	0	0	
19	Recpt	19	*	0	0	0	0	0	0	0	0	0	
20	Recpt	20	*	0	0	0	0	0	0	0	0	0	

```
CALINE4:  CALIFORNI LINE     SOURCE   DISPERSIOI MODEL
JUNE          1989 VERSION
PAGE             1
JOB:      West     Hanford   Int              11 PM       Existing
RUN:      Hour            1 (WORST   CASE      ANGLE)
POLLUTAN Carbon    Monoxide
I.        SITE     VARIABLES
U=               1 M/S      Z0=             100 CM       ALT=            0 (M)
BRG=      WORST    CASE      VD=               0 CM/S
CLAS=            7 (G)       VS=               0 CM/S
MIXH=         1000 M         AMB=              0 PPM
SIGTH=           5 DEGREES   TEMP=           4.4 DEGREE   (C)
II.       LINK     VARIABLES
LINK      *        LINK      COORDINA (M)      *        EF       H        W
DESCRIPTI( *       X1        Y1       X2       Y2       *        TYPE     VPH      (G/MI)   (M)      (M)
----------*-----------------*-----------------
A.        Link     A            7738     5825     7768     5753 AG          41      11.4        0       10
B.        Link     B            7738     5825     7784     5741 AG         400      11.4        0       10
C.        Link     C            7742     5827     7792     5744 AG         127      13.8        0       10
D.        Link     D            7751     5831     7794     5748 AG         573      13.8        0       10
E.        Link     E            7754     5832     7792     5770 AG         153      13.8        0       10
F.        Link     F            7701     5715     7768     5753 AG          41       6.3        0       10
G.        Link     G            7792     5770     7861     5797 AG         153      11.4        0       10
H.        Link     H            7703     5711     7788     5752 AG         604       6.3        0       10
I.        Link     I            7788     5752     7828     5669 AG         158      13.8        0       10
J.        Link     J            7788     5752     7861     5797 AG         446      11.4        0       10
K.        Link     K            7784     5741     7820     5666 AG         688       7.4        0       10
L.        Link     L            7784     5741     7864     5789 AG         288      13.8        0       10
M.        Link     M            7707     5702     7794     5748 AG          81      13.8        0       10
N.        Link     N            7794     5748     7835     5672 AG         492      11.4        0       10
O.        Link     O            7710     5698     7780     5727 AG         152      13.2        0       10
P.        Link     P            7710     5698     7792     5744 AG         202      13.2        0       10
Q.        Link     Q            7792     5744     7868     5780 AG         329       6.6        0       10
R.        Link     R            7780     5727     7816     5664 AG         152       7.4        0       10
S.        Link     S            7806     5739     7835     5672 AG         137      11.4        0       10
T.        Link     T            7806     5739     7870     5775 AG         137       6.6        0       10
```

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 2

JOB: West Hanford Int 11 PM Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

III. RECEPTOR LOCATIONS

*	COORDINA (M)			
RECEPTOR *		X	Y	Z
1	Recpt 1	7767	5826	1.8
2	Recpt 2	7780	5800	1.8
3	Recpt 3	7794	5776	1.8
4	Recpt 4	7819	5785	1.8
5	Recpt 5	7844	5797	1.8
6	Recpt 6	7865	5764	1.8
7	Recpt 7	7839	5752	1.8
8	Recpt 8	7812	5737	1.8
9	Recpt 9	7822	5713	1.8
10	Recpt 10	7834	5688	1.8
11	Recpt 11	7803	5670	1.8
12	Recpt 12	7790	5695	1.8
13	Recpt 13	7777	5720	1.8
14	Recpt 14	7749	5708	1.8
15	Recpt 15	7724	5697	1.8
16	Recpt 16	7712	5729	1.8
17	Recpt 17	7737	5741	1.8
18	Recpt 18	7761	5755	1.8
19	Recpt 19	7748	5784	1.8
20	Recpt 20	7734	5811	1.8

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 3

JOB: West Hanford Int 11 PM Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

*	*	PRED	*	CONC/LINK								
*	BRG	*	CONC	*	(PPM)							
RECEPTOR	*	(DEG)	*	(PPM)	A	B	C	D	E	F	G	H
1	Recpt	1	165	1	0	0	0	0.4	0.2	0	0	0
2	Recpt	2	168	1.1	0	0	0	0.3	0.2	0	0	0
3	Recpt	3	186	1	0	0	0	0.2	0	0	0	0
4	Recpt	4	218	0.8	0	0	0	0.1	0	0	0.1	0
5	Recpt	5	227	0.9	0	0	0	0	0	0	0.1	0
6	Recpt	6	258	0.7	0	0	0	0	0	0	0	0.1
7	Recpt	7	299	0.7	0	0	0	0.2	0	0	0	0
8	Recpt	8	316	1	0	0.1	0.1	0.4	0	0	0	0
9	Recpt	9	321	1.1	0	0.1	0.1	0.3	0	0	0	0
10	Recpt	10	323	1.2	0	0.2	0	0.1	0	0	0	0
11	Recpt	11	348	0.8	0	0	0	0.2	0	0	0	0
12	Recpt	12	356	0.8	0	0	0	0.2	0	0	0	0
13	Recpt	13	41	0.9	0	0	0	0	0	0	0	0
14	Recpt	14	48	1	0	0	0	0	0	0	0	0
15	Recpt	15	52	1	0	0	0	0	0	0	0	0
16	Recpt	16	76	0.7	0	0	0	0	0	0	0	0.2
17	Recpt	17	79	0.7	0	0	0	0	0	0	0	0.1
18	Recpt	18	82	0.8	0	0.1	0	0.2	0	0	0	0
19	Recpt	19	136	0.8	0	0.2	0	0	0	0	0	0
20	Recpt	20	139	0.9	0	0.3	0	0	0	0	0	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 4

JOB: West Hanford Int 11 PM Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	I	J	K	L	M	N	O	P	Q	R	S	T
*	CONC/LINK (PPM)												
1	Recpt 1	0	0	0.1	0	0	0	0	0	0	0	0	0
2	Recpt 2	0	0	0.2	0	0	0	0	0	0	0	0	0
3	Recpt 3	0	0.1	0.1	0	0	0	0	0	0	0	0	0
4	Recpt 4	0	0.2	0	0	0	0	0	0	0	0	0	0
5	Recpt 5	0	0.3	0	0.1	0	0	0	0	0	0	0	0
6	Recpt 6	0	0	0	0.1	0	0	0	0	0	0	0	0
7	Recpt 7	0	0.1	0	0.1	0	0	0	0	0	0	0	0
8	Recpt 8	0	0.1	0	0	0	0	0	0	0	0	0	0
9	Recpt 9	0	0	0	0	0	0.2	0	0	0	0	0.1	0
10	Recpt 10	0	0	0	0	0	0.4	0	0	0	0	0.2	0
11	Recpt 11	0	0	0.2	0	0	0	0	0	0	0	0	0
12	Recpt 12	0	0	0.2	0	0	0	0	0	0	0	0	0
13	Recpt 13	0	0.2	0.1	0.2	0	0.1	0	0	0	0	0	0
14	Recpt 14	0	0.2	0	0.2	0	0	0.2	0.1	0	0	0	0
15	Recpt 15	0	0.2	0	0.1	0	0	0.2	0.2	0	0	0	0
16	Recpt 16	0	0	0	0.1	0	0	0	0	0	0	0	0
17	Recpt 17	0	0	0	0.1	0	0	0	0	0	0	0	0
18	Recpt 18	0	0.2	0	0.1	0	0	0	0	0	0	0	0
19	Recpt 19	0	0	0	0	0	0.2	0	0	0	0	0	0
20	Recpt 20	0	0	0	0	0	0.1	0	0	0	0	0	0

```
CALINE4:  CALIFORNI LINE     SOURCE   DISPERSIO MODEL
JUNE          1989 VERSION
PAGE             1
JOB:      West     Hanford   Int            11 PM       Existing   Plus
RUN:      Hour            1 (WORST   CASE      ANGLE)
POLLUTAN Carbon    Monoxide
I.        SITE     VARIABLES
U=               1 M/S      Z0=           100 CM       ALT=           0 (M)
BRG=      WORST    CASE      VD=             0 CM/S
CLAS=            7 (G)       VS=             0 CM/S
MIXH=         1000 M         AMB=            0 PPM
SIGTH=           5 DEGREES   TEMP=         4.4 DEGREE   (C)
II.       LINK     VARIABLES
LINK               LINK                COORDINATES      (M)                      EF       H        W
DESCRIPTION                   X1       Y1       X2       Y2       TYPE     VPH     (G/MI)   (M)      (M)
----------------*-------------------------*------------------------------
A.        Link     A            7738     5825     7768     5753 AG          43      11.4        0       10
B.        Link     B            7738     5825     7784     5741 AG         400      11.4        0       10
C.        Link     C            7742     5827     7792     5744 AG         127      13.8        0       10
D.        Link     D            7751     5831     7794     5748 AG         578      13.8        0       10
E.        Link     E            7754     5832     7792     5770 AG         153      13.8        0       10
F.        Link     F            7701     5715     7768     5753 AG          43       6.3        0       10
G.        Link     G            7792     5770     7861     5797 AG         153      11.4        0       10
H.        Link     H            7703     5711     7788     5752 AG         606       6.3        0       10
I.        Link     I            7788     5752     7828     5669 AG         158      13.8        0       10
J.        Link     J            7788     5752     7861     5797 AG         448      11.4        0       10
K.        Link     K            7784     5741     7820     5666 AG         688       7.4        0       10
L.        Link     L            7784     5741     7864     5789 AG         288      13.8        0       10
M.        Link     M            7707     5702     7794     5748 AG          86      13.8        0       10
N.        Link     N            7794     5748     7835     5672 AG         492      11.4        0       10
O.        Link     O            7710     5698     7780     5727 AG         152      13.2        0       10
P.        Link     P            7710     5698     7792     5744 AG         206      13.2        0       10
Q.        Link     Q            7792     5744     7868     5780 AG         333       6.6        0       10
R.        Link     R            7780     5727     7816     5664 AG         152       7.4        0       10
S.        Link     S            7806     5739     7835     5672 AG         137      11.4        0       10
T.        Link     T            7806     5739     7870     5775 AG         137       6.6        0       10
```

CALINE4: CALIFORNI LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 2

JOB: West Hanford Int 11 PM Existing Plus
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

III. RECEPTOR LOCATIONS

* RECEPTOR		COORDINATES (M) X	Y	Z
1	Recpt 1	7767	5826	1.8
2	Recpt 2	7780	5800	1.8
3	Recpt 3	7794	5776	1.8
4	Recpt 4	7819	5785	1.8
5	Recpt 5	7844	5797	1.8
6	Recpt 6	7865	5764	1.8
7	Recpt 7	7839	5752	1.8
8	Recpt 8	7812	5737	1.8
9	Recpt 9	7822	5713	1.8
10	Recpt 10	7834	5688	1.8
11	Recpt 11	7803	5670	1.8
12	Recpt 12	7790	5695	1.8
13	Recpt 13	7777	5720	1.8
14	Recpt 14	7749	5708	1.8
15	Recpt 15	7724	5697	1.8
16	Recpt 16	7712	5729	1.8
17	Recpt 17	7737	5741	1.8
18	Recpt 18	7761	5755	1.8
19	Recpt 19	7748	5784	1.8
20	Recpt 20	7734	5811	1.8

CALINE4: CALIFORNI LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 3

JOB: West Hanford Int 11 PM Existing Plus
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

* RECEPTOR	*	PRED BRG * (DEG)	*	CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1	Recpt	1	165	1	0	0	0	0.4	0.2	0	0	0
2	Recpt	2	168	1.1	0	0	0	0.3	0.2	0	0	0
3	Recpt	3	186	1	0	0	0	0.2	0	0	0	0
4	Recpt	4	218	0.8	0	0	0	0.1	0	0	0.1	0
5	Recpt	5	227	0.9	0	0	0	0	0	0	0.1	0
6	Recpt	6	258	0.7	0	0	0	0	0	0	0	0.1
7	Recpt	7	299	0.7	0	0	0	0.2	0	0	0	0
8	Recpt	8	316	1	0	0.1	0.1	0.4	0	0	0	0
9	Recpt	9	321	1.1	0	0.1	0.1	0.3	0	0	0	0
10	Recpt	10	323	1.2	0	0.2	0	0.1	0	0	0	0
11	Recpt	11	348	0.9	0	0	0	0.2	0	0	0	0
12	Recpt	12	356	0.8	0	0	0	0.2	0	0	0	0
13	Recpt	13	29	0.9	0	0	0	0.1	0	0	0	0
14	Recpt	14	48	1	0	0	0	0	0	0	0	0
15	Recpt	15	52	1	0	0	0	0	0	0	0	0
16	Recpt	16	76	0.7	0	0	0	0	0	0	0	0.2
17	Recpt	17	79	0.7	0	0	0	0	0	0	0	0.1
18	Recpt	18	82	0.8	0	0.1	0	0.2	0	0	0	0
19	Recpt	19	136	0.8	0	0.2	0	0	0	0	0	0
20	Recpt	20	139	0.9	0	0.3	0	0	0	0	0	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 4

JOB: West Hanford Int 11 PM Existing Plus
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1	Recpt 1	0	0	0.1	0	0	0	0	0	0	0	0	0
2	Recpt 2	0	0	0.2	0	0	0	0	0	0	0	0	0
3	Recpt 3	0	0.1	0.1	0	0	0	0	0	0	0	0	0
4	Recpt 4	0	0.2	0	0	0	0	0	0	0	0	0	0
5	Recpt 5	0	0.3	0	0.1	0	0	0	0	0	0	0	0
6	Recpt 6	0	0	0	0.1	0	0	0	0	0	0	0	0
7	Recpt 7	0	0.1	0	0.1	0	0	0	0	0	0	0	0
8	Recpt 8	0	0.1	0	0	0	0	0	0	0	0	0	0
9	Recpt 9	0	0	0	0	0	0.2	0	0	0	0	0.1	0
10	Recpt 10	0	0	0	0	0	0.4	0	0	0	0	0.2	0
11	Recpt 11	0	0	0.2	0	0	0	0	0	0	0	0	0
12	Recpt 12	0	0	0.2	0	0	0	0	0	0	0	0	0
13	Recpt 13	0	0.1	0.1	0.1	0	0	0	0	0	0	0	0
14	Recpt 14	0	0.2	0	0.2	0	0	0.2	0.1	0	0	0	0
15	Recpt 15	0	0.2	0	0.1	0	0	0.2	0.2	0	0	0	0
16	Recpt 16	0	0	0	0.1	0	0	0	0	0	0	0	0
17	Recpt 17	0	0	0	0.1	0	0	0	0	0	0	0	0
18	Recpt 18	0	0.2	0	0.1	0	0	0	0	0	0	0	0
19	Recpt 19	0	0	0	0	0	0.2	0	0	0	0	0	0
20	Recpt 20	0	0	0	0	0	0.1	0	0	0	0	0	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 1
JOB: West Hanford Int 11 PM No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide
I. SITE VARIABLES
U= 1 M/S Z0= 100 CM ALT= 0 (M)
BRG= WORST CASE VD= 0 CM/S
CLAS= 7 (G) VS= 0 CM/S
MIXH= 1000 M AMB= 0 PPM
SIGTH= 5 DEGREES TEMP= 4.4 DEGREE (C)
II. LINK VARIABLES

LINK DESCRIPTION		LINK	COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A.	Link	A	7738	5825	7768	5753	AG	41	2.3	0	10
B.	Link	B	7738	5825	7784	5741	AG	400	2.3	0	10
C.	Link	C	7742	5827	7792	5744	AG	127	2.8	0	10
D.	Link	D	7751	5831	7794	5748	AG	1135	2.8	0	10
E.	Link	E	7754	5832	7792	5770	AG	302	2.8	0	10
F.	Link	F	7701	5715	7768	5753	AG	41	1.3	0	10
G.	Link	G	7792	5770	7861	5797	AG	302	2.8	0	10
H.	Link	H	7703	5711	7788	5752	AG	604	1.3	0	10
I.	Link	I	7788	5752	7828	5669	AG	158	2.8	0	10
J.	Link	J	7788	5752	7861	5797	AG	446	2.8	0	10
K.	Link	K	7784	5741	7820	5666	AG	688	1.4	0	10
L.	Link	L	7784	5741	7864	5789	AG	288	2.8	0	10
M.	Link	M	7707	5702	7794	5748	AG	152	2.8	0	10
N.	Link	N	7794	5748	7835	5672	AG	983	2.8	0	10
O.	Link	O	7710	5698	7780	5727	AG	152	2.8	0	10
P.	Link	P	7710	5698	7792	5744	AG	202	2.8	0	10
Q.	Link	Q	7792	5744	7868	5780	AG	329	1.3	0	10
R.	Link	R	7780	5727	7816	5664	AG	152	1.4	0	10
S.	Link	S	7806	5739	7835	5672	AG	137	2.8	0	10
T.	Link	T	7806	5739	7870	5775	AG	137	1.3	0	10

CALINE4: CALIFORNI LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 2

JOB: West Hanford Int 11 PM No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

III. RECEPTOR LOCATIONS

* RECEPTOR		COORDINATES X	Y	(M) Z
1	Recpt 1	7767	5826	1.8
2	Recpt 2	7780	5800	1.8
3	Recpt 3	7794	5776	1.8
4	Recpt 4	7819	5785	1.8
5	Recpt 5	7844	5797	1.8
6	Recpt 6	7865	5764	1.8
7	Recpt 7	7839	5752	1.8
8	Recpt 8	7812	5737	1.8
9	Recpt 9	7822	5713	1.8
10	Recpt 10	7834	5688	1.8
11	Recpt 11	7803	5670	1.8
12	Recpt 12	7790	5695	1.8
13	Recpt 13	7777	5720	1.8
14	Recpt 14	7749	5708	1.8
15	Recpt 15	7724	5697	1.8
16	Recpt 16	7712	5729	1.8
17	Recpt 17	7737	5741	1.8
18	Recpt 18	7761	5755	1.8
19	Recpt 19	7748	5784	1.8
20	Recpt 20	7734	5811	1.8

CALINE4: CALIFORNI LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 3

JOB: West Hanford Int 11 PM No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

* RECEPTOR	* BRG *	PRED * (DEG)	*	CONC (PPM)	A	B	C	D	CONC/LINK (PPM) E	F	G	H
1	Recpt	1	164	0.3	0	0	0	0.1	0	0	0	0
2	Recpt	2	168	0.3	0	0	0	0.1	0	0	0	0
3	Recpt	3	185	0.3	0	0	0	0	0	0	0	0
4	Recpt	4	219	0.2	0	0	0	0	0	0	0	0
5	Recpt	5	228	0.3	0	0	0	0	0	0	0	0
6	Recpt	6	284	0.2	0	0	0	0	0	0	0	0
7	Recpt	7	300	0.2	0	0	0	0	0	0	0	0
8	Recpt	8	318	0.3	0	0	0	0.2	0	0	0	0
9	Recpt	9	321	0.3	0	0	0	0	0	0	0	0
10	Recpt	10	324	0.4	0	0	0	0	0	0	0	0
11	Recpt	11	348	0.2	0	0	0	0	0	0	0	0
12	Recpt	12	356	0.2	0	0	0	0	0	0	0	0
13	Recpt	13	29	0.2	0	0	0	0	0	0	0	0
14	Recpt	14	48	0.2	0	0	0	0	0	0	0	0
15	Recpt	15	51	0.2	0	0	0	0	0	0	0	0
16	Recpt	16	76	0.2	0	0	0	0	0	0	0	0
17	Recpt	17	79	0.2	0	0	0	0	0	0	0	0
18	Recpt	18	70	0.2	0	0	0	0	0	0	0	0
19	Recpt	19	135	0.2	0	0	0	0	0	0	0	0
20	Recpt	20	139	0.2	0	0	0	0	0	0	0	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 4

JOB: West Hanford Int 11 PM No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1	Recpt 1	0	0	0	0	0	0	0	0	0	0	0	0
2	Recpt 2	0	0	0	0	0	0	0	0	0	0	0	0
3	Recpt 3	0	0	0	0	0	0	0	0	0	0	0	0
4	Recpt 4	0	0	0	0	0	0	0	0	0	0	0	0
5	Recpt 5	0	0	0	0	0	0	0	0	0	0	0	0
6	Recpt 6	0	0	0	0	0	0	0	0	0	0	0	0
7	Recpt 7	0	0	0	0	0	0	0	0	0	0	0	0
8	Recpt 8	0	0	0	0	0	0	0	0	0	0	0	0
9	Recpt 9	0	0	0	0	0	0.1	0	0	0	0	0	0
10	Recpt 10	0	0	0	0	0	0.2	0	0	0	0	0	0
11	Recpt 11	0	0	0	0	0	0	0	0	0	0	0	0
12	Recpt 12	0	0	0	0	0	0	0	0	0	0	0	0
13	Recpt 13	0	0	0	0	0	0	0	0	0	0	0	0
14	Recpt 14	0	0	0	0	0	0	0	0	0	0	0	0
15	Recpt 15	0	0	0	0	0	0	0	0	0	0	0	0
16	Recpt 16	0	0	0	0	0	0	0	0	0	0	0	0
17	Recpt 17	0	0	0	0	0	0	0	0	0	0	0	0
18	Recpt 18	0	0	0	0	0	0	0	0	0	0	0	0
19	Recpt 19	0	0	0	0	0	0	0	0	0	0	0	0
20	Recpt 20	0	0	0	0	0	0	0	0	0	0	0	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 1
JOB: West Hanford Int 11 PM Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide
I. SITE VARIABLES
U= 1 M/S Z0= 100 CM ALT= 0 (M)
BRG= WORST CASE VD= 0 CM/S
CLAS= 7 (G) VS= 0 CM/S
MIXH= 1000 M AMB= 0 PPM
SIGTH= 5 DEGREES TEMP= 4.4 DEGREE (C)
II. LINK VARIABLES

LINK DESCRIPTION		LINK	COORDINATES X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A.	Link	A	7738	5825	7768	5753	AG	43	2.3	0	10
B.	Link	B	7738	5825	7784	5741	AG	400	2.3	0	10
C.	Link	C	7742	5827	7792	5744	AG	127	2.8	0	10
D.	Link	D	7751	5831	7794	5748	AG	1140	2.8	0	10
E.	Link	E	7754	5832	7792	5770	AG	302	2.8	0	10
F.	Link	F	7701	5715	7768	5753	AG	43	1.3	0	10
G.	Link	G	7792	5770	7861	5797	AG	302	2.8	0	10
H.	Link	H	7703	5711	7788	5752	AG	606	1.3	0	10
I.	Link	I	7788	5752	7828	5669	AG	158	2.8	0	10
J.	Link	J	7788	5752	7861	5797	AG	448	2.8	0	10
K.	Link	K	7784	5741	7820	5666	AG	688	1.4	0	10
L.	Link	L	7784	5741	7864	5789	AG	288	2.8	0	10
M.	Link	M	7707	5702	7794	5748	AG	157	2.8	0	10
N.	Link	N	7794	5748	7835	5672	AG	983	2.8	0	10
O.	Link	O	7710	5698	7780	5727	AG	152	2.8	0	10
P.	Link	P	7710	5698	7792	5744	AG	206	2.8	0	10
Q.	Link	Q	7792	5744	7868	5780	AG	333	1.3	0	10
R.	Link	R	7780	5727	7816	5664	AG	152	1.4	0	10
S.	Link	S	7806	5739	7835	5672	AG	137	2.8	0	10
T.	Link	T	7806	5739	7870	5775	AG	137	1.3	0	10

CALINE4: CALIFORNI LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 2

JOB: West Hanford Int 11 PM Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

III. RECEPTOR LOCATIONS

* RECEPTOR		COORDINATES X	Y	(M) Z
1	Recpt 1	7767	5826	1.8
2	Recpt 2	7780	5800	1.8
3	Recpt 3	7794	5776	1.8
4	Recpt 4	7819	5785	1.8
5	Recpt 5	7844	5797	1.8
6	Recpt 6	7865	5764	1.8
7	Recpt 7	7839	5752	1.8
8	Recpt 8	7812	5737	1.8
9	Recpt 9	7822	5713	1.8
10	Recpt 10	7834	5688	1.8
11	Recpt 11	7803	5670	1.8
12	Recpt 12	7790	5695	1.8
13	Recpt 13	7777	5720	1.8
14	Recpt 14	7749	5708	1.8
15	Recpt 15	7724	5697	1.8
16	Recpt 16	7712	5729	1.8
17	Recpt 17	7737	5741	1.8
18	Recpt 18	7761	5755	1.8
19	Recpt 19	7748	5784	1.8
20	Recpt 20	7734	5811	1.8

CALINE4: CALIFORNI LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 3

JOB: West Hanford Int 11 PM Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

*	*	PRED	*						CONC/LINK				
*	BRG	*		CONC					(PPM)				
RECEPTOR	*	(DEG)		(PPM)	A	B	C	D	E	F	G	H	
1	Recpt	1	164	0.3	0	0	0	0.1	0	0	0	0	
2	Recpt	2	168	0.3	0	0	0	0.1	0	0	0	0	
3	Recpt	3	185	0.3	0	0	0	0	0	0	0	0	
4	Recpt	4	219	0.2	0	0	0	0	0	0	0	0	
5	Recpt	5	228	0.3	0	0	0	0	0	0	0	0	
6	Recpt	6	284	0.2	0	0	0	0	0	0	0	0	
7	Recpt	7	300	0.2	0	0	0	0	0	0	0	0	
8	Recpt	8	318	0.3	0	0	0	0.2	0	0	0	0	
9	Recpt	9	321	0.3	0	0	0	0	0	0	0	0	
10	Recpt	10	324	0.4	0	0	0	0	0	0	0	0	
11	Recpt	11	348	0.2	0	0	0	0	0	0	0	0	
12	Recpt	12	356	0.2	0	0	0	0	0	0	0	0	
13	Recpt	13	29	0.2	0	0	0	0	0	0	0	0	
14	Recpt	14	48	0.2	0	0	0	0	0	0	0	0	
15	Recpt	15	51	0.2	0	0	0	0	0	0	0	0	
16	Recpt	16	76	0.2	0	0	0	0	0	0	0	0	
17	Recpt	17	79	0.2	0	0	0	0	0	0	0	0	
18	Recpt	18	70	0.2	0	0	0	0	0	0	0	0	
19	Recpt	19	135	0.2	0	0	0	0	0	0	0	0	
20	Recpt	20	139	0.2	0	0	0	0	0	0	0	0	

CALINE4: CALIFORNI LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 4

JOB: West Hanford Int 11 PM Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1	Recpt 1	0	0	0	0	0	0	0	0	0	0	0	0
2	Recpt 2	0	0	0	0	0	0	0	0	0	0	0	0
3	Recpt 3	0	0	0	0	0	0	0	0	0	0	0	0
4	Recpt 4	0	0	0	0	0	0	0	0	0	0	0	0
5	Recpt 5	0	0	0	0	0	0	0	0	0	0	0	0
6	Recpt 6	0	0	0	0	0	0	0	0	0	0	0	0
7	Recpt 7	0	0	0	0	0	0	0	0	0	0	0	0
8	Recpt 8	0	0	0	0	0	0	0	0	0	0	0	0
9	Recpt 9	0	0	0	0	0	0.1	0	0	0	0	0	0
10	Recpt 10	0	0	0	0	0	0.2	0	0	0	0	0	0
11	Recpt 11	0	0	0	0	0	0	0	0	0	0	0	0
12	Recpt 12	0	0	0	0	0	0	0	0	0	0	0	0
13	Recpt 13	0	0	0	0	0	0	0	0	0	0	0	0
14	Recpt 14	0	0	0	0	0	0	0	0	0	0	0	0
15	Recpt 15	0	0	0	0	0	0	0	0	0	0	0	0
16	Recpt 16	0	0	0	0	0	0	0	0	0	0	0	0
17	Recpt 17	0	0	0	0	0	0	0	0	0	0	0	0
18	Recpt 18	0	0	0	0	0	0	0	0	0	0	0	0
19	Recpt 19	0	0	0	0	0	0	0	0	0	0	0	0
20	Recpt 20	0	0	0	0	0	0	0	0	0	0	0	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 1

JOB: West Hanford Int 16 Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1 M/S Z0= 100 CM ALT= 0 (M)
BRG= WORST CASE VD= 0 CM/S
CLAS= 7 (G) VS= 0 CM/S
MIXH= 1000 M AMB= 0 PPM
SIGTH= 5 DEGREES TEMP= 4.4 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK X1	COORDINA Y1	(M) X2	* Y2	EF *	H TYPE	W VPH	(G/MI)	(M)	(M)		
A.	Link	A	*	9810	5811	9855	5728	*	AG	798	11.9	0	10
B.	Link	B	*	9815	5813	9869	5736	*	AG	197	13.2	0	10
C.	Link	C	*	9827	5820	9866	5740	*	AG	776	13.8	0	10
D.	Link	D	*	9855	5728	9904	5648	*	AG	798	7.4	0	10
E.	Link	E	*	9785	5686	9866	5740	*	AG	214	11.4	0	10
F.	Link	F	*	9866	5740	9915	5654	*	AG	562	13.8	0	10
G.	Link	G	*	9785	5686	9859	5714	*	AG	62	11.4	0	10
H.	Link	H	*	9785	5686	9869	5736	*	AG	30	11.4	0	10
I.	Link	I	*	9869	5736	9956	5799	*	AG	227	7	0	10
J.	Link	J	*	9859	5714	9900	5645	*	AG	62	7.4	0	10
K.	Link	K	*	9880	5730	9915	5654	*	AG	106	13.8	0	10
L.	Link	L	*	9880	5730	9960	5795	*	AG	106	7	0	10

CALINE4: CALIFORNI LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 2

JOB: West Hanford Int 16 Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

*		COORDINATES		(M)
RECEPTOR	*	X	Y	Z
1	Recpt 1	9847	5804	1.8
2	Recpt 2	9861	5778	1.8
3	Recpt 3	9876	5750	1.8
4	Recpt 4	9901	5767	1.8
5	Recpt 5	9925	5786	1.8
6	Recpt 6	9935	5765	1.8
7	Recpt 7	9910	5746	1.8
8	Recpt 8	9886	5727	1.8
9	Recpt 9	9901	5700	1.8
10	Recpt 10	9915	5675	1.8
11	Recpt 11	9882	5658	1.8
12	Recpt 12	9869	5683	1.8
13	Recpt 13	9855	5707	1.8
14	Recpt 14	9843	5730	1.8
15	Recpt 15	9828	5758	1.8
16	Recpt 16	9815	5784	1.8

CALINE4: CALIFORNI LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 3

JOB: West Hanford Int 16 Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

*	*	PRED	*					CONC/LINK				
*	BRG	*		CONC				(PPM)				
RECEPTOR	*	(DEG)	*	(PPM)	A	B	C	D	E	F	G	H
1	Recpt	1	171	0.9	0	0	0.5	0.1	0	0	0	0
2	Recpt	2	185	0.8	0	0	0.4	0	0	0	0	0
3	Recpt	3	233	0.8	0.2	0	0.3	0	0.3	0	0	0
4	Recpt	4	233	0.5	0	0	0	0	0.1	0	0	0
5	Recpt	5	232	0.4	0	0	0	0	0	0	0	0
6	Recpt	6	248	0.4	0	0	0	0	0	0	0	0
7	Recpt	7	295	0.5	0.2	0	0.2	0	0	0	0	0
8	Recpt	8	313	1	0.2	0.2	0.4	0	0	0	0	0
9	Recpt	9	319	1	0.2	0.1	0.2	0	0	0.2	0	0
10	Recpt	10	320	0.9	0.2	0	0.1	0	0	0.4	0	0
11	Recpt	11	344	0.8	0	0	0.3	0.2	0	0	0	0
12	Recpt	12	346	0.8	0.1	0	0.3	0.2	0	0	0	0
13	Recpt	13	350	1	0.4	0	0.3	0	0	0	0	0
14	Recpt	14	355	0.9	0.5	0	0.3	0	0	0	0	0
15	Recpt	15	134	0.9	0.5	0	0	0	0	0.3	0	0
16	Recpt	16	137	1	0.6	0	0	0	0	0.3	0	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 4

JOB: West Hanford Int 16 Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

*			CONC/LINK (PPM)			
RECEPTOR	*		I	J	K	L
1	Recpt	1	0	0	0	0
2	Recpt	2	0	0	0	0
3	Recpt	3	0	0	0	0
4	Recpt	4	0	0	0	0
5	Recpt	5	0	0	0	0
6	Recpt	6	0	0	0	0
7	Recpt	7	0	0	0	0
8	Recpt	8	0	0	0	0
9	Recpt	9	0	0	0.1	0
10	Recpt	10	0	0	0.1	0
11	Recpt	11	0	0	0	0
12	Recpt	12	0	0	0	0
13	Recpt	13	0	0	0	0
14	Recpt	14	0	0	0	0
15	Recpt	15	0	0	0	0
16	Recpt	16	0	0	0	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 1

JOB: West Hanford Int 16 Existing+P
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	1	M/S	Z0=	100	CM	ALT=	0 (M)
BRG=	WORST	CASE	VD=	0	CM/S		
CLAS=	7	(G)	VS=	0	CM/S		
MIXH=	1000	M	AMB=	0	PPM		
SIGTH=	5	DEGREES	TEMP=	4.4	DEGREE	(C)	

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK *	COORDINA (M) X1	Y1	* X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A.	Link	A	9810	5811	9855	5728	AG	798	11.9	0	10
B.	Link	B	9815	5813	9869	5736	AG	197	13.2	0	10
C.	Link	C	9827	5820	9866	5740	AG	777	13.8	0	10
D.	Link	D	9855	5728	9904	5648	AG	798	7.4	0	10
E.	Link	E	9785	5686	9866	5740	AG	215	11.4	0	10
F.	Link	F	9866	5740	9915	5654	AG	562	13.8	0	10
G.	Link	G	9785	5686	9859	5714	AG	62	11.4	0	10
H.	Link	H	9785	5686	9869	5736	AG	30	11.4	0	10
I.	Link	I	9869	5736	9956	5799	AG	227	7	0	10
J.	Link	J	9859	5714	9900	5645	AG	62	7.4	0	10
K.	Link	K	9880	5730	9915	5654	AG	106	13.8	0	10
L.	Link	L	9880	5730	9960	5795	AG	106	7	0	10

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 2

JOB: West Hanford Int 16 Existing+P
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

*		COORDINA (M)			
RECEPTOR	*		X	Y	Z
1	Recpt	1	9847	5804	1.8
2	Recpt	2	9861	5778	1.8
3	Recpt	3	9876	5750	1.8
4	Recpt	4	9901	5767	1.8
5	Recpt	5	9925	5786	1.8
6	Recpt	6	9935	5765	1.8
7	Recpt	7	9910	5746	1.8
8	Recpt	8	9886	5727	1.8
9	Recpt	9	9901	5700	1.8
10	Recpt	10	9915	5675	1.8
11	Recpt	11	9882	5658	1.8
12	Recpt	12	9869	5683	1.8
13	Recpt	13	9855	5707	1.8
14	Recpt	14	9843	5730	1.8
15	Recpt	15	9828	5758	1.8
16	Recpt	16	9815	5784	1.8

KTR Station N 11th Ave./SR 198 EB Ramps/E 3rd St.2009 Existing Plus Project CALINE Output

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 3

JOB: West Hanford Int 16 Existing+P
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

*	*	PRED	*	CONC/LINK								
*	BRG	*	CONC	*	(PPM)							
RECEPTOR	*	(DEG)	*	(PPM)	A	B	C	D	E	F	G	H
1	Recpt	1	171	0.9	0	0	0.5	0.1	0	0	0	0
2	Recpt	2	185	0.8	0	0	0.4	0	0	0	0	0
3	Recpt	3	233	0.8	0.2	0	0.3	0	0.3	0	0	0
4	Recpt	4	233	0.5	0	0	0	0	0.2	0	0	0
5	Recpt	5	232	0.4	0	0	0	0	0	0	0	0
6	Recpt	6	248	0.4	0	0	0	0	0	0	0	0
7	Recpt	7	295	0.5	0.2	0	0.2	0	0	0	0	0
8	Recpt	8	313	1	0.2	0.2	0.4	0	0	0	0	0
9	Recpt	9	319	1	0.2	0.1	0.2	0	0	0.2	0	0
10	Recpt	10	320	0.9	0.2	0	0.1	0	0	0.4	0	0
11	Recpt	11	344	0.8	0	0	0.3	0.2	0	0	0	0
12	Recpt	12	346	0.8	0.1	0	0.3	0.2	0	0	0	0
13	Recpt	13	350	1	0.4	0	0.3	0	0	0	0	0
14	Recpt	14	355	0.9	0.5	0	0.3	0	0	0	0	0
15	Recpt	15	134	0.9	0.5	0	0	0	0	0.3	0	0
16	Recpt	16	137	1	0.6	0	0	0	0	0.3	0	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 4

JOB: West Hanford Int 16 Existing+P
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	* CONC/LINK (PPM) *	I	J	K	L
1	Recpt 1	0	0	0	0
2	Recpt 2	0	0	0	0
3	Recpt 3	0	0	0	0
4	Recpt 4	0	0	0	0
5	Recpt 5	0	0	0	0
6	Recpt 6	0	0	0	0
7	Recpt 7	0	0	0	0
8	Recpt 8	0	0	0	0
9	Recpt 9	0	0	0.1	0
10	Recpt 10	0	0	0.1	0
11	Recpt 11	0	0	0	0
12	Recpt 12	0	0	0	0
13	Recpt 13	0	0	0	0
14	Recpt 14	0	0	0	0
15	Recpt 15	0	0	0	0
16	Recpt 16	0	0	0	0

KTR Station N 11th Ave./SR 198 EB Ramps/E 3rd St. 2035 No Build CALINE Output

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSIO	MODEL	
JUNE	1989	VERSION				
PAGE	1					
JOB:	West	Hanford	Int	16	No	Build
RUN:	Hour	1	(WORST	CASE	ANGLE)	
POLLUTANT:	Carbon	Monoxide				

I.	SITE	VARIABLES					
U=	1	M/S	Z0=	100	CM	ALT=	0 (M)
BRG=	WORST	CASE	VD=	0	CM/S		
CLAS=	7	(G)	VS=	0	CM/S		
MIXH=	1000	M	AMB=	0	PPM		
SIGTH=	5	DEGREES	TEMP=	4.4	DEGREE	(C)	

II.	LINK	VARIABLES										
LINK	*	LINK	COORDINA	(M)	*	EF	H	W				
DESCRIPTION	*	X1	Y1	X2	Y2	*	TYPE	VPH	(G/MI)	(M)	(M)	
----------*----------*----------												
A.	Link	A	9810	5811	9855	5728	AG	798	2.8	0	10	
B.	Link	B	9815	5813	9869	5736	AG	269	2.8	0	10	
C.	Link	C	9827	5820	9866	5740	AG	1158	1.3	0	10	
D.	Link	D	9855	5728	9904	5648	AG	798	2.2	0	10	
E.	Link	E	9785	5686	9866	5740	AG	596	2.8	0	10	
F.	Link	F	9866	5740	9915	5654	AG	562	2.8	0	10	
G.	Link	G	9785	5686	9859	5714	AG	62	2.3	0	10	
H.	Link	H	9785	5686	9869	5736	AG	41	2.3	0	10	
I.	Link	I	9869	5736	9956	5799	AG	310	1.5	0	10	
J.	Link	J	9859	5714	9900	5645	AG	62	2.2	0	10	
K.	Link	K	9880	5730	9915	5654	AG	106	2.8	0	10	
L.	Link	L	9880	5730	9960	5795	AG	106	1.5	0	10	

CALINE4: CALIFORNIA LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 2

JOB: West Hanford Int 16 No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

*	COORDINATES (M)			
RECEPTOR	*	X	Y	Z
1	Recpt 1	9847	5804	1.8
2	Recpt 2	9861	5778	1.8
3	Recpt 3	9876	5750	1.8
4	Recpt 4	9901	5767	1.8
5	Recpt 5	9925	5786	1.8
6	Recpt 6	9935	5765	1.8
7	Recpt 7	9910	5746	1.8
8	Recpt 8	9886	5727	1.8
9	Recpt 9	9901	5700	1.8
10	Recpt 10	9915	5675	1.8
11	Recpt 11	9882	5658	1.8
12	Recpt 12	9869	5683	1.8
13	Recpt 13	9855	5707	1.8
14	Recpt 14	9843	5730	1.8
15	Recpt 15	9828	5758	1.8
16	Recpt 16	9815	5784	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 3

JOB: West Hanford Int 16 No Build
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	Recpt	1	168	0.2	0	0	0	0	0	0	0	0
2	Recpt	2	179	0.2	0	0	0	0	0	0	0	0
3	Recpt	3	234	0.3	0	0	0	0	0.2	0	0	0
4	Recpt	4	233	0.2	0	0	0	0	0	0	0	0
5	Recpt	5	232	0.1	0	0	0	0	0	0	0	0
6	Recpt	6	246	0.1	0	0	0	0	0	0	0	0
7	Recpt	7	252	0.1	0	0	0	0	0	0	0	0
8	Recpt	8	312	0.2	0	0	0	0	0	0	0	0
9	Recpt	9	317	0.2	0	0	0	0	0	0	0	0
10	Recpt	10	319	0.2	0	0	0	0	0	0	0	0
11	Recpt	11	342	0.2	0	0	0	0	0	0	0	0
12	Recpt	12	345	0.2	0	0	0	0	0	0	0	0
13	Recpt	13	348	0.2	0.1	0	0	0	0	0	0	0
14	Recpt	14	66	0.3	0	0	0	0	0.1	0	0	0
15	Recpt	15	137	0.2	0	0	0	0	0	0	0	0
16	Recpt	16	139	0.2	0.1	0	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 4

JOB: West Hanford Int 16 No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

*	CONC/LINK					
*	(PPM)					
RECEPTOR	*	I	J	K	L	
1	Recpt	1	0	0	0	0
2	Recpt	2	0	0	0	0
3	Recpt	3	0	0	0	0
4	Recpt	4	0	0	0	0
5	Recpt	5	0	0	0	0
6	Recpt	6	0	0	0	0
7	Recpt	7	0	0	0	0
8	Recpt	8	0	0	0	0
9	Recpt	9	0	0	0	0
10	Recpt	10	0	0	0	0
11	Recpt	11	0	0	0	0
12	Recpt	12	0	0	0	0
13	Recpt	13	0	0	0	0
14	Recpt	14	0	0	0	0
15	Recpt	15	0	0	0	0
16	Recpt	16	0	0	0	0

CALINE4:	CALIFORNI	LINE	SOURCE	DISPERSIOI	MODEL
JUNE	1989	VERSION			
PAGE	1				

JOB:	West	Hanford	Int	16	Build
RUN:	Hour	1	(WORST	CASE	ANGLE)
POLLUTANT:	Carbon	Monoxide			

I. SITE VARIABLES

U=	1	M/S	Z0=	100	CM	ALT=	0 (M)
BRG=	WORST	CASE	VD=	0	CM/S		
CLAS=	7	(G)	VS=	0	CM/S		
MIXH=	1000	M	AMB=	0	PPM		
SIGTH=	5	DEGREES	TEMP=	4.4	DEGREE	(C)	

II. LINK VARIABLES

LINK DESCRIPTION	*		X1	LINK Y1	COORDINA X2	(M) Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A.	Link	A	9810	5811	9855	5728	AG	798	2.8	0	10
B.	Link	B	9815	5813	9869	5736	AG	269	2.8	0	10
C.	Link	C	9827	5820	9866	5740	AG	1159	1.3	0	10
D.	Link	D	9855	5728	9904	5648	AG	798	2.2	0	10
E.	Link	E	9785	5686	9866	5740	AG	597	2.8	0	10
F.	Link	F	9866	5740	9915	5654	AG	562	2.8	0	10
G.	Link	G	9785	5686	9859	5714	AG	62	2.3	0	10
H.	Link	H	9785	5686	9869	5736	AG	41	2.3	0	10
I.	Link	I	9869	5736	9956	5799	AG	310	1.5	0	10
J.	Link	J	9859	5714	9900	5645	AG	62	2.2	0	10
K.	Link	K	9880	5730	9915	5654	AG	106	2.8	0	10
L.	Link	L	9880	5730	9960	5795	AG	106	1.5	0	10

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 2

JOB: West Hanford Int 16 Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

*		COORDINATES		(M)
RECEPTOR	*	X	Y	Z
1	Recpt 1	9847	5804	1.8
2	Recpt 2	9861	5778	1.8
3	Recpt 3	9876	5750	1.8
4	Recpt 4	9901	5767	1.8
5	Recpt 5	9925	5786	1.8
6	Recpt 6	9935	5765	1.8
7	Recpt 7	9910	5746	1.8
8	Recpt 8	9886	5727	1.8
9	Recpt 9	9901	5700	1.8
10	Recpt 10	9915	5675	1.8
11	Recpt 11	9882	5658	1.8
12	Recpt 12	9869	5683	1.8
13	Recpt 13	9855	5707	1.8

14	Recpt	14	9843	5730	1.8
15	Recpt	15	9828	5758	1.8
16	Recpt	16	9815	5784	1.8

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 3

JOB: West Hanford Int 16 Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

*	*	PRED	*	CONC/LINK								
*	BRG	*	CONC	*	(PPM)							
RECEPTOR	*	(DEG)	*	(PPM)	A	B	C	D	E	F	G	H
1	Recpt	1	168	0.2	0	0	0	0	0	0	0	0
2	Recpt	2	179	0.2	0	0	0	0	0	0	0	0
3	Recpt	3	234	0.3	0	0	0	0	0.2	0	0	0
4	Recpt	4	233	0.2	0	0	0	0	0	0	0	0
5	Recpt	5	232	0.1	0	0	0	0	0	0	0	0
6	Recpt	6	246	0.1	0	0	0	0	0	0	0	0
7	Recpt	7	252	0.1	0	0	0	0	0	0	0	0
8	Recpt	8	312	0.2	0	0	0	0	0	0	0	0

9	Recpt	9	317	0.2	0	0	0	0	0	0	0	0
10	Recpt	10	319	0.2	0	0	0	0	0	0	0	0
11	Recpt	11	342	0.2	0	0	0	0	0	0	0	0
12	Recpt	12	345	0.2	0	0	0	0	0	0	0	0
13	Recpt	13	348	0.2	0.1	0	0	0	0	0	0	0
14	Recpt	14	66	0.3	0	0	0	0	0.1	0	0	0
15	Recpt	15	137	0.2	0	0	0	0	0	0	0	0
16	Recpt	16	139	0.2	0.1	0	0	0	0	0	0	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 4

JOB: West Hanford Int 16 Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

* CONC/LINK
* (PPM)

RECEPTOR	*	I	J	K	L
1	Recpt 1	0	0	0	0
2	Recpt 2	0	0	0	0
3	Recpt 3	0	0	0	0

4	Recpt	4	0	0	0	0
5	Recpt	5	0	0	0	0
6	Recpt	6	0	0	0	0
7	Recpt	7	0	0	0	0
8	Recpt	8	0	0	0	0
9	Recpt	9	0	0	0	0
10	Recpt	10	0	0	0	0
11	Recpt	11	0	0	0	0
12	Recpt	12	0	0	0	0
13	Recpt	13	0	0	0	0
14	Recpt	14	0	0	0	0
15	Recpt	15	0	0	0	0
16	Recpt	16	0	0	0	0

CALINE4:	CALIFORNI	LINE	SOURCE	DISPERSIOI	MODEL	
JUNE	1989	VERSION				
PAGE	1					
JOB:	West	Hanford	Int	22	Existing	
RUN:	Hour	1	(WORST	CASE	ANGLE)	
POLLUTANT:	Carbon	Monoxide				

I.	SITE	VARIABLES					
U=	1	M/S	Z0=	100	CM	ALT=	0 (M)
BRG=	WORST	CASE	VD=	0	CM/S		
CLAS=	7	(G)	VS=	0	CM/S		
MIXH=	1000	M	AMB=	0	PPM		
SIGTH=	5	DEGREES	TEMP=	4.4	DEGREE	(C)	

II.	LINK	VARIABLES										
LINK	*	LINK	COORDINA	(M)	*	EF	H	W				
DESCRIPTION	*	X1	Y1	X2	Y2	*	TYPE	VPH	(G/MI)	(M)	(M)	
----------*----------*----------												
A.	Link	A	1358	6973	1409	6881	AG	298	9.1	0	10	
B.	Link	B	1363	6976	1420	6894	AG	118	13.8	0	10	
C.	Link	C	1371	6981	1414	6897	AG	516	8.3	0	10	
D.	Link	D	1376	6983	1421	6911	AG	87	8.3	0	10	
E.	Link	E	1421	6911	1518	6957	AG	87	13.2	0	10	
F.	Link	F	1409	6881	1453	6788	AG	310	6	0	10	
G.	Link	G	1409	6881	1518	6957	AG	12	13.2	0	10	
H.	Link	H	1327	6822	1414	6897	AG	218	13.2	0	10	
I.	Link	I	1414	6897	1458	6790	AG	298	11.4	0	10	
J.	Link	J	1332	6817	1403	6861	AG	17	13.2	0	10	
K.	Link	K	1332	6817	1420	6894	AG	18	13.2	0	10	
L.	Link	L	1420	6894	1520	6952	AG	136	7.4	0	10	
M.	Link	M	1403	6861	1449	6786	AG	17	6	0	10	
N.	Link	N	1431	6886	1458	6790	AG	34	11.4	0	10	
O.	Link	O	1431	6886	1520	6952	AG	34	7.4	0	10	

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 2

JOB: West Hanford Int 22 Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

*	COORDINA (M)			
RECEPTOR	*	X	Y	Z
----------*----------				
1	Recpt 1	1391	6967	1.8
2	Recpt 2	1405	6940	1.8
3	Recpt 3	1423	6919	1.8
4	Recpt 4	1452	6931	1.8
5	Recpt 5	1476	6945	1.8
6	Recpt 6	1482	6922	1.8
7	Recpt 7	1459	6906	1.8
8	Recpt 8	1437	6885	1.8
9	Recpt 9	1443	6857	1.8
10	Recpt 10	1450	6826	1.8
11	Recpt 11	1431	6808	1.8
12	Recpt 12	1419	6832	1.8
13	Recpt 13	1403	6855	1.8
14	Recpt 14	1375	6842	1.8
15	Recpt 15	1351	6824	1.8
16	Recpt 16	1347	6848	1.8
17	Recpt 17	1372	6865	1.8
18	Recpt 18	1394	6882	1.8
19	Recpt 19	1381	6909	1.8
20	Recpt 20	1369	6934	1.8

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 3

JOB: West Hanford Int 22 Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	* BRG *	* PRED * (DEG)	* CONC *	* CONC/LINK (PPM)	A	B	C	D	E	F	G	H
1	Recpt	1	164	0.5	0	0	0.2	0	0	0	0	0
2	Recpt	2	167	0.5	0	0	0.1	0	0	0	0	0
3	Recpt	3	219	0.5	0	0	0.1	0	0	0	0	0.2
4	Recpt	4	228	0.4	0	0	0	0	0.1	0	0	0.2
5	Recpt	5	230	0.4	0	0	0	0	0.1	0	0	0.1
6	Recpt	6	246	0.3	0	0	0	0	0	0	0	0
7	Recpt	7	297	0.3	0	0	0	0	0	0	0	0
8	Recpt	8	315	0.4	0	0.1	0.2	0	0	0	0	0
9	Recpt	9	325	0.5	0	0.1	0.2	0	0	0	0	0
10	Recpt	10	330	0.6	0	0	0.1	0	0	0	0	0
11	Recpt	11	345	0.4	0	0	0.1	0	0	0	0	0
12	Recpt	12	347	0.4	0	0	0.1	0	0	0	0	0
13	Recpt	13	352	0.4	0.1	0	0.1	0	0	0	0	0
14	Recpt	14	27	0.3	0	0	0	0	0	0	0	0.1
15	Recpt	15	37	0.3	0	0	0	0	0	0	0	0.1
16	Recpt	16	58	0.5	0	0	0	0	0	0	0	0.3
17	Recpt	17	57	0.6	0	0	0	0	0	0	0	0.3
18	Recpt	18	60	0.6	0	0	0	0	0	0	0	0.2
19	Recpt	19	77	0.3	0	0	0	0	0	0	0	0
20	Recpt	20	140	0.4	0.2	0	0	0	0	0	0	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 4

JOB: West Hanford Int 22 Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) *	I	J	K	L	M	N	O
1	Recpt	1	0	0	0	0	0	0	0
2	Recpt	2	0.2	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0
9	Recpt	9	0.1	0	0	0	0	0	0
10	Recpt	10	0.3	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0
16	Recpt	16	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0
19	Recpt	19	0	0	0	0	0	0	0
20	Recpt	20	0.1	0	0	0	0	0	0

CALINE4:	CALIFORNI	LINE	SOURCE	DISPERSIOI	MODEL
JUNE	1989	VERSION			
PAGE	1				

JOB:	West	Hanford	Int	22	Existing+P
RUN:	Hour	1	(WORST	CASE	ANGLE)
POLLUTANT:	Carbon	Monoxide			

I.	SITE	VARIABLES					
U=	1	M/S	Z0=	100	CM	ALT=	0 (M)
BRG=	WORST	CASE	VD=	0	CM/S		
CLAS=	7	(G)	VS=	0	CM/S		
MIXH=	1000	M	AMB=	0	PPM		
SIGTH=	5	DEGREES	TEMP=	4.4	DEGREE	(C)	

II.	LINK	VARIABLES										
LINK	*	LINK	COORDINA	(M)	*	EF	H	W				
DESCRIPTION	*	X1	Y1	X2	Y2	*	TYPE	VPH	(G/MI)	(M)	(M)	
----------*----------*----------												
A.	Link	A	1358	6973	1409	6881	AG	298	9.1	0	10	
B.	Link	B	1363	6976	1420	6894	AG	118	13.8	0	10	
C.	Link	C	1371	6981	1414	6897	AG	521	8.3	0	10	
D.	Link	D	1376	6983	1421	6911	AG	87	8.3	0	10	
E.	Link	E	1421	6911	1518	6957	AG	87	13.2	0	10	
F.	Link	F	1409	6881	1453	6788	AG	310	6	0	10	
G.	Link	G	1409	6881	1518	6957	AG	12	13.2	0	10	
H.	Link	H	1327	6822	1414	6897	AG	223	13.2	0	10	
I.	Link	I	1414	6897	1458	6790	AG	298	11.4	0	10	
J.	Link	J	1332	6817	1403	6861	AG	18	13.2	0	10	
K.	Link	K	1332	6817	1420	6894	AG	18	13.2	0	10	
L.	Link	L	1420	6894	1520	6952	AG	136	7.4	0	10	
M.	Link	M	1403	6861	1449	6786	AG	18	6	0	10	
N.	Link	N	1431	6886	1458	6790	AG	34	11.4	0	10	
O.	Link	O	1431	6886	1520	6952	AG	34	7.4	0	10	

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 2

JOB: West Hanford Int 22 Existing+P
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

* RECEPTOR	*	COORDINA (M) X	Y	Z
1	Recpt 1	1391	6967	1.8
2	Recpt 2	1405	6940	1.8
3	Recpt 3	1423	6919	1.8
4	Recpt 4	1452	6931	1.8
5	Recpt 5	1476	6945	1.8
6	Recpt 6	1482	6922	1.8
7	Recpt 7	1459	6906	1.8
8	Recpt 8	1437	6885	1.8
9	Recpt 9	1443	6857	1.8
10	Recpt 10	1450	6826	1.8
11	Recpt 11	1431	6808	1.8
12	Recpt 12	1419	6832	1.8
13	Recpt 13	1403	6855	1.8
14	Recpt 14	1375	6842	1.8
15	Recpt 15	1351	6824	1.8
16	Recpt 16	1347	6848	1.8
17	Recpt 17	1372	6865	1.8
18	Recpt 18	1394	6882	1.8
19	Recpt 19	1381	6909	1.8
20	Recpt 20	1369	6934	1.8

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 3

JOB: West Hanford Int 22 Existing+P
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	* BRG *	PRED * (DEG)	* CONC *	CONC/LINK * (PPM)	(PPM) A	B	C	D	E	F	G	H
1	Recpt	1	164	0.5	0	0	0.2	0	0	0	0	0
2	Recpt	2	167	0.5	0	0	0.1	0	0	0	0	0
3	Recpt	3	219	0.5	0	0	0.1	0	0	0	0	0.2
4	Recpt	4	228	0.4	0	0	0	0	0.1	0	0	0.2
5	Recpt	5	230	0.4	0	0	0	0	0.1	0	0	0.1
6	Recpt	6	245	0.3	0	0	0	0	0	0	0	0
7	Recpt	7	297	0.3	0	0	0	0	0	0	0	0
8	Recpt	8	315	0.4	0	0.1	0.2	0	0	0	0	0
9	Recpt	9	325	0.5	0	0.1	0.2	0	0	0	0	0
10	Recpt	10	330	0.6	0	0	0.1	0	0	0	0	0
11	Recpt	11	345	0.4	0	0	0.1	0	0	0	0	0
12	Recpt	12	347	0.4	0	0	0.1	0	0	0	0	0
13	Recpt	13	352	0.4	0.1	0	0.1	0	0	0	0	0
14	Recpt	14	27	0.3	0	0	0	0	0	0	0	0.1
15	Recpt	15	37	0.3	0	0	0	0	0	0	0	0.1
16	Recpt	16	58	0.5	0	0	0	0	0	0	0	0.3
17	Recpt	17	57	0.6	0	0	0	0	0	0	0	0.3
18	Recpt	18	60	0.6	0	0	0	0	0	0	0	0.2
19	Recpt	19	77	0.3	0	0	0	0	0	0	0	0
20	Recpt	20	140	0.4	0.2	0	0	0	0	0	0	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 4

JOB: West Hanford Int 22 Existing+P
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	I	J	K	L	M	N	O		
*	CONC/LINK (PPM)									
1	Recpt	1	*	0	0	0	0	0	0	0
2	Recpt	2	*	0.2	0	0	0	0	0	0
3	Recpt	3	*	0	0	0	0	0	0	0
4	Recpt	4	*	0	0	0	0	0	0	0
5	Recpt	5	*	0	0	0	0	0	0	0
6	Recpt	6	*	0	0	0	0	0	0	0
7	Recpt	7	*	0	0	0	0	0	0	0
8	Recpt	8	*	0	0	0	0	0	0	0
9	Recpt	9	*	0.1	0	0	0	0	0	0
	Recpt	10	*	0.3	0	0	0	0	0	0
	Recpt	11	*	0	0	0	0	0	0	0
	Recpt	12	*	0	0	0	0	0	0	0
	Recpt	13	*	0	0	0	0	0	0	0
	Recpt	14	*	0	0	0	0	0	0	0
	Recpt	15	*	0	0	0	0	0	0	0
	Recpt	16	*	0	0	0	0	0	0	0
	Recpt	17	*	0	0	0	0	0	0	0
	Recpt	18	*	0	0	0	0	0	0	0
	Recpt	19	*	0	0	0	0	0	0	0
	Recpt	20	*	0.1	0	0	0	0	0	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 1

JOB: West Hanford Int 22 No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1 M/S Z0= 100 CM ALT= 0 (M)
BRG= WORST CASE VD= 0 CM/S
CLAS= 7 (G) VS= 0 CM/S
MIXH= 1000 M AMB= 0 PPM
SIGTH= 5 DEGREES TEMP= 4.4 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK X1	COORDINA (M) Y1	X2	Y2	*	EF TYPE	H VPH	W (G/MI)	(M)	(M)
A.	Link	A	1358	6973	1409	6881	AG	298	1.9	0	10
B.	Link	B	1363	6976	1420	6894	AG	118	2.8	0	10
C.	Link	C	1371	6981	1414	6897	AG	1121	1.3	0	10
D.	Link	D	1376	6983	1421	6911	AG	87	1.3	0	10
E.	Link	E	1421	6911	1518	6957	AG	87	2.4	0	10
F.	Link	F	1409	6881	1453	6788	AG	310	1.2	0	10
G.	Link	G	1409	6881	1518	6957	AG	12	2.4	0	10
H.	Link	H	1327	6822	1414	6897	AG	762	2.8	0	10
I.	Link	I	1414	6897	1458	6790	AG	359	2.8	0	10
J.	Link	J	1332	6817	1403	6861	AG	17	2.4	0	10
K.	Link	K	1332	6817	1420	6894	AG	18	2.4	0	10
L.	Link	L	1420	6894	1520	6952	AG	136	1.3	0	10
M.	Link	M	1403	6861	1449	6786	AG	17	1.2	0	10
N.	Link	N	1431	6886	1458	6790	AG	34	2.8	0	10
O.	Link	O	1431	6886	1520	6952	AG	34	1.3	0	10

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 2

JOB: West Hanford Int 22 No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

* RECEPTOR	*	COORDINA (M) X	Y	Z
1	Recpt 1	1391	6967	1.8
2	Recpt 2	1405	6940	1.8
3	Recpt 3	1423	6919	1.8
4	Recpt 4	1452	6931	1.8
5	Recpt 5	1476	6945	1.8
6	Recpt 6	1482	6922	1.8
7	Recpt 7	1459	6906	1.8
8	Recpt 8	1437	6885	1.8
9	Recpt 9	1443	6857	1.8
10	Recpt 10	1450	6826	1.8
11	Recpt 11	1431	6808	1.8
12	Recpt 12	1419	6832	1.8
13	Recpt 13	1403	6855	1.8
14	Recpt 14	1375	6842	1.8
15	Recpt 15	1351	6824	1.8
16	Recpt 16	1347	6848	1.8
17	Recpt 17	1372	6865	1.8
18	Recpt 18	1394	6882	1.8
19	Recpt 19	1381	6909	1.8
20	Recpt 20	1369	6934	1.8

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 3

JOB: West Hanford Int 22 No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

*	*	PRED	*	CONC/LINK								
*	BRG	*	CONC	*	(PPM)							
RECEPTOR	*	(DEG)	*	(PPM)	A	B	C	D	E	F	G	H
1	Recpt	1	165	0.1	0	0	0	0	0	0	0	0
2	Recpt	2	175	0.1	0	0	0	0	0	0	0	0
3	Recpt	3	219	0.2	0	0	0	0	0	0	0	0.1
4	Recpt	4	228	0.2	0	0	0	0	0	0	0	0.1
5	Recpt	5	231	0.1	0	0	0	0	0	0	0	0
6	Recpt	6	243	0.1	0	0	0	0	0	0	0	0
7	Recpt	7	244	0.1	0	0	0	0	0	0	0	0
8	Recpt	8	247	0.1	0	0	0	0	0	0	0	0
9	Recpt	9	325	0.1	0	0	0	0	0	0	0	0
10	Recpt	10	330	0.2	0	0	0	0	0	0	0	0
11	Recpt	11	345	0.1	0	0	0	0	0	0	0	0
12	Recpt	12	347	0.1	0	0	0	0	0	0	0	0
13	Recpt	13	353	0.1	0	0	0	0	0	0	0	0
14	Recpt	14	27	0.1	0	0	0	0	0	0	0	0
15	Recpt	15	35	0.1	0	0	0	0	0	0	0	0
16	Recpt	16	59	0.2	0	0	0	0	0	0	0	0.2
17	Recpt	17	55	0.3	0	0	0	0	0	0	0	0.2
18	Recpt	18	60	0.2	0	0	0	0	0	0	0	0.2
19	Recpt	19	135	0	0	0	0	0	0	0	0	0
20	Recpt	20	140	0.1	0	0	0	0	0	0	0	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 4

JOB: West Hanford Int 22 No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	* CONC/LINK (PPM) *	I	J	K	L	M	N	O
1	Recpt 1	0	0	0	0	0	0	0
2	Recpt 2	0	0	0	0	0	0	0
3	Recpt 3	0	0	0	0	0	0	0
4	Recpt 4	0	0	0	0	0	0	0
5	Recpt 5	0	0	0	0	0	0	0
6	Recpt 6	0	0	0	0	0	0	0
7	Recpt 7	0	0	0	0	0	0	0
8	Recpt 8	0	0	0	0	0	0	0
9	Recpt 9	0	0	0	0	0	0	0
10	Recpt 10	0	0	0	0	0	0	0
11	Recpt 11	0	0	0	0	0	0	0
12	Recpt 12	0	0	0	0	0	0	0
13	Recpt 13	0	0	0	0	0	0	0
14	Recpt 14	0	0	0	0	0	0	0
15	Recpt 15	0	0	0	0	0	0	0
16	Recpt 16	0	0	0	0	0	0	0
17	Recpt 17	0	0	0	0	0	0	0
18	Recpt 18	0	0	0	0	0	0	0
19	Recpt 19	0	0	0	0	0	0	0
20	Recpt 20	0	0	0	0	0	0	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 1

JOB: West Hanford Int 22 Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1 M/S Z0= 100 CM ALT= 0 (M)
BRG= WORST CASE VD= 0 CM/S
CLAS= 7 (G) VS= 0 CM/S
MIXH= 1000 M AMB= 0 PPM
SIGTH= 5 DEGREES TEMP= 4.4 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK X1	COORDINA (M) Y1	X2	* Y2	EF *	H TYPE	W VPH	(G/MI)	(M)	(M)
A.	Link	A	1358	6973	1409	6881	AG	298	1.9	0	10
B.	Link	B	1363	6976	1420	6894	AG	118	2.8	0	10
C.	Link	C	1371	6981	1414	6897	AG	1126	1.3	0	10
D.	Link	D	1376	6983	1421	6911	AG	87	1.3	0	10
E.	Link	E	1421	6911	1518	6957	AG	87	2.4	0	10
F.	Link	F	1409	6881	1453	6788	AG	310	1.2	0	10
G.	Link	G	1409	6881	1518	6957	AG	12	2.4	0	10
H.	Link	H	1327	6822	1414	6897	AG	767	2.8	0	10
I.	Link	I	1414	6897	1458	6790	AG	359	2.8	0	10
J.	Link	J	1332	6817	1403	6861	AG	18	2.4	0	10
K.	Link	K	1332	6817	1420	6894	AG	18	2.4	0	10
L.	Link	L	1420	6894	1520	6952	AG	136	1.3	0	10
M.	Link	M	1403	6861	1449	6786	AG	18	1.2	0	10
N.	Link	N	1431	6886	1458	6790	AG	34	2.8	0	10
O.	Link	O	1431	6886	1520	6952	AG	34	1.3	0	10

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 2

JOB: West Hanford Int 22 Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

* RECEPTOR	*	COORDINA (M) X	Y	Z
1	Recpt 1	1391	6967	1.8
2	Recpt 2	1405	6940	1.8
3	Recpt 3	1423	6919	1.8
4	Recpt 4	1452	6931	1.8
5	Recpt 5	1476	6945	1.8
6	Recpt 6	1482	6922	1.8
7	Recpt 7	1459	6906	1.8
8	Recpt 8	1437	6885	1.8
9	Recpt 9	1443	6857	1.8
10	Recpt 10	1450	6826	1.8
11	Recpt 11	1431	6808	1.8
12	Recpt 12	1419	6832	1.8
13	Recpt 13	1403	6855	1.8
14	Recpt 14	1375	6842	1.8
15	Recpt 15	1351	6824	1.8
16	Recpt 16	1347	6848	1.8
17	Recpt 17	1372	6865	1.8
18	Recpt 18	1394	6882	1.8
19	Recpt 19	1381	6909	1.8
20	Recpt 20	1369	6934	1.8

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 3

JOB: West Hanford Int 22 Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	* BRG *	* PRED * (DEG)	* CONC *	* CONC/LINK * (PPM)	(PPM) A	B	C	D	E	F	G	H
1	Recpt	1	165	0.1	0	0	0	0	0	0	0	0
2	Recpt	2	175	0.1	0	0	0	0	0	0	0	0
3	Recpt	3	219	0.2	0	0	0	0	0	0	0	0.1
4	Recpt	4	228	0.2	0	0	0	0	0	0	0	0.1
5	Recpt	5	231	0.1	0	0	0	0	0	0	0	0
6	Recpt	6	243	0.1	0	0	0	0	0	0	0	0
7	Recpt	7	244	0.1	0	0	0	0	0	0	0	0
8	Recpt	8	247	0.1	0	0	0	0	0	0	0	0
9	Recpt	9	325	0.1	0	0	0	0	0	0	0	0
10	Recpt	10	330	0.2	0	0	0	0	0	0	0	0
11	Recpt	11	345	0.1	0	0	0	0	0	0	0	0
12	Recpt	12	347	0.1	0	0	0	0	0	0	0	0
13	Recpt	13	353	0.1	0	0	0	0	0	0	0	0
14	Recpt	14	27	0.1	0	0	0	0	0	0	0	0
15	Recpt	15	35	0.1	0	0	0	0	0	0	0	0
16	Recpt	16	59	0.2	0	0	0	0	0	0	0	0.2
17	Recpt	17	55	0.3	0	0	0	0	0	0	0	0.2
18	Recpt	18	60	0.2	0	0	0	0	0	0	0	0.2
19	Recpt	19	135	0	0	0	0	0	0	0	0	0
20	Recpt	20	140	0.1	0	0	0	0	0	0	0	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 4

JOB: West Hanford Int 22 Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	* CONC/LINK (PPM) *	I	J	K	L	M	N	O
1	Recpt 1	0	0	0	0	0	0	0
2	Recpt 2	0	0	0	0	0	0	0
3	Recpt 3	0	0	0	0	0	0	0
4	Recpt 4	0	0	0	0	0	0	0
5	Recpt 5	0	0	0	0	0	0	0
6	Recpt 6	0	0	0	0	0	0	0
7	Recpt 7	0	0	0	0	0	0	0
8	Recpt 8	0	0	0	0	0	0	0
9	Recpt 9	0	0	0	0	0	0	0
10	Recpt 10	0	0	0	0	0	0	0
11	Recpt 11	0	0	0	0	0	0	0
12	Recpt 12	0	0	0	0	0	0	0
13	Recpt 13	0	0	0	0	0	0	0
14	Recpt 14	0	0	0	0	0	0	0
15	Recpt 15	0	0	0	0	0	0	0
16	Recpt 16	0	0	0	0	0	0	0
17	Recpt 17	0	0	0	0	0	0	0
18	Recpt 18	0	0	0	0	0	0	0
19	Recpt 19	0	0	0	0	0	0	0
20	Recpt 20	0	0	0	0	0	0	0

Fresno HMF SR 99 SB Off-Ramp/ E. American Ave. PM 2009 Existing CALINE Output

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL			
JUNE	1989	VERSION						
PAGE	1							
JOB:	Fresno	HMF	Ex	Int	6	PM		
RUN:	Hour	1	(WORST	CASE	ANGLE)			
POLLUTANT:	Carbon	Monoxide						
I.	SITE	VARIABLES						
U=	1	M/S	Z0=	100	CM	ALT=	0	(M)
BRG=	WORST	CASE	VD=	0	CM/S			
CLAS=	7	(G)	VS=	0	CM/S			
MIXH=	1000	M	AMB=	0	PPM			
SIGTH=	5	DEGREES	TEMP=	2.2	DEGREE	(C)		

II. LINK VARIABLES

LINK	*		LINK	COORDINATES	(M)				EF	H	W
DESCRIPTION	*		X1	Y1	X2	Y2	TYPE	VPH	(G/MI)	(M)	(M)
A.	Link	A	3734	2222	3747	2172	AG	36	5.1	0	10
B.	Link	B	3737	2224	3780	2171	AG	56	5.1	0	10
C.	Link	C	3689	2133	3747	2172	AG	36	5.1	0	10
D.	Link	D	3690	2130	3770	2174	AG	49	5.1	0	10
E.	Link	E	3770	2174	3809	2194	AG	49	5.1	0	10
F.	Link	F	3692	2127	3780	2171	AG	221	5.1	0	10
G.	Link	G	3780	2171	3813	2187	AG	277	5.1	0	10
H.	Link	H	3693	2124	3761	2159	AG	0	5.1	0	10
I.	Link	I	3761	2159	3778	2130	AG	0	5.1	0	10

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Fresno HMF Ex Int 6 PM
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

*			COORDINATES (M)		
RECEPTOR		*	X	Y	Z
1	Recpt	1	3746	2232	1.8
2	Recpt	2	3759	2205	1.8
3	Recpt	3	3770	2183	1.8
4	Recpt	4	3792	2194	1.8
5	Recpt	5	3818	2207	1.8
6	Recpt	6	3827	2176	1.8
7	Recpt	7	3802	2173	1.8
8	Recpt	8	3779	2162	1.8
9	Recpt	9	3790	2138	1.8
10	Recpt	10	3802	2112	1.8
11	Recpt	11	3781	2103	1.8
12	Recpt	12	3769	2128	1.8
13	Recpt	13	3757	2151	1.8
14	Recpt	14	3734	2140	1.8
15	Recpt	15	3708	2127	1.8
16	Recpt	16	3691	2153	1.8
17	Recpt	17	3717	2166	1.8
18	Recpt	18	3740	2177	1.8
19	Recpt	19	3728	2202	1.8
20	Recpt	20	3716	2227	1.8

Table C-12.1

Fresno HMF SR 99 SB Off-Ramp/ E. American Ave. PM 2009 Existing CALINE Output

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL	
JUNE	1989	VERSION				
PAGE	3					
JOB:	Fresno	HMF	Ex	Int	6	PM
RUN:	Hour	1	(WORST	CASE	ANGLE)	
POLLUTANT:	Carbon	Monoxide				

IV.	MODEL	RESULTS	(WORST	CASE	WIND	ANGLE	)					
*	*		*	PRED			CONC/LINK					
*		*	BRG	CONC			(PPM)					
RECEPTOR	*		(DEG)	(PPM)	A	B	C	D	E	F	G	H
1	Recpt	1	200	0	0	0	0	0	0	0	0	0
2	Recpt	2	213	0	0	0	0	0	0	0	0	0
3	Recpt	3	230	0	0	0	0	0	0	0	0	0
4	Recpt	4	232	0	0	0	0	0	0	0	0	0
5	Recpt	5	233	0	0	0	0	0	0	0	0	0
6	Recpt	6	258	0	0	0	0	0	0	0	0	0
7	Recpt	7	254	0.1	0	0	0	0	0	0	0	0
8	Recpt	8	255	0.1	0	0	0	0	0	0	0	0
9	Recpt	9	272	0	0	0	0	0	0	0	0	0
10	Recpt	10	333	0	0	0	0	0	0	0	0	0
11	Recpt	11	338	0	0	0	0	0	0	0	0	0
12	Recpt	12	26	0	0	0	0	0	0	0	0	0
13	Recpt	13	48	0.1	0	0	0	0	0	0	0	0
14	Recpt	14	52	0.1	0	0	0	0	0	0	0	0
15	Recpt	15	54	0.1	0	0	0	0	0	0.1	0	0
16	Recpt	16	78	0	0	0	0	0	0	0	0	0
17	Recpt	17	82	0	0	0	0	0	0	0	0	0
18	Recpt	18	89	0	0	0	0	0	0	0	0	0
19	Recpt	19	109	0	0	0	0	0	0	0	0	0
20	Recpt	20	123	0	0	0	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Fresno HMF Ex Int 6 PM
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)
* (PPM)
RECEPTOR * I
----------*-----

1	Recpt	1	0
2	Recpt	2	0
3	Recpt	3	0
4	Recpt	4	0
5	Recpt	5	0
6	Recpt	6	0
7	Recpt	7	0
8	Recpt	8	0
9	Recpt	9	0
10	Recpt	10	0
11	Recpt	11	0
12	Recpt	12	0
13	Recpt	13	0
14	Recpt	14	0
15	Recpt	15	0
16	Recpt	16	0
17	Recpt	17	0
18	Recpt	18	0
19	Recpt	19	0
20	Recpt	20	0

Fresno HMF SR 99 SB Off-Ramp/ E. American Ave. PM 2009 Existing Plus Project CALINE Output

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL	
JUNE	1989	VERSION				
PAGE	1					
JOB:	Fresno	HMF	Ex+Proj	Int	6	PM
RUN:	Hour	1	(WORST	CASE	ANGLE)	
POLLUTANT:	Carbon	Monoxide				

I.	SITE	VARIABLES					
U=	1	M/S	Z0=	100	CM	ALT=	0 (M)
BRG=	WORST	CASE	VD=	0	CM/S		
CLAS=	7	(G)	VS=	0	CM/S		
MIXH=	1000	M	AMB=	0	PPM		
SIGTH=	5	DEGREES	TEMP=	2.2	DEGREE	(C)	

II.	LINK	VARIABLES										
LINK	*		LINK	COORDINATES	(M)					EF	H	W
DESCRIPTION	*		X1	Y1	X2	Y2	TYPE	VPH		(G/MI)	(M)	(M)
A.	Link	A	3734	2222	3747	2172	AG	72		5.1	0	10
B.	Link	B	3737	2224	3780	2171	AG	56		5.1	0	10
C.	Link	C	3689	2133	3747	2172	AG	72		5.1	0	10
D.	Link	D	3690	2130	3770	2174	AG	64		5.1	0	10
E.	Link	E	3770	2174	3809	2194	AG	64		5.1	0	10
F.	Link	F	3692	2127	3780	2171	AG	297		5.1	0	10
G.	Link	G	3780	2171	3813	2187	AG	353		5.1	0	10
H.	Link	H	3693	2124	3761	2159	AG	0		5.1	0	10
I.	Link	I	3761	2159	3778	2130	AG	0		5.1	0	10

Fresno HMF SR 99 SB Off-Ramp/ E. American Ave. PM 2009 Existing Plus Project CALINE Output

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Fresno HMF Ex+Proj Int 6 PM
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

*		COORDINATI (M)		
RECEPTOR	*	X	Y	Z
1	Recpt 1	3746	2232	1.8
2	Recpt 2	3759	2205	1.8
3	Recpt 3	3770	2183	1.8
4	Recpt 4	3792	2194	1.8
5	Recpt 5	3818	2207	1.8
6	Recpt 6	3827	2176	1.8
7	Recpt 7	3802	2173	1.8
8	Recpt 8	3779	2162	1.8
9	Recpt 9	3790	2138	1.8
10	Recpt 10	3802	2112	1.8
11	Recpt 11	3781	2103	1.8
12	Recpt 12	3769	2128	1.8
13	Recpt 13	3757	2151	1.8
14	Recpt 14	3734	2140	1.8
15	Recpt 15	3708	2127	1.8
16	Recpt 16	3691	2153	1.8
17	Recpt 17	3717	2166	1.8
18	Recpt 18	3740	2177	1.8
19	Recpt 19	3728	2202	1.8
20	Recpt 20	3716	2227	1.8

Fresno HMF SR 99 SB Off-Ramp/ E. American Ave. PM 2009 Existing Plus Project CALINE Output

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3
JOB: Fresno HMF Ex+Proj Int 6 PM
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

*	*		*	PRED				CONC/LINK				
*		*	BRG	CONC				*	(PPM)			
RECEPTOR	*		(DEG)	(PPM)	A	B	C	D	E	F	G	H
1	Recpt	1	198	0	0	0	0	0	0	0	0	0
2	Recpt	2	213	0	0	0	0	0	0	0	0	0
3	Recpt	3	230	0.1	0	0	0	0	0	0	0	0
4	Recpt	4	232	0.1	0	0	0	0	0	0	0	0
5	Recpt	5	233	0.1	0	0	0	0	0	0	0	0
6	Recpt	6	258	0	0	0	0	0	0	0	0	0
7	Recpt	7	254	0.1	0	0	0	0	0	0.1	0	0
8	Recpt	8	255	0.1	0	0	0	0	0	0.1	0	0
9	Recpt	9	272	0	0	0	0	0	0	0	0	0
10	Recpt	10	332	0	0	0	0	0	0	0	0	0
11	Recpt	11	337	0	0	0	0	0	0	0	0	0
12	Recpt	12	280	0	0	0	0	0	0	0	0	0
13	Recpt	13	258	0.1	0	0	0	0	0	0.1	0	0
14	Recpt	14	52	0.2	0	0	0	0	0	0.1	0	0
15	Recpt	15	54	0.2	0	0	0	0	0	0.1	0	0
16	Recpt	16	79	0	0	0	0	0	0	0	0	0
17	Recpt	17	83	0	0	0	0	0	0	0	0	0
18	Recpt	18	89	0	0	0	0	0	0	0	0	0
19	Recpt	19	109	0	0	0	0	0	0	0	0	0
20	Recpt	20	123	0	0	0	0	0	0	0	0	0

Fresno HMF SR 99 SB Off-Ramp/ E. American Ave. PM 2009 Existing Plus Project CALINE Output

```
CALINE4:        CALIFORNIA      LINE        SOURCE      DISPERSION      MODEL
JUNE                      1989  VERSION
PAGE                         4
JOB:            Fresno          HMF         Ex+Proj     Int                   6  PM
RUN:            Hour                      1 (WORST      CASE            ANGLE)
POLLUTANT:      Carbon          Monoxide

IV.             MODEL           RESULTS     (WORST      CASE            WIND      ANGLE)    (CONT.)

*
*                                           (PPM)
RECEPTOR                                    I
------------*-----
                1 Recpt                     1           0
                2 Recpt                     2           0
                3 Recpt                     3           0
                4 Recpt                     4           0
                5 Recpt                     5           0
                6 Recpt                     6           0
                7 Recpt                     7           0
                8 Recpt                     8           0
                9 Recpt                     9           0
               10 Recpt                    10           0
               11 Recpt                    11           0
               12 Recpt                    12           0
               13 Recpt                    13           0
               14 Recpt                    14           0
               15 Recpt                    15           0
               16 Recpt                    16           0
               17 Recpt                    17           0
               18 Recpt                    18           0
               19 Recpt                    19           0
               20 Recpt                    20           0
```

Fresno HMF SR 99 SB Off-Ramp/ E. American Ave. PM 2035 No Build CALINE Output

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL		
JUNE	1989	VERSION					
PAGE	1						
JOB:	Fresno	HMF	No	Build	Int	6	PM
RUN:	Hour	1	(WORST	CASE	ANGLE)		
POLLUTANT:	Carbon	Monoxide					

I.	SITE	VARIABLES					
U=	1	M/S	Z0=	100	CM	ALT=	0 (M)
BRG=	WORST	CASE	VD=	0	CM/S		
CLAS=	7	(G)	VS=	0	CM/S		
MIXH=	1000	M	AMB=	0	PPM		
SIGTH=	5	DEGREES	TEMP=	2.2	DEGREE	(C)	

II.	LINK	VARIABLES										
LINK	*		LINK	COORDINATES	(M)					EF	H	W
DESCRIPTION	*		X1	Y1	X2	Y2	TYPE	VPH		(G/MI)	(M)	(M)
A.	Link	A	3734	2222	3747	2172	AG	41		1	0	10
B.	Link	B	3737	2224	3780	2171	AG	325		1	0	10
C.	Link	C	3689	2133	3747	2172	AG	41		1	0	10
D.	Link	D	3690	2130	3770	2174	AG	537		1	0	10
E.	Link	E	3770	2174	3809	2194	AG	537		1	0	10
F.	Link	F	3692	2127	3780	2171	AG	496		1	0	10
G.	Link	G	3780	2171	3813	2187	AG	821		1	0	10
H.	Link	H	3693	2124	3761	2159	AG	0		1	0	10
I.	Link	I	3761	2159	3778	2130	AG	0		1	0	10

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Fresno HMF No Build Int 6 PM
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

*			COORDINATES (M)		
RECEPTOR	*		X	Y	Z
1	Recpt	1	3746	2232	1.8
2	Recpt	2	3759	2205	1.8
3	Recpt	3	3770	2183	1.8
4	Recpt	4	3792	2194	1.8
5	Recpt	5	3818	2207	1.8
6	Recpt	6	3827	2176	1.8
7	Recpt	7	3802	2173	1.8
8	Recpt	8	3779	2162	1.8
9	Recpt	9	3790	2138	1.8
10	Recpt	10	3802	2112	1.8
11	Recpt	11	3781	2103	1.8
12	Recpt	12	3769	2128	1.8
13	Recpt	13	3757	2151	1.8
14	Recpt	14	3734	2140	1.8
15	Recpt	15	3708	2127	1.8
16	Recpt	16	3691	2153	1.8
17	Recpt	17	3717	2166	1.8
18	Recpt	18	3740	2177	1.8
19	Recpt	19	3728	2202	1.8
20	Recpt	20	3716	2227	1.8

Fresno HMF SR 99 SB Off-Ramp/ E. American Ave. PM 2035 No Build CALINE Output

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3
JOB: Fresno HMF No Build Int 6 PM
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

*	*	*	PRED			CONC/LINK						
*		*	BRG	CONC		(PPM)						
RECEPTOR	*		(DEG)	(PPM)	A	B	C	D	E	F	G	H
1	Recpt	1	198	0	0	0	0	0	0	0	0	0
2	Recpt	2	149	0	0	0	0	0	0	0	0	0
3	Recpt	3	229	0	0	0	0	0	0	0	0	0
4	Recpt	4	232	0	0	0	0	0	0	0	0	0
5	Recpt	5	233	0	0	0	0	0	0	0	0	0
6	Recpt	6	273	0	0	0	0	0	0	0	0	0
7	Recpt	7	276	0	0	0	0	0	0	0	0	0
8	Recpt	8	38	0	0	0	0	0	0	0	0	0
9	Recpt	9	331	0	0	0	0	0	0	0	0	0
10	Recpt	10	334	0	0	0	0	0	0	0	0	0
11	Recpt	11	347	0	0	0	0	0	0	0	0	0
12	Recpt	12	25	0	0	0	0	0	0	0	0	0
13	Recpt	13	46	0	0	0	0	0	0	0	0	0
14	Recpt	14	50	0	0	0	0	0	0	0	0	0
15	Recpt	15	52	0	0	0	0	0	0	0	0	0
16	Recpt	16	77	0	0	0	0	0	0	0	0	0
17	Recpt	17	82	0	0	0	0	0	0	0	0	0
18	Recpt	18	89	0	0	0	0	0	0	0	0	0
19	Recpt	19	109	0	0	0	0	0	0	0	0	0
20	Recpt	20	123	0	0	0	0	0	0	0	0	0

Fresno HMF SR 99 SB Off-Ramp/ E. American Ave. PM 2035 No Build CALINE Output

```
CALINE4:        CALIFORNIA   LINE      SOURCE      DISPERSION   MODEL
JUNE                   1989 VERSION
PAGE                      4
JOB:            Fresno       HMF       No          Build        Int          6 PM
RUN:            Hour                 1 (WORST      CASE         ANGLE)
POLLUTANT:      Carbon       Monoxide


IV.             MODEL        RESULTS   (WORST      CASE         WIND   ANGLE)   (CONT.)
*
*                            (PPM)
RECEPTOR                     *         I
------------*-----
                1 Recpt                1           0
                2 Recpt                2           0
                3 Recpt                3           0
                4 Recpt                4           0
                5 Recpt                5           0
                6 Recpt                6           0
                7 Recpt                7           0
                8 Recpt                8           0
                9 Recpt                9           0
               10 Recpt               10           0
               11 Recpt               11           0
               12 Recpt               12           0
               13 Recpt               13           0
               14 Recpt               14           0
               15 Recpt               15           0
               16 Recpt               16           0
               17 Recpt               17           0
               18 Recpt               18           0
               19 Recpt               19           0
               20 Recpt               20           0
```

Fresno HMF SR 99 SB Off-Ramp/ E. American Ave. PM 2035 Build CALINE Output

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL	
JUNE	1989	VERSION				
PAGE	1					
JOB:	Fresno	HMF	Build	Int	6	PM
RUN:	Hour	1	(WORST	CASE	ANGLE)	
POLLUTANT:	Carbon	Monoxide				

I.	SITE	VARIABLES					
U=	1	M/S	Z0=	100	CM	ALT=	0 (M)
BRG=	WORST	CASE	VD=	0	CM/S		
CLAS=	7	(G)	VS=	0	CM/S		
MIXH=	1000	M	AMB=	0	PPM		
SIGTH=	5	DEGREES	TEMP=	2.2	DEGREE	(C)	

II.	LINK	VARIABLES									
LINK	*		LINK	COORDINATES (M)					EF	H	W
DESCRIPTION	*		X1	Y1	X2	Y2	TYPE	VPH	(G/MI)	(M)	(M)
A.	Link	A	3734	2222	3747	2172	AG	77	1	0	10
B.	Link	B	3737	2224	3780	2171	AG	325	1	0	10
C.	Link	C	3689	2133	3747	2172	AG	77	1	0	10
D.	Link	D	3690	2130	3770	2174	AG	552	1	0	10
E.	Link	E	3770	2174	3809	2194	AG	552	1	0	10
F.	Link	F	3692	2127	3780	2171	AG	572	1	0	10
G.	Link	G	3780	2171	3813	2187	AG	897	1	0	10
H.	Link	H	3693	2124	3761	2159	AG	0	1	0	10
I.	Link	I	3761	2159	3778	2130	AG	0	1	0	10

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Fresno HMF Build Int 6 PM
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

*			COORDINATES (M)		
RECEPTOR	*		X	Y	Z
1	Recpt	1	3746	2232	1.8
2	Recpt	2	3759	2205	1.8
3	Recpt	3	3770	2183	1.8
4	Recpt	4	3792	2194	1.8
5	Recpt	5	3818	2207	1.8
6	Recpt	6	3827	2176	1.8
7	Recpt	7	3802	2173	1.8
8	Recpt	8	3779	2162	1.8
9	Recpt	9	3790	2138	1.8
10	Recpt	10	3802	2112	1.8
11	Recpt	11	3781	2103	1.8
12	Recpt	12	3769	2128	1.8
13	Recpt	13	3757	2151	1.8
14	Recpt	14	3734	2140	1.8
15	Recpt	15	3708	2127	1.8
16	Recpt	16	3691	2153	1.8
17	Recpt	17	3717	2166	1.8
18	Recpt	18	3740	2177	1.8
19	Recpt	19	3728	2202	1.8
20	Recpt	20	3716	2227	1.8

Fresno HMF SR 99 SB Off-Ramp/ E. American Ave. PM 2035 Build CALINE Output

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Fresno HMF Build Int 6 PM
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

*	*	*	*	PRED			CONC/LINK					
*		*	BRG	CONC			*	(PPM)				
RECEPTOR	*		(DEG)	(PPM)	A	B	C	D	E	F	G	H
1	Recpt	1	198	0	0	0	0	0	0	0	0	0
2	Recpt	2	149	0	0	0	0	0	0	0	0	0
3	Recpt	3	230	0	0	0	0	0	0	0	0	0
4	Recpt	4	232	0	0	0	0	0	0	0	0	0
5	Recpt	5	233	0	0	0	0	0	0	0	0	0
6	Recpt	6	273	0	0	0	0	0	0	0	0	0
7	Recpt	7	275	0	0	0	0	0	0	0	0	0
8	Recpt	8	38	0	0	0	0	0	0	0	0	0
9	Recpt	9	331	0	0	0	0	0	0	0	0	0
10	Recpt	10	334	0	0	0	0	0	0	0	0	0
11	Recpt	11	346	0	0	0	0	0	0	0	0	0
12	Recpt	12	25	0	0	0	0	0	0	0	0	0
13	Recpt	13	46	0	0	0	0	0	0	0	0	0
14	Recpt	14	50	0	0	0	0	0	0	0	0	0
15	Recpt	15	52	0	0	0	0	0	0	0	0	0
16	Recpt	16	78	0	0	0	0	0	0	0	0	0
17	Recpt	17	82	0	0	0	0	0	0	0	0	0
18	Recpt	18	89	0	0	0	0	0	0	0	0	0
19	Recpt	19	109	0	0	0	0	0	0	0	0	0
20	Recpt	20	123	0	0	0	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Fresno HMF Build Int 6 PM
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)
*
* (PPM)
RECEPTOR * I
----------*-----

1	Recpt 1	0
2	Recpt 2	0
3	Recpt 3	0
4	Recpt 4	0
5	Recpt 5	0
6	Recpt 6	0
7	Recpt 7	0
8	Recpt 8	0
9	Recpt 9	0
10	Recpt 10	0
11	Recpt 11	0
12	Recpt 12	0
13	Recpt 13	0
14	Recpt 14	0
15	Recpt 15	0
16	Recpt 16	0
17	Recpt 17	0
18	Recpt 18	0
19	Recpt 19	0
20	Recpt 20	0

Fresno HMF SR 99 NB On-Ramp/ E. American Ave. PM 2009 Existing CALINE Output

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL		
JUNE	1989	VERSION					
PAGE	1						
JOB:	Fresno	HMF	Int	9	PM	Existing	
RUN:	Hour	1	(WORST	CASE	ANGLE)		
POLLUTANT:	Carbon	Monoxide					
I.	SITE	VARIABLES					
U=	1	M/S	Z0=	100	CM	ALT=	0 (M)
BRG=	WORST	CASE	VD=	0	CM/S		
CLAS=	7	(G)	VS=	0	CM/S		
MIXH=	1000	M	AMB=	0	PPM		
SIGTH=	5	DEGREES	TEMP=	2.2	DEGREE	(C)	

II.	LINK	VARIABLES												
LINK	*	LINK	COORDINAT	(M)	*	EF	H	W						
DESCRIPTION	*	X1	Y1	X2	Y2	*	TYPE	VPH	(G/MI)	(M)	(M)			
A.	Link	A	*	7269	825	7304	787	*	AG	10	5.1	0	10	
B.	Link	B	*	7271	827	7336	788	*	AG	96	5.1	0	10	
C.	Link	C	*	7224	736	7304	787	*	AG	10	5.1	0	10	
D.	Link	D	*	7225	733	7354	791	*	AG	54	5.1	0	10	
E.	Link	E	*	7336	788	7448	720	*	AG	96	5.1	0	10	
F.	Link	F	*	7228	729	7334	771	*	AG	74	5.1	0	10	
G.	Link	G	*	7334	771	7446	718	*	AG	74	5.1	0	10	
H.	Link	H	*	7354	791	7450	723	*	AG	54	5.1	0	10	

Fresno HMF SR 99 NB On-Ramp/ E. American Ave. PM 2009 Existing CALINE Output

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Fresno HMF Int 9 PM Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

*		COORDINAT (M)		
RECEPTOR	*	X	Y	Z
1	Recpt 1	7289	824	1.8
2	Recpt 2	7314	809	1.8
3	Recpt 3	7337	795	1.8
4	Recpt 4	7360	807	1.8
5	Recpt 5	7384	790	1.8
6	Recpt 6	7408	772	1.8
7	Recpt 7	7431	754	1.8
8	Recpt 8	7390	744	1.8
9	Recpt 9	7362	756	1.8
10	Recpt 10	7335	762	1.8
11	Recpt 11	7309	757	1.8
12	Recpt 12	7282	748	1.8
13	Recpt 13	7248	757	1.8
14	Recpt 14	7272	772	1.8
15	Recpt 15	7295	786	1.8
16	Recpt 16	7278	805	1.8
17	Recpt 17	7256	825	1.8

Fresno HMF SR 99 NB On-Ramp/ E. American Ave. PM 2009 Existing CALINE Output

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Fresno HMF Int 9 PM Existing
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

*	*	*	*	PRED			CONC/LINK					
*		*	BRG	CONC			(PPM)					
RECEPTOR	*		(DEG)	(PPM)	A	B	C	D	E	F	G	H
1	Recpt	1	127	0	0	0	0	0	0	0	0	0
2	Recpt	2	127	0	0	0	0	0	0	0	0	0
3	Recpt	3	127	0	0	0	0	0	0	0	0	0
4	Recpt	4	235	0	0	0	0	0	0	0	0	0
5	Recpt	5	250	0	0	0	0	0	0	0	0	0
6	Recpt	6	262	0	0	0	0	0	0	0	0	0
7	Recpt	7	273	0	0	0	0	0	0	0	0	0
8	Recpt	8	109	0	0	0	0	0	0	0	0	0
9	Recpt	9	110	0	0	0	0	0	0	0	0	0
10	Recpt	10	105	0	0	0	0	0	0	0	0	0
11	Recpt	11	255	0	0	0	0	0	0	0	0	0
12	Recpt	12	60	0	0	0	0	0	0	0	0	0
13	Recpt	13	90	0	0	0	0	0	0	0	0	0
14	Recpt	14	101	0	0	0	0	0	0	0	0	0
15	Recpt	15	112	0	0	0	0	0	0	0	0	0
16	Recpt	16	114	0	0	0	0	0	0	0	0	0
17	Recpt	17	115	0	0	0	0	0	0	0	0	0

Fresno HMF SR 99 NB On-Ramp/ E. American Ave. PM 2009 Existing Plus Project CALINE Output

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL		
JUNE	1989	VERSION					
PAGE	1						
JOB:	Fresno	HMF	Int	9	PM	Existing+Proj	
RUN:	Hour	1	(WORST	CASE	ANGLE)		
POLLUTANT:	Carbon	Monoxide					
I.	SITE	VARIABLES					
U=	1	M/S	Z0=	100	CM	ALT=	0 (M)
BRG=	WORST	CASE	VD=	0	CM/S		
CLAS=	7	(G)	VS=	0	CM/S		
MIXH=	1000	M	AMB=	0	PPM		
SIGTH=	5	DEGREES	TEMP=	2.2	DEGREE	(C)	
II.	LINK	VARIABLES					

LINK	*		LINK	COORDINATES (M)					EF	H	W
DESCRIPTION	*		X1	Y1	X2	Y2	TYPE	VPH	(G/MI)	(M)	(M)
A.	Link	A	7269	825	7304	787	AG	10	5.1	0	10
B.	Link	B	7271	827	7336	788	AG	96	5.1	0	10
C.	Link	C	7224	736	7304	787	AG	10	5.1	0	10
D.	Link	D	7225	733	7354	791	AG	95	5.1	0	10
E.	Link	E	7336	788	7448	720	AG	96	5.1	0	10
F.	Link	F	7228	729	7334	771	AG	136	5.1	0	10
G.	Link	G	7334	771	7446	718	AG	136	5.1	0	10
H.	Link	H	7354	791	7450	723	AG	95	5.1	0	10

Fresno HMF SR 99 NB On-Ramp/ E. American Ave. PM 2009 Existing Plus Project CALINE Output

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Fresno HMF Int 9 PM Existing+Proj
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

* RECEPTOR	*	COORDINATES (M) X	Y	Z
1	Recpt 1	7289	824	1.8
2	Recpt 2	7314	809	1.8
3	Recpt 3	7337	795	1.8
4	Recpt 4	7360	807	1.8
5	Recpt 5	7384	790	1.8
6	Recpt 6	7408	772	1.8
7	Recpt 7	7431	754	1.8
8	Recpt 8	7390	744	1.8
9	Recpt 9	7362	756	1.8
10	Recpt 10	7335	762	1.8
11	Recpt 11	7309	757	1.8
12	Recpt 12	7282	748	1.8
13	Recpt 13	7248	757	1.8
14	Recpt 14	7272	772	1.8
15	Recpt 15	7295	786	1.8
16	Recpt 16	7278	805	1.8
17	Recpt 17	7256	825	1.8

Fresno HMF SR 99 NB On-Ramp/ E. American Ave. PM 2009 Existing Plus Project CALINE Output

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Fresno HMF Int 9 PM Existing+Proj
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

*	*		*	PRED				CONC/LINK				
*	BRG	*		CONC				*	(PPM)			
RECEPTOR	*	(DEG)	*	(PPM)	A	B	C	D	E	F	G	H
1	Recpt	1	127	0	0	0	0	0	0	0	0	0
2	Recpt	2	127	0	0	0	0	0	0	0	0	0
3	Recpt	3	126	0.1	0	0	0	0	0	0	0	0
4	Recpt	4	235	0	0	0	0	0	0	0	0	0
5	Recpt	5	250	0.1	0	0	0	0	0	0	0	0
6	Recpt	6	262	0	0	0	0	0	0	0	0	0
7	Recpt	7	273	0	0	0	0	0	0	0	0	0
8	Recpt	8	109	0.1	0	0	0	0	0	0	0	0
9	Recpt	9	110	0.1	0	0	0	0	0	0	0	0
10	Recpt	10	105	0.1	0	0	0	0	0	0	0	0
11	Recpt	11	255	0.1	0	0	0	0	0	0	0	0
12	Recpt	12	60	0.1	0	0	0	0	0	0	0	0
13	Recpt	13	90	0	0	0	0	0	0	0	0	0
14	Recpt	14	101	0	0	0	0	0	0	0	0	0
15	Recpt	15	112	0.1	0	0	0	0	0	0	0	0
16	Recpt	16	116	0	0	0	0	0	0	0	0	0
17	Recpt	17	116	0	0	0	0	0	0	0	0	0

Fresno HMF SR 99 NB On-Ramp/ E. American Ave. PM 2035 No Build CALINE Output

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL				
JUNE	1989	VERSION							
PAGE	1								
JOB:	Fresno	HMF	Int	9	PM	No	Build		
RUN:	Hour	1	(WORST	CASE	ANGLE)				
POLLUTANT:	Carbon	Monoxide							
I.	SITE	VARIABLES							
U=	1	M/S	Z0=	100	CM	ALT=	0	(M)	
BRG=	WORST	CASE	VD=	0	CM/S				
CLAS=	7	(G)	VS=	0	CM/S				
MIXH=	1000	M	AMB=	0	PPM				
SIGTH=	5	DEGREES	TEMP=	2.2	DEGREE	(C)			

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK X1	COORDINATES Y1	(M) X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A.	Link A	7269	825	7304	787	AG	20	1	0	10
B.	Link B	7271	827	7336	788	AG	178	1	0	10
C.	Link C	7224	736	7304	787	AG	20	1	0	10
D.	Link D	7225	733	7354	791	AG	79	1	0	10
E.	Link E	7336	788	7448	720	AG	178	1	0	10
F.	Link F	7228	729	7334	771	AG	137	1	0	10
G.	Link G	7334	771	7446	718	AG	137	1	0	10
H.	Link H	7354	791	7450	723	AG	79	1	0	10

Fresno HMF SR 99 NB On-Ramp/ E. American Ave. PM 2035 No Build CALINE Output

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Fresno HMF Int 9 PM No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1	Recpt 1	7289	824	1.8
2	Recpt 2	7314	809	1.8
3	Recpt 3	7337	795	1.8
4	Recpt 4	7360	807	1.8
5	Recpt 5	7384	790	1.8
6	Recpt 6	7408	772	1.8
7	Recpt 7	7431	754	1.8
8	Recpt 8	7390	744	1.8
9	Recpt 9	7362	756	1.8
10	Recpt 10	7335	762	1.8
11	Recpt 11	7309	757	1.8
12	Recpt 12	7282	748	1.8
13	Recpt 13	7248	757	1.8
14	Recpt 14	7272	772	1.8
15	Recpt 15	7295	786	1.8
16	Recpt 16	7278	805	1.8
17	Recpt 17	7256	825	1.8

Fresno HMF SR 99 NB On-Ramp/ E. American Ave. PM 2035 No Build CALINE Output

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Fresno HMF Int 9 PM No Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

*	*			PRED			CONC/LINK					
*		BRG	CONC				*	(PPM)				
RECEPTOR	*	(DEG)	(PPM)	A	B	C	D	E	F	G	H	
1	Recpt 1	127	0	0	0	0	0	0	0	0	0	0
2	Recpt 2	127	0	0	0	0	0	0	0	0	0	0
3	Recpt 3	128	0	0	0	0	0	0	0	0	0	0
4	Recpt 4	235	0	0	0	0	0	0	0	0	0	0
5	Recpt 5	250	0	0	0	0	0	0	0	0	0	0
6	Recpt 6	262	0	0	0	0	0	0	0	0	0	0
7	Recpt 7	273	0	0	0	0	0	0	0	0	0	0
8	Recpt 8	109	0	0	0	0	0	0	0	0	0	0
9	Recpt 9	110	0	0	0	0	0	0	0	0	0	0
10	Recpt 10	105	0	0	0	0	0	0	0	0	0	0
11	Recpt 11	255	0	0	0	0	0	0	0	0	0	0
12	Recpt 12	63	0	0	0	0	0	0	0	0	0	0
13	Recpt 13	90	0	0	0	0	0	0	0	0	0	0
14	Recpt 14	101	0	0	0	0	0	0	0	0	0	0
15	Recpt 15	112	0	0	0	0	0	0	0	0	0	0
16	Recpt 16	115	0	0	0	0	0	0	0	0	0	0
17	Recpt 17	115	0	0	0	0	0	0	0	0	0	0

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL		
JUNE	1989	VERSION					
PAGE	1						
JOB:	Fresno	HMF	Int	9	PM	Build	
RUN:	Hour	1	(WORST	CASE	ANGLE)		
POLLUTANT:	Carbon	Monoxide					
I.	SITE	VARIABLES					
U=	1	M/S	Z0=	100	CM	ALT=	0 (M)
BRG=	WORST	CASE	VD=	0	CM/S		
CLAS=	7	(G)	VS=	0	CM/S		
MIXH=	1000	M	AMB=	0	PPM		
SIGTH=	5	DEGREES	TEMP=	2.2	DEGREE	(C)	

II. LINK VARIABLES

LINK DESCRIPTION	*	*	LINK X1	COORDINATES Y1	(M) X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)	
A.	Link	A	7269	825	7304	787	AG	20	1	0	10	
B.	Link	B	7271	827	7336	788	AG	178	1	0	10	
C.	Link	C	7224	736	7304	787	AG	20	1	0	10	
D.	Link	D	7225	733	7354	791	AG	120	1	0	10	
E.	Link	E	7336	788	7448	720	AG	178	1	0	10	
F.	Link	F	7228	729	7334	771	AG	199	1	0	10	
G.	Link	G	7334	771	7446	718	AG	199	1	0	10	
H.	Link	H	7354	791	7450	723	AG	120	1	0	10	

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Fresno HMF Int 9 PM Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

*		COORDINATES (M)		
RECEPTOR	*	X	Y	Z
1	Recpt 1	7289	824	1.8
2	Recpt 2	7314	809	1.8
3	Recpt 3	7337	795	1.8
4	Recpt 4	7360	807	1.8
5	Recpt 5	7384	790	1.8
6	Recpt 6	7408	772	1.8
7	Recpt 7	7431	754	1.8
8	Recpt 8	7390	744	1.8
9	Recpt 9	7362	756	1.8
10	Recpt 10	7335	762	1.8
11	Recpt 11	7309	757	1.8
12	Recpt 12	7282	748	1.8
13	Recpt 13	7248	757	1.8
14	Recpt 14	7272	772	1.8
15	Recpt 15	7295	786	1.8
16	Recpt 16	7278	805	1.8
17	Recpt 17	7256	825	1.8

Fresno HMF SR 99 NB On-Ramp/ E. American Ave. PM 2035 Build CALINE Output

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Fresno HMF Int 9 PM Build
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

*	*	*	PRED			CONC/LINK					
*		*	BRG	CONC		(PPM)					
RECEPTOR	*		(DEG)	(PPM)	A	B	C	D	E	F	G	H
1	Recpt	1	127	0	0	0	0	0	0	0	0	0
2	Recpt	2	127	0	0	0	0	0	0	0	0	0
3	Recpt	3	128	0	0	0	0	0	0	0	0	0
4	Recpt	4	235	0	0	0	0	0	0	0	0	0
5	Recpt	5	250	0	0	0	0	0	0	0	0	0
6	Recpt	6	262	0	0	0	0	0	0	0	0	0
7	Recpt	7	273	0	0	0	0	0	0	0	0	0
8	Recpt	8	109	0	0	0	0	0	0	0	0	0
9	Recpt	9	110	0	0	0	0	0	0	0	0	0
10	Recpt	10	105	0	0	0	0	0	0	0	0	0
11	Recpt	11	255	0	0	0	0	0	0	0	0	0
12	Recpt	12	63	0	0	0	0	0	0	0	0	0
13	Recpt	13	90	0	0	0	0	0	0	0	0	0
14	Recpt	14	101	0	0	0	0	0	0	0	0	0
15	Recpt	15	112	0	0	0	0	0	0	0	0	0
16	Recpt	16	116	0	0	0	0	0	0	0	0	0
17	Recpt	17	115	0	0	0	0	0	0	0	0	0

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL							
JUNE	1989	VERSION										
PAGE	1											
JOB:	Wasco	HMF	2009	Existing								
RUN:	Hour	1										
POLLUTANT:	Carbon	Monoxide										
I.	SITE	VARIABLES										
U=	1	M/S	Z0=	100	CM	ALT=	0	(M)				
BRG=	0	DEGREES	VD=	0	CM/S							
CLAS=	7	(G)	VS=	0	CM/S							
MIXH=	1000	M	AMB=	0	PPM							
SIGTH=	5	DEGREES	TEMP=	5	DEGREE	(C)						
II.	LINK	VARIABLES										
LINK	*		LINK	COORDINATE	(M)					EF	H	W
DESCRIPTION	*		X1	Y1	X2	Y2	TYPE	VPH		(G/MI)	(M)	(M)
A.	Link	A	9093	2309	9096	2254	AG	77		5.2	0	10
B.	Link	B	9094	2309	9098	2248	AG	102		5.2	0	10
C.	Link	C	9096	2309	9099	2244	AG	13		5.2	0	10
D.	Link	D	9098	2309	9106	2248	AG	98		5.2	0	10
E.	Link	E	9099	2309	9109	2255	AG	7		5.2	0	10
F.	Link	F	9044	2255	9096	2254	AG	77		5.2	0	10
G.	Link	G	9109	2255	9156	2253	AG	7		5.2	0	10
H.	Link	H	9044	2254	9104	2253	AG	211		5.2	0	10
I.	Link	I	9104	2253	9156	2252	AG	199		5.2	0	10
J.	Link	J	9098	2248	9099	2200	AG	143		5.2	0	10
K.	Link	K	9098	2248	9156	2250	AG	41		5.2	0	10
L.	Link	L	9044	2251	9106	2248	AG	57		5.2	0	10
M.	Link	M	9044	2247	9099	2244	AG	193		5.2	0	10
N.	Link	N	9099	2244	9155	2245	AG	206		5.2	0	10
O.	Link	O	9044	2245	9096	2241	AG	23		5.2	0	10
P.	Link	P	9096	2241	9097	2200	AG	23		5.2	0	10
Q.	Link	Q	9104	2253	9102	2200	AG	12		5.2	0	10
R.	Link	R	9106	2248	9104	2200	AG	41		5.2	0	10
S.	Link	S	9109	2242	9107	2200	AG	22		5.2	0	10
T.	Link	T	9109	2242	9155	2243	AG	22		5.2	0	10

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Wasco HMF 2009 Existing
RUN: Hour 1
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

* RECEPTOR	*	COORDINA (M) X	Y	Z
1	Recpt 1	9089	2261	1.8
2	Recpt 2	9070	2261	1.8
3	Recpt 3	9045	2262	1.8
4	Recpt 4	9089	2285	1.8
5	Recpt 5	9088	2310	1.8
6	Recpt 6	9089	2236	1.8
7	Recpt 7	9091	2214	1.8
8	Recpt 8	9092	2189	1.8
9	Recpt 9	9066	2239	1.8
10	Recpt 10	9041	2239	1.8
11	Recpt 11	9116	2237	1.8
12	Recpt 12	9117	2214	1.8
13	Recpt 13	9116	2188	1.8
14	Recpt 14	9141	2237	1.8
15	Recpt 15	9115	2261	1.8
16	Recpt 16	9109	2283	1.8
17	Recpt 17	9105	2308	1.8
18	Recpt 18	9140	2259	1.8
19	Recpt 19	9166	2259	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Wasco HMF 2009 Existing
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.)

*		*	PRED			CONC/LINK							
*		*	CONC			(PPM)							
RECEPTOR	*		(PPM)	A	B	C	D	E	F	G	H	I	J
1	Recpt	1	0	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	0.1	0	0	0	0	0	0	0	0	0	0
7	Recpt	7	0.1	0	0	0	0	0	0	0	0	0	0
8	Recpt	8	0.1	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	0	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	0	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	0	0	0	0	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0	0	0
19	Recpt	19	0	0	0	0	0	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Wasco HMF 2009 Existing
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.) (CONT.)

RECEPTOR	* CONC/LINK (PPM) *	K	L	M	N	O	P	Q	R	S	T
1	Recpt 1	0	0	0	0	0	0	0	0	0	0
2	Recpt 2	0	0	0	0	0	0	0	0	0	0
3	Recpt 3	0	0	0	0	0	0	0	0	0	0
4	Recpt 4	0	0	0	0	0	0	0	0	0	0
5	Recpt 5	0	0	0	0	0	0	0	0	0	0
6	Recpt 6	0	0	0	0	0	0	0	0	0	0
7	Recpt 7	0	0	0	0	0	0	0	0	0	0
8	Recpt 8	0	0	0	0	0	0	0	0	0	0
9	Recpt 9	0	0	0	0	0	0	0	0	0	0
10	Recpt 10	0	0	0	0	0	0	0	0	0	0
11	Recpt 11	0	0	0	0	0	0	0	0	0	0
12	Recpt 12	0	0	0	0	0	0	0	0	0	0
13	Recpt 13	0	0	0	0	0	0	0	0	0	0
14	Recpt 14	0	0	0	0	0	0	0	0	0	0
15	Recpt 15	0	0	0	0	0	0	0	0	0	0
16	Recpt 16	0	0	0	0	0	0	0	0	0	0
17	Recpt 17	0	0	0	0	0	0	0	0	0	0
18	Recpt 18	0	0	0	0	0	0	0	0	0	0
19	Recpt 19	0	0	0	0	0	0	0	0	0	0

Wasco HMF SR 43/Wasco Ave. PM 2009 Existing Plus Project CALINE Output

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL								
JUNE	1989	VERSION											
PAGE	1												
JOB:	Wasco	HMF	2009	Existing	plus	Project							
RUN:	Hour	1											
POLLUTANT:	Carbon	Monoxide											
I.	SITE	VARIABLES											
U=	1	M/S	Z0=	100	CM	ALT=	0	(M)					
BRG=	0	DEGREES	VD=	0	CM/S								
CLAS=	7	(G)	VS=	0	CM/S								
MIXH=	1000	M	AMB=	0	PPM								
SIGTH=	5	DEGREES	TEMP=	5	DEGREE	(C)							
II.	LINK	VARIABLES											
LINK	*		LINK	COORDINATE	(M)					EF	H	W	
DESCRIPTION	*		X1	Y1	X2	Y2	TYPE	VPH		(G/MI)	(M)	(M)	
A.	Link	A	9093	2309	9096	2254	AG	77		5.2	0	10	
B.	Link	B	9094	2309	9098	2248	AG	132		5.2	0	10	
C.	Link	C	9096	2309	9099	2244	AG	20		5.2	0	10	
D.	Link	D	9098	2309	9106	2248	AG	143		5.2	0	10	
E.	Link	E	9099	2309	9109	2255	AG	18		5.2	0	10	
F.	Link	F	9044	2255	9096	2254	AG	77		5.2	0	10	
G.	Link	G	9109	2255	9156	2253	AG	18		5.2	0	10	
H.	Link	H	9044	2254	9104	2253	AG	275		5.2	0	10	
I.	Link	I	9104	2253	9156	2252	AG	231		5.2	0	10	
J.	Link	J	9098	2248	9099	2200	AG	173		5.2	0	10	
K.	Link	K	9098	2248	9156	2250	AG	41		5.2	0	10	
L.	Link	L	9044	2251	9106	2248	AG	57		5.2	0	10	
M.	Link	M	9044	2247	9099	2244	AG	215		5.2	0	10	
N.	Link	N	9099	2244	9155	2245	AG	235		5.2	0	10	
O.	Link	O	9044	2245	9096	2241	AG	45		5.2	0	10	
P.	Link	P	9096	2241	9097	2200	AG	45		5.2	0	10	
Q.	Link	Q	9104	2253	9102	2200	AG	44		5.2	0	10	
R.	Link	R	9106	2248	9104	2200	AG	86		5.2	0	10	
S.	Link	S	9109	2242	9107	2200	AG	22		5.2	0	10	
T.	Link	T	9109	2242	9155	2243	AG	22		5.2	0	10	

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Wasco HMF 2009 Existing plus Project
RUN: Hour 1
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

* RECEPTOR	*	COORDINAT (M) X	Y	Z
1	Recpt 1	9089	2261	1.8
2	Recpt 2	9070	2261	1.8
3	Recpt 3	9045	2262	1.8
4	Recpt 4	9089	2285	1.8
5	Recpt 5	9088	2310	1.8
6	Recpt 6	9089	2236	1.8
7	Recpt 7	9091	2214	1.8
8	Recpt 8	9092	2189	1.8
9	Recpt 9	9066	2239	1.8
10	Recpt 10	9041	2239	1.8
11	Recpt 11	9116	2237	1.8
12	Recpt 12	9117	2214	1.8
13	Recpt 13	9116	2188	1.8
14	Recpt 14	9141	2237	1.8
15	Recpt 15	9115	2261	1.8
16	Recpt 16	9109	2283	1.8
17	Recpt 17	9105	2308	1.8
18	Recpt 18	9140	2259	1.8
19	Recpt 19	9166	2259	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Wasco HMF 2009 Existing plus Project
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.)

*		*	PRED				CONC/LINK						
*		*	CONC				(PPM)						
RECEPTOR	*		(PPM)	A	B	C	D	E	F	G	H	I	J
1	Recpt	1	0	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	0.1	0	0	0	0	0	0	0	0	0	0
7	Recpt	7	0.1	0	0	0	0	0	0	0	0	0	0
8	Recpt	8	0.1	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	0.1	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	0	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	0	0	0	0	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0	0	0
19	Recpt	19	0	0	0	0	0	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Wasco HMF 2009 Existing plus Project
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.) (CONT.)

*	CONC/LINK										
*	(PPM)										
RECEPTOR	*	K	L	M	N	O	P	Q	R	S	T
1	Recpt 1	0	0	0	0	0	0	0	0	0	0
2	Recpt 2	0	0	0	0	0	0	0	0	0	0
3	Recpt 3	0	0	0	0	0	0	0	0	0	0
4	Recpt 4	0	0	0	0	0	0	0	0	0	0
5	Recpt 5	0	0	0	0	0	0	0	0	0	0
6	Recpt 6	0	0	0	0	0	0	0	0	0	0
7	Recpt 7	0	0	0	0	0	0	0	0	0	0
8	Recpt 8	0	0	0	0	0	0	0	0	0	0
9	Recpt 9	0	0	0	0	0	0	0	0	0	0
10	Recpt 10	0	0	0	0	0	0	0	0	0	0
11	Recpt 11	0	0	0	0	0	0	0	0	0	0
12	Recpt 12	0	0	0	0	0	0	0	0	0	0
13	Recpt 13	0	0	0	0	0	0	0	0	0	0
14	Recpt 14	0	0	0	0	0	0	0	0	0	0
15	Recpt 15	0	0	0	0	0	0	0	0	0	0
16	Recpt 16	0	0	0	0	0	0	0	0	0	0
17	Recpt 17	0	0	0	0	0	0	0	0	0	0
18	Recpt 18	0	0	0	0	0	0	0	0	0	0
19	Recpt 19	0	0	0	0	0	0	0	0	0	0

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSI	MODEL								
JUNE	1989	VERSION											
PAGE	1												
JOB:	Wasco	HMF	2035	No	Build								
RUN:	Hour	1											
POLLUTANT:	Carbon	Monoxide											
I.	SITE	VARIABLES											
U=	1	M/S	Z0=	100	CM	ALT=	0	(M)					
BRG=	0	DEGREES	VD=	0	CM/S								
CLAS=	7	(G)	VS=	0	CM/S								
MIXH=	1000	M	AMB=	0	PPM								
SIGTH=	5	DEGREES	TEMP=	5	DEGREE	(C)							
II.	LINK	VARIABLES											
LINK	*		LINK	COORDIN	(M)						EF	H	W
DESCRIPTION	*		X1	Y1	X2	Y2	TYPE	VPH			(G/MI)	(M)	(M)
A.	Link	A	9093	2309	9096	2254	AG	296			1.2	0	10
B.	Link	B	9094	2309	9098	2248	AG	241			1.2	0	10
C.	Link	C	9096	2309	9099	2244	AG	13			1.2	0	10
D.	Link	D	9098	2309	9106	2248	AG	497			1.2	0	10
E.	Link	E	9099	2309	9109	2255	AG	9			1.2	0	10
F.	Link	F	9044	2255	9096	2254	AG	296			1.2	0	10
G.	Link	G	9109	2255	9156	2253	AG	9			1.2	0	10
H.	Link	H	9044	2254	9104	2253	AG	582			1.2	0	10
I.	Link	I	9104	2253	9156	2252	AG	480			1.2	0	10
J.	Link	J	9098	2248	9099	2200	AG	301			1.2	0	10
K.	Link	K	9098	2248	9156	2250	AG	60			1.2	0	10
L.	Link	L	9044	2251	9106	2248	AG	299			1.2	0	10
M.	Link	M	9044	2247	9099	2244	AG	401			1.2	0	10
N.	Link	N	9099	2244	9155	2245	AG	414			1.2	0	10
O.	Link	O	9044	2245	9096	2241	AG	131			1.2	0	10
P.	Link	P	9096	2241	9097	2200	AG	131			1.2	0	10
Q.	Link	Q	9104	2253	9102	2200	AG	102			1.2	0	10
R.	Link	R	9106	2248	9104	2200	AG	198			1.2	0	10
S.	Link	S	9109	2242	9107	2200	AG	13			1.2	0	10
T.	Link	T	9109	2242	9155	2243	AG	13			1.2	0	10

CALINE4: CALIFORNIA LINE SOURCE DISPERSI MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Wasco HMF 2035 No Build
RUN: Hour 1
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

* RECEPTOR	* COORDINATES (M)	X	Y	Z
1	Recpt 1	9089	2261	1.8
2	Recpt 2	9070	2261	1.8
3	Recpt 3	9045	2262	1.8
4	Recpt 4	9089	2285	1.8
5	Recpt 5	9088	2310	1.8
6	Recpt 6	9089	2236	1.8
7	Recpt 7	9091	2214	1.8
8	Recpt 8	9092	2189	1.8
9	Recpt 9	9066	2239	1.8
10	Recpt 10	9041	2239	1.8
11	Recpt 11	9116	2237	1.8
12	Recpt 12	9117	2214	1.8
13	Recpt 13	9116	2188	1.8
14	Recpt 14	9141	2237	1.8
15	Recpt 15	9115	2261	1.8
16	Recpt 16	9109	2283	1.8
17	Recpt 17	9105	2308	1.8
18	Recpt 18	9140	2259	1.8
19	Recpt 19	9166	2259	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSI MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Wasco HMF 2035 No Build
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDE AMB.)

RECEPTOR	*	* PRED CONC (PPM)	A	B	C	D	E	F	G	H	I	J
1	Recpt 1	0	0	0	0	0	0	0	0	0	0	0
2	Recpt 2	0	0	0	0	0	0	0	0	0	0	0
3	Recpt 3	0	0	0	0	0	0	0	0	0	0	0
4	Recpt 4	0	0	0	0	0	0	0	0	0	0	0
5	Recpt 5	0	0	0	0	0	0	0	0	0	0	0
6	Recpt 6	0	0	0	0	0	0	0	0	0	0	0
7	Recpt 7	0	0	0	0	0	0	0	0	0	0	0
8	Recpt 8	0	0	0	0	0	0	0	0	0	0	0
9	Recpt 9	0	0	0	0	0	0	0	0	0	0	0
10	Recpt 10	0	0	0	0	0	0	0	0	0	0	0
11	Recpt 11	0	0	0	0	0	0	0	0	0	0	0
12	Recpt 12	0	0	0	0	0	0	0	0	0	0	0
13	Recpt 13	0	0	0	0	0	0	0	0	0	0	0
14	Recpt 14	0	0	0	0	0	0	0	0	0	0	0
15	Recpt 15	0	0	0	0	0	0	0	0	0	0	0
16	Recpt 16	0	0	0	0	0	0	0	0	0	0	0
17	Recpt 17	0	0	0	0	0	0	0	0	0	0	0
18	Recpt 18	0	0	0	0	0	0	0	0	0	0	0
19	Recpt 19	0	0	0	0	0	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSI MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Wasco HMF 2035 No Build
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDE AMB.) (CONT.)

*	CONC/LINK										
*	(PPM)										
RECEPTOR	*	K	L	M	N	O	P	Q	R	S	T
1	Recpt 1	0	0	0	0	0	0	0	0	0	0
2	Recpt 2	0	0	0	0	0	0	0	0	0	0
3	Recpt 3	0	0	0	0	0	0	0	0	0	0
4	Recpt 4	0	0	0	0	0	0	0	0	0	0
5	Recpt 5	0	0	0	0	0	0	0	0	0	0
6	Recpt 6	0	0	0	0	0	0	0	0	0	0
7	Recpt 7	0	0	0	0	0	0	0	0	0	0
8	Recpt 8	0	0	0	0	0	0	0	0	0	0
9	Recpt 9	0	0	0	0	0	0	0	0	0	0
10	Recpt 10	0	0	0	0	0	0	0	0	0	0
11	Recpt 11	0	0	0	0	0	0	0	0	0	0
12	Recpt 12	0	0	0	0	0	0	0	0	0	0
13	Recpt 13	0	0	0	0	0	0	0	0	0	0
14	Recpt 14	0	0	0	0	0	0	0	0	0	0
15	Recpt 15	0	0	0	0	0	0	0	0	0	0
16	Recpt 16	0	0	0	0	0	0	0	0	0	0
17	Recpt 17	0	0	0	0	0	0	0	0	0	0
18	Recpt 18	0	0	0	0	0	0	0	0	0	0
19	Recpt 19	0	0	0	0	0	0	0	0	0	0

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSI	MODEL								
JUNE	1989	VERSION											
PAGE	1												
JOB:	Wasco	HMF	2035	Build									
RUN:	Hour	1											
POLLUTANT:	Carbon	Monoxide											
I.	SITE	VARIABLES											
U=	1	M/S	Z0=	100	CM	ALT=	0	(M)					
BRG=	0	DEGREES	VD=	0	CM/S								
CLAS=	7	(G)	VS=	0	CM/S								
MIXH=	1000	M	AMB=	0	PPM								
SIGTH=	5	DEGREES	TEMP=	5	DEGREE	(C)							
II.	LINK	VARIABLES											
LINK	*		LINK	COORDIN	(M)					EF	H	W	
DESCRIPTION	*		X1	Y1	X2	Y2	TYPE	VPH		(G/MI)	(M)	(M)	
A.	Link	A	9093	2309	9096	2254	AG	296		1.2	0	10	
B.	Link	B	9094	2309	9098	2248	AG	271		1.2	0	10	
C.	Link	C	9096	2309	9099	2244	AG	20		1.2	0	10	
D.	Link	D	9098	2309	9106	2248	AG	542		1.2	0	10	
E.	Link	E	9099	2309	9109	2255	AG	20		1.2	0	10	
F.	Link	F	9044	2255	9096	2254	AG	296		1.2	0	10	
G.	Link	G	9109	2255	9156	2253	AG	20		1.2	0	10	
H.	Link	H	9044	2254	9104	2253	AG	646		1.2	0	10	
I.	Link	I	9104	2253	9156	2252	AG	512		1.2	0	10	
J.	Link	J	9098	2248	9099	2200	AG	331		1.2	0	10	
K.	Link	K	9098	2248	9156	2250	AG	60		1.2	0	10	
L.	Link	L	9044	2251	9106	2248	AG	299		1.2	0	10	
M.	Link	M	9044	2247	9099	2244	AG	423		1.2	0	10	
N.	Link	N	9099	2244	9155	2245	AG	443		1.2	0	10	
O.	Link	O	9044	2245	9096	2241	AG	153		1.2	0	10	
P.	Link	P	9096	2241	9097	2200	AG	153		1.2	0	10	
Q.	Link	Q	9104	2253	9102	2200	AG	134		1.2	0	10	
R.	Link	R	9106	2248	9104	2200	AG	243		1.2	0	10	
S.	Link	S	9109	2242	9107	2200	AG	42		1.2	0	10	
T.	Link	T	9109	2242	9155	2243	AG	42		1.2	0	10	

CALINE4: CALIFORNIA LINE SOURCE DISPERSI MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Wasco HMF 2035 Build
RUN: Hour 1
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

*	COORDINATES (M)			
RECEPTOR	*	X	Y	Z
1	Recpt 1	9089	2261	1.8
2	Recpt 2	9070	2261	1.8
3	Recpt 3	9045	2262	1.8
4	Recpt 4	9089	2285	1.8
5	Recpt 5	9088	2310	1.8
6	Recpt 6	9089	2236	1.8
7	Recpt 7	9091	2214	1.8
8	Recpt 8	9092	2189	1.8
9	Recpt 9	9066	2239	1.8
10	Recpt 10	9041	2239	1.8
11	Recpt 11	9116	2237	1.8
12	Recpt 12	9117	2214	1.8
13	Recpt 13	9116	2188	1.8
14	Recpt 14	9141	2237	1.8
15	Recpt 15	9115	2261	1.8
16	Recpt 16	9109	2283	1.8
17	Recpt 17	9105	2308	1.8
18	Recpt 18	9140	2259	1.8
19	Recpt 19	9166	2259	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSI MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Wasco HMF 2035 Build
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDE AMB.)

RECEPTOR	*	* *	PRED CONC (PPM)	A	CONC/LINK (PPM) B	C	D	E	F	G	H	I	J
1	Recpt	1	0	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	0	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	0	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	0	0	0	0	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0	0	0
19	Recpt	19	0	0	0	0	0	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSI MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Wasco HMF 2035 Build
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDE AMB.) (CONT.)

RECEPTOR	* CONC/LINK (PPM) *	K	L	M	N	O	P	Q	R	S	T
1	Recpt	1	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0
9	Recpt	9	0	0	0	0	0	0	0	0	0
10	Recpt	10	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0
16	Recpt	16	0	0	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0
19	Recpt	19	0	0	0	0	0	0	0	0	0

Wasco HMF Wasco Ave.-J St./6th St. PM 2009 Existing CALINE Output

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL								
JUNE	1989	VERSION											
PAGE	1												
JOB:	Wasco	HMF	2009	Existing									
RUN:	Hour	1											
POLLUTANT:	Carbon	Monoxide											
I.	SITE	VARIABLES											
U=	1	M/S	Z0=	100	CM	ALT=	0	(M)					
BRG=	0	DEGREES	VD=	0	CM/S								
CLAS=	7	(G)	VS=	0	CM/S								
MIXH=	1000	M	AMB=	0	PPM								
SIGTH=	5	DEGREES	TEMP=	5	DEGREE	(C)							
II.	LINK	VARIABLES											
LINK	*		LINK	COORDINATES	(M)					EF	H	W	
DESCRIPTION	*		X1	Y1	X2	Y2	TYPE	VPH		(G/MI)	(M)	(M)	
A.	Link	A	9076	1641	9073	1591	AG	26		5.2	0	10	
B.	Link	B	9080	1641	9076	1532	AG	136		5.2	0	10	
C.	Link	C	9086	1641	9085	1581	AG	75		5.2	0	10	
D.	Link	D	9030	1592	9073	1591	AG	26		5.2	0	10	
E.	Link	E	9030	1589	9081	1588	AG	9		5.2	0	10	
F.	Link	F	9081	1588	9138	1588	AG	0		5.2	0	10	
G.	Link	G	9030	1584	9085	1581	AG	17		5.2	0	10	
H.	Link	H	9030	1581	9074	1577	AG	6		5.2	0	10	
I.	Link	I	9087	1586	9138	1585	AG	0		5.2	0	10	
J.	Link	J	9074	1577	9072	1532	AG	6		5.2	0	10	
K.	Link	K	9081	1588	9080	1532	AG	9		5.2	0	10	
L.	Link	L	9085	1532	9085	1581	AG	58		5.2	0	10	
M.	Link	M	9087	1586	9089	1532	AG	0		5.2	0	10	

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Wasco HMF 2009 Existing
RUN: Hour 1
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

* RECEPTOR	* COORDINATES (M)	X	Y	Z
1	Recpt 1	9066	1573	1.8
2	Recpt 2	9067	1551	1.8
3	Recpt 3	9066	1526	1.8
4	Recpt 4	9043	1575	1.8
5	Recpt 5	9018	1575	1.8
6	Recpt 6	9069	1597	1.8
7	Recpt 7	9069	1619	1.8
8	Recpt 8	9070	1644	1.8
9	Recpt 9	9046	1598	1.8
10	Recpt 10	9021	1598	1.8
11	Recpt 11	9093	1594	1.8
12	Recpt 12	9091	1616	1.8
13	Recpt 13	9092	1641	1.8
14	Recpt 14	9115	1595	1.8
15	Recpt 15	9140	1595	1.8
16	Recpt 16	9093	1580	1.8
17	Recpt 17	9093	1560	1.8
18	Recpt 18	9092	1535	1.8
19	Recpt 19	9116	1580	1.8
20	Recpt 20	9141	1579	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Wasco HMF 2009 Existing
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDE AMB.)

*		*	PRED		CONC/LINK								
*		*	CONC		(PPM)								
RECEPTOR	*		(PPM)	A	B	C	D	E	F	G	H	I	J
1	Recpt	1	0	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	0	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	0	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	0	0	0	0	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0	0	0
19	Recpt	19	0	0	0	0	0	0	0	0	0	0	0
20	Recpt	20	0	0	0	0	0	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL

JUNE 1989 VERSION
PAGE 4

JOB: Wasco HMF 2009 Existing
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDE AMB.) (CONT.)

RECEPTOR	* CONC/LINK (PPM) *	K	L	M	
1	Recpt	1	0	0	0
2	Recpt	2	0	0	0
3	Recpt	3	0	0	0
4	Recpt	4	0	0	0
5	Recpt	5	0	0	0
6	Recpt	6	0	0	0
7	Recpt	7	0	0	0
8	Recpt	8	0	0	0
9	Recpt	9	0	0	0
10	Recpt	10	0	0	0
11	Recpt	11	0	0	0
12	Recpt	12	0	0	0
13	Recpt	13	0	0	0
14	Recpt	14	0	0	0
15	Recpt	15	0	0	0
16	Recpt	16	0	0	0
17	Recpt	17	0	0	0
18	Recpt	18	0	0	0
19	Recpt	19	0	0	0
20	Recpt	20	0	0	0

Wasco HMF Wasco Ave.-J St./6th St. PM 2009 Existing Plus Project CALINE Output

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL							
JUNE	1989	VERSION										
PAGE	1											
JOB:	Wasco	HMF	2009	Existing	plus	project						
RUN:	Hour	1										
POLLUTANT:	Carbon	Monoxide										
I.	SITE	VARIABLES										
U=	1	M/S	Z0=	100	CM	ALT=	0	(M)				
BRG=	0	DEGREES	VD=	0	CM/S							
CLAS=	7	(G)	VS=	0	CM/S							
MIXH=	1000	M	AMB=	0	PPM							
SIGTH=	5	DEGREES	TEMP=	5	DEGREE	(C)						
II.	LINK	VARIABLES										
LINK	*		LINK	COORDINATE	(M)					EF	H	W
DESCRIPTION	*		X1	Y1	X2	Y2	TYPE	VPH		(G/MI)	(M)	(M)
A.	Link	A	9076	1641	9073	1591	AG	26		5.2	0	10
B.	Link	B	9080	1641	9076	1532	AG	161		5.2	0	10
C.	Link	C	9086	1641	9085	1581	AG	92		5.2	0	10
D.	Link	D	9030	1592	9073	1591	AG	26		5.2	0	10
E.	Link	E	9030	1589	9081	1588	AG	9		5.2	0	10
F.	Link	F	9081	1588	9138	1588	AG	0		5.2	0	10
G.	Link	G	9030	1584	9085	1581	AG	17		5.2	0	10
H.	Link	H	9030	1581	9074	1577	AG	6		5.2	0	10
I.	Link	I	9087	1586	9138	1585	AG	0		5.2	0	10
J.	Link	J	9074	1577	9072	1532	AG	6		5.2	0	10
K.	Link	K	9081	1588	9080	1532	AG	9		5.2	0	10
L.	Link	L	9085	1532	9085	1581	AG	75		5.2	0	10
M.	Link	M	9087	1586	9089	1532	AG	0		5.2	0	10

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2
JOB: Wasco HMF 2009 Existing plus project
RUN: Hour 1
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

*		COORDINA- (M)		
RECEPTOR	*	X	Y	Z
1	Recpt 1	9066	1573	1.8
2	Recpt 2	9067	1551	1.8
3	Recpt 3	9066	1526	1.8
4	Recpt 4	9043	1575	1.8
5	Recpt 5	9018	1575	1.8
6	Recpt 6	9069	1597	1.8
7	Recpt 7	9069	1619	1.8
8	Recpt 8	9070	1644	1.8
9	Recpt 9	9046	1598	1.8
10	Recpt 10	9021	1598	1.8
11	Recpt 11	9093	1594	1.8
12	Recpt 12	9091	1616	1.8
13	Recpt 13	9092	1641	1.8
14	Recpt 14	9115	1595	1.8
15	Recpt 15	9140	1595	1.8
16	Recpt 16	9093	1580	1.8
17	Recpt 17	9093	1560	1.8
18	Recpt 18	9092	1535	1.8
19	Recpt 19	9116	1580	1.8
20	Recpt 20	9141	1579	1.8

Wasco HMF Wasco Ave.-J St./6th St. PM 2009 Existing Plus Project CALINE Output

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL								
JUNE	1989	VERSION											
PAGE	3												
JOB:	Wasco	HMF	2009	Existing	plus	project							
RUN:	Hour	1											
POLLUTANT:	Carbon	Monoxide											
IV.	MODEL	RESULTS	(PRED.	CONC.	INCLUDE	AMB.)							
*		*	PRED		CONC/LINK								
*		*	CONC		(PPM)								
RECEPTOR	*		(PPM)	A	B	C	D	E	F	G	H	I	J
1	Recpt	1	0	0	0	0	0	0	0	0	0	0	0
2	Recpt	2	0	0	0	0	0	0	0	0	0	0	0
3	Recpt	3	0	0	0	0	0	0	0	0	0	0	0
4	Recpt	4	0	0	0	0	0	0	0	0	0	0	0
5	Recpt	5	0	0	0	0	0	0	0	0	0	0	0
6	Recpt	6	0	0	0	0	0	0	0	0	0	0	0
7	Recpt	7	0	0	0	0	0	0	0	0	0	0	0
8	Recpt	8	0	0	0	0	0	0	0	0	0	0	0
9	Recpt	9	0	0	0	0	0	0	0	0	0	0	0
10	Recpt	10	0	0	0	0	0	0	0	0	0	0	0
11	Recpt	11	0	0	0	0	0	0	0	0	0	0	0
12	Recpt	12	0	0	0	0	0	0	0	0	0	0	0
13	Recpt	13	0	0	0	0	0	0	0	0	0	0	0
14	Recpt	14	0	0	0	0	0	0	0	0	0	0	0
15	Recpt	15	0	0	0	0	0	0	0	0	0	0	0
16	Recpt	16	0	0	0	0	0	0	0	0	0	0	0
17	Recpt	17	0	0	0	0	0	0	0	0	0	0	0
18	Recpt	18	0	0	0	0	0	0	0	0	0	0	0
19	Recpt	19	0	0	0	0	0	0	0	0	0	0	0
20	Recpt	20	0	0	0	0	0	0	0	0	0	0	0

Wasco HMF Wasco Ave.-J St./6th St. PM 2009 Existing Plus Project CALINE Output

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4
JOB: Wasco HMF 2009 Existing plus project
RUN: Hour 1
POLLUTANT: Carbon Monoxide
IV. MODEL RESULTS (PRED. CONC. INCLUDE AMB.) (CONT.)

*	CONC/LINK (PPM)			
RECEPTOR	*	K	L	M
1	Recpt 1	0	0	0
2	Recpt 2	0	0	0
3	Recpt 3	0	0	0
4	Recpt 4	0	0	0
5	Recpt 5	0	0	0
6	Recpt 6	0	0	0
7	Recpt 7	0	0	0
8	Recpt 8	0	0	0
9	Recpt 9	0	0	0
10	Recpt 10	0	0	0
11	Recpt 11	0	0	0
12	Recpt 12	0	0	0
13	Recpt 13	0	0	0
14	Recpt 14	0	0	0
15	Recpt 15	0	0	0
16	Recpt 16	0	0	0
17	Recpt 17	0	0	0
18	Recpt 18	0	0	0
19	Recpt 19	0	0	0
20	Recpt 20	0	0	0

Wasco HMF Wasco Ave.-J St./6th St. PM 2035 No Build CALINE Output

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL						
JUNE	1989	VERSION									
PAGE	1										
JOB:	Wasco	HMF	2035	No	Build						
RUN:	Hour	1									
POLLUTANT:	Carbon	Monoxide									
I.	SITE	VARIABLES									
U=	1	M/S	Z0=	100	CM	ALT=	0 (M)				
BRG=	0	DEGREES	VD=	0	CM/S						
CLAS=	7	(G)	VS=	0	CM/S						
MIXH=	1000	M	AMB=	0	PPM						
SIGTH=	5	DEGREES	TEMP=	5	DEGREE	(C)					
II.	LINK	VARIABLES									
LINK	*		LINK	COORDINATES	(M)				EF	H	W
DESCRIPTION	*		X1	Y1	X2	Y2	TYPE	VPH	(G/MI)	(M)	(M)
A.	Link	A	9076	1641	9073	1591	AG	69	1.2	0	10
B.	Link	B	9080	1641	9076	1532	AG	356	1.2	0	10
C.	Link	C	9086	1641	9085	1581	AG	343	1.2	0	10
D.	Link	D	9030	1592	9073	1591	AG	69	1.2	0	10
E.	Link	E	9030	1589	9081	1588	AG	9	1.2	0	10
F.	Link	F	9081	1588	9138	1588	AG	0	1.2	0	10
G.	Link	G	9030	1584	9085	1581	AG	60	1.2	0	10
H.	Link	H	9030	1581	9074	1577	AG	6	1.2	0	10
I.	Link	I	9087	1586	9138	1585	AG	0	1.2	0	10
J.	Link	J	9074	1577	9072	1532	AG	6	1.2	0	10
K.	Link	K	9081	1588	9080	1532	AG	9	1.2	0	10
L.	Link	L	9085	1532	9085	1581	AG	283	1.2	0	10
M.	Link	M	9087	1586	9089	1532	AG	0	1.2	0	10

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2
JOB: Wasco HMF 2035 No Build
RUN: Hour 1
POLLUTANT: Carbon Monoxide
III. RECEPTOR LOCATIONS

*		COORDINAT (M)		
RECEPTOR	*	X	Y	Z
----------*----------				
1	Recpt 1	9066	1573	1.8
2	Recpt 2	9067	1551	1.8
3	Recpt 3	9066	1526	1.8
4	Recpt 4	9043	1575	1.8
5	Recpt 5	9018	1575	1.8
6	Recpt 6	9069	1597	1.8
7	Recpt 7	9069	1619	1.8
8	Recpt 8	9070	1644	1.8
9	Recpt 9	9046	1598	1.8
10	Recpt 10	9021	1598	1.8
11	Recpt 11	9093	1594	1.8
12	Recpt 12	9091	1616	1.8
13	Recpt 13	9092	1641	1.8
14	Recpt 14	9115	1595	1.8
15	Recpt 15	9140	1595	1.8
16	Recpt 16	9093	1580	1.8
17	Recpt 17	9093	1560	1.8
18	Recpt 18	9092	1535	1.8
19	Recpt 19	9116	1580	1.8
20	Recpt 20	9141	1579	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Wasco HMF 2035 No Build
RUN: Hour 1
POLLUTANT: Carbon Monoxide
IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.)
* * PRED CONC/LINK
* * CONC (PPM)

RECEPTOR	*	(PPM)	A	B	C	D	E	F	G	H	I	J
1	Recpt 1	0	0	0	0	0	0	0	0	0	0	0
2	Recpt 2	0	0	0	0	0	0	0	0	0	0	0
3	Recpt 3	0	0	0	0	0	0	0	0	0	0	0
4	Recpt 4	0	0	0	0	0	0	0	0	0	0	0
5	Recpt 5	0	0	0	0	0	0	0	0	0	0	0
6	Recpt 6	0	0	0	0	0	0	0	0	0	0	0
7	Recpt 7	0	0	0	0	0	0	0	0	0	0	0
8	Recpt 8	0	0	0	0	0	0	0	0	0	0	0
9	Recpt 9	0	0	0	0	0	0	0	0	0	0	0
10	Recpt 10	0	0	0	0	0	0	0	0	0	0	0
11	Recpt 11	0	0	0	0	0	0	0	0	0	0	0
12	Recpt 12	0	0	0	0	0	0	0	0	0	0	0
13	Recpt 13	0	0	0	0	0	0	0	0	0	0	0
14	Recpt 14	0	0	0	0	0	0	0	0	0	0	0
15	Recpt 15	0	0	0	0	0	0	0	0	0	0	0
16	Recpt 16	0	0	0	0	0	0	0	0	0	0	0
17	Recpt 17	0	0	0	0	0	0	0	0	0	0	0
18	Recpt 18	0	0	0	0	0	0	0	0	0	0	0
19	Recpt 19	0	0	0	0	0	0	0	0	0	0	0
20	Recpt 20	0	0	0	0	0	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4
JOB: Wasco HMF 2035 No Build
RUN: Hour 1
POLLUTANT: Carbon Monoxide
IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.) (CONT.)

*		CONC/LINK (PPM)			
RECEPTOR	*	K	L	M	
1	Recpt 1	0	0	0	
2	Recpt 2	0	0	0	
3	Recpt 3	0	0	0	
4	Recpt 4	0	0	0	
5	Recpt 5	0	0	0	
6	Recpt 6	0	0	0	
7	Recpt 7	0	0	0	
8	Recpt 8	0	0	0	
9	Recpt 9	0	0	0	
10	Recpt 10	0	0	0	
11	Recpt 11	0	0	0	
12	Recpt 12	0	0	0	
13	Recpt 13	0	0	0	
14	Recpt 14	0	0	0	
15	Recpt 15	0	0	0	
16	Recpt 16	0	0	0	
17	Recpt 17	0	0	0	
18	Recpt 18	0	0	0	
19	Recpt 19	0	0	0	
20	Recpt 20	0	0	0	

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL							
JUNE	1989	VERSION										
PAGE	1											
JOB:	Wasco	HMF	2035	Build								
RUN:	Hour	1										
POLLUTANT:	Carbon	Monoxide										
I.	SITE	VARIABLES										
U=	1	M/S	Z0=	100	CM	ALT=	0	(M)				
BRG=	0	DEGREES	VD=	0	CM/S							
CLAS=	7	(G)	VS=	0	CM/S							
MIXH=	1000	M	AMB=	0	PPM							
SIGTH=	5	DEGREES	TEMP=	5	DEGREE	(C)						
II.	LINK	VARIABLES										
LINK	*		LINK	COORDINATES	(M)					EF	H	W
DESCRIPTION	*		X1	Y1	X2	Y2	TYPE	VPH		(G/MI)	(M)	(M)
A.	Link	A	9076	1641	9073	1591	AG	69		1.2	0	10
B.	Link	B	9080	1641	9076	1532	AG	381		1.2	0	10
C.	Link	C	9086	1641	9085	1581	AG	360		1.2	0	10
D.	Link	D	9030	1592	9073	1591	AG	69		1.2	0	10
E.	Link	E	9030	1589	9081	1588	AG	9		1.2	0	10
F.	Link	F	9081	1588	9138	1588	AG	0		1.2	0	10
G.	Link	G	9030	1584	9085	1581	AG	60		1.2	0	10
H.	Link	H	9030	1581	9074	1577	AG	6		1.2	0	10
I.	Link	I	9087	1586	9138	1585	AG	0		1.2	0	10
J.	Link	J	9074	1577	9072	1532	AG	6		1.2	0	10
K.	Link	K	9081	1588	9080	1532	AG	9		1.2	0	10
L.	Link	L	9085	1532	9085	1581	AG	300		1.2	0	10
M.	Link	M	9087	1586	9089	1532	AG	0		1.2	0	10

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Wasco HMF 2035 Build
RUN: Hour 1
POLLUTANT: Carbon Monoxide
III. RECEPTOR LOCATIONS

*	COORDINATES (M)			
RECEPTOR	*	X	Y	Z
1	Recpt 1	9066	1573	1.8
2	Recpt 2	9067	1551	1.8
3	Recpt 3	9066	1526	1.8
4	Recpt 4	9043	1575	1.8
5	Recpt 5	9018	1575	1.8
6	Recpt 6	9069	1597	1.8
7	Recpt 7	9069	1619	1.8
8	Recpt 8	9070	1644	1.8
9	Recpt 9	9046	1598	1.8
10	Recpt 10	9021	1598	1.8
11	Recpt 11	9093	1594	1.8
12	Recpt 12	9091	1616	1.8
13	Recpt 13	9092	1641	1.8
14	Recpt 14	9115	1595	1.8
15	Recpt 15	9140	1595	1.8
16	Recpt 16	9093	1580	1.8
17	Recpt 17	9093	1560	1.8
18	Recpt 18	9092	1535	1.8
19	Recpt 19	9116	1580	1.8
20	Recpt 20	9141	1579	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3
JOB: Wasco HMF 2035 Build
RUN: Hour 1
POLLUTANT: Carbon Monoxide
IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.)

RECEPTOR	*	* PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H	I	J
1	Recpt 1	0	0	0	0	0	0	0	0	0	0	0
2	Recpt 2	0	0	0	0	0	0	0	0	0	0	0
3	Recpt 3	0	0	0	0	0	0	0	0	0	0	0
4	Recpt 4	0	0	0	0	0	0	0	0	0	0	0
5	Recpt 5	0	0	0	0	0	0	0	0	0	0	0
6	Recpt 6	0	0	0	0	0	0	0	0	0	0	0
7	Recpt 7	0	0	0	0	0	0	0	0	0	0	0
8	Recpt 8	0	0	0	0	0	0	0	0	0	0	0
9	Recpt 9	0	0	0	0	0	0	0	0	0	0	0
10	Recpt 10	0	0	0	0	0	0	0	0	0	0	0
11	Recpt 11	0	0	0	0	0	0	0	0	0	0	0
12	Recpt 12	0	0	0	0	0	0	0	0	0	0	0
13	Recpt 13	0	0	0	0	0	0	0	0	0	0	0
14	Recpt 14	0	0	0	0	0	0	0	0	0	0	0
15	Recpt 15	0	0	0	0	0	0	0	0	0	0	0
16	Recpt 16	0	0	0	0	0	0	0	0	0	0	0
17	Recpt 17	0	0	0	0	0	0	0	0	0	0	0
18	Recpt 18	0	0	0	0	0	0	0	0	0	0	0
19	Recpt 19	0	0	0	0	0	0	0	0	0	0	0
20	Recpt 20	0	0	0	0	0	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4
JOB: Wasco HMF 2035 Build
RUN: Hour 1
POLLUTANT: Carbon Monoxide
IV. MODEL RESULTS (PRED. CONC. INCLUDE AMB.) (CONT.)
* CONC/LINK
* (PPM)

RECEPTOR	*	K	L	M	
1	Recpt	1	0	0	0
2	Recpt	2	0	0	0
3	Recpt	3	0	0	0
4	Recpt	4	0	0	0
5	Recpt	5	0	0	0
6	Recpt	6	0	0	0
7	Recpt	7	0	0	0
8	Recpt	8	0	0	0
9	Recpt	9	0	0	0
10	Recpt	10	0	0	0
11	Recpt	11	0	0	0
12	Recpt	12	0	0	0
13	Recpt	13	0	0	0
14	Recpt	14	0	0	0
15	Recpt	15	0	0	0
16	Recpt	16	0	0	0
17	Recpt	17	0	0	0
18	Recpt	18	0	0	0
19	Recpt	19	0	0	0
20	Recpt	20	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Fresno Mariposa 2035 Run 1
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 5. DEGREES TEMP= 2.2 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTIC	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Link A	3654	7299	3788	7246	PK	2	183.0	.0	10.0
B. Link B	3788	7246	3761	7186	PK	2	183.0	.0	10.0
C. Link C	3761	7186	3628	7239	PK	2	183.0	.0	10.0
D. Link D	3628	7239	3654	7299	PK	2	183.0	.0	10.0
E. Link E	3657	7295	3784	7244	PK	2	183.0	.0	10.0
F. Link F	3784	7244	3758	7190	PK	2	183.0	.0	10.0
G. Link G	3758	7190	3632	7241	PK	2	183.0	.0	10.0
H. Link H	3632	7241	3657	7295	PK	2	183.0	.0	10.0
I. Link I	3470	7258	3554	7228	PK	2	50.0	.0	10.0
J. Link J	3554	7228	3516	7143	PK	2	50.0	.0	10.0
K. Link K	3516	7143	3434	7180	PK	2	50.0	.0	10.0
L. Link L	3434	7180	3470	7258	PK	2	50.0	.0	10.0
M. Link M	3665	7184	3748	7149	PK	2	50.0	.0	10.0
N. Link N	3748	7149	3713	7059	PK	2	50.0	.0	10.0
O. Link O	3713	7059	3627	7096	PK	2	50.0	.0	10.0
P. Link P	3627	7096	3665	7184	PK	2	50.0	.0	10.0
Q. Link Q	3935	7071	4065	7016	PK	2	183.0	.0	10.0
R. Link R	4065	7016	4032	6943	PK	2	183.0	.0	10.0
S. Link S	4032	6943	3905	6995	PK	2	183.0	.0	10.0
T. Link T	3905	6995	3935	7071	PK	2	183.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Fresno Mariposa 2035 Run 1
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	3649	7302	1.8
2. Recpt 2	3794	7245	1.8
3. Recpt 3	3765	7179	1.8
4. Recpt 4	3623	7236	1.8
5. Recpt 5	3463	7258	1.8
6. Recpt 6	3547	7235	1.8
7. Recpt 7	3507	7143	1.8
8. Recpt 8	3433	7181	1.8
9. Recpt 9	3663	7188	1.8
10. Recpt 10	3754	7152	1.8
11. Recpt 11	3717	7059	1.8
12. Recpt 12	3621	7096	1.8
13. Recpt 13	3933	7077	1.8
14. Recpt 14	4064	7025	1.8
15. Recpt 15	4026	6941	1.8
16. Recpt 16	3897	6991	1.8
17. Recpt 17	3277	7350	1.8
18. Recpt 18	3422	7280	1.8
19. Recpt 19	3402	7196	1.8
20. Recpt 20	3230	7270	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Fresno Mariposa 2035 Run 1
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	PRED CONC (PPM)	PRED CONC (PPM)
1. Recpt 1	114	0.3	.1	.0	.0	.0	.1	.0	.0	.0	0	0.1
2. Recpt 2	289	0.3	.1	.0	.0	.0	.1	.0	.0	.0	0	0
3. Recpt 3	297	0.2	.0	.0	.1	.0	.0	.0	.1	.0	0	0
4. Recpt 4	107	0.2	.0	.0	.1	.0	.0	.0	.0	.0	0	0.2
5. Recpt 5	100	0.1	.0	.0	.0	.0	.0	.0	.0	.0	0.2	0.2
6. Recpt 6	97	0.1	.0	.0	.0	.0	.0	.0	.0	.0	0.1	0
7. Recpt 7	49	0	.0	.0	.0	.0	.0	.0	.0	.0	0.1	0
8. Recpt 8	77	0	.0	.0	.0	.0	.0	.0	.0	.0	0.2	0
9. Recpt 9	82	0	.0	.0	.0	.0	.0	.0	.0	.0	0	0.1
10. Recpt 10	16	0.1	.0	.0	.0	.0	.0	.0	.0	.0	0	0
11. Recpt 11	18	0.1	.0	.0	.0	.0	.0	.0	.0	.0	0	0
12. Recpt 12	51	0	.0	.0	.0	.0	.0	.0	.0	.0	0	0
13. Recpt 13	117	0.1	.0	.0	.0	.0	.0	.0	.0	.0	0.2	0
14. Recpt 14	200	0.1	.0	.0	.0	.0	.0	.0	.0	.0	0.2	0
15. Recpt 15	297	0.1	.0	.0	.0	.0	.0	.0	.0	.0	0.2	0
16. Recpt 16	29	0.1	.0	.0	.0	.0	.0	.0	.0	.0	0.2	0
17. Recpt 17	107	0	.0	.0	.0	.0	.0	.0	.0	.0	0.3	0
18. Recpt 18	103	0	.0	.0	.0	.0	.0	.0	.0	.0	0.3	0
19. Recpt 19	82	0	.0	.0	.0	.0	.0	.0	.0	.0	0.3	0
20. Recpt 20	95	0	.0	.0	.0	.0	.0	.0	.0	.0	0.3	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Fresno Mariposa 2035 Run 1
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

CONC/LINK
(PPM)

RECEPTOR	I	J	K	L	M	N	O	P	Q	R	S	T
1. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. Recpt 2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. Recpt 3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. Recpt 4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. Recpt 5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. Recpt 6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. Recpt 7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. Recpt 8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. Recpt 9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. Recpt 10	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. Recpt 11	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. Recpt 12	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. Recpt 13	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0
14. Recpt 14	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15. Recpt 15	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0
16. Recpt 16	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. Recpt 17	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. Recpt 18	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. Recpt 19	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. Recpt 20	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

Table C-14.1

Fresno Mariposa Option Parking Lot 1 CALINE Output

RECEPTOR	BRG (DEG)		PRED CONC (PPM)	PRED CONC (PPM)	PRED CONC (PPM)
1. Recpt 1		47	0	0	0.4
2. Recpt 2		35	0	0	0.4
3. Recpt 3		33	0	0	0.3
4. Recpt 4		45	0	0	0.3
5. Recpt 5		286	0.1	0.2	0
6. Recpt 6		291	0	0.4	0
7. Recpt 7		310	0	0.3	0
8. Recpt 8		295	0.1	0.3	0
9. Recpt 9		124	0.1	0	0.2
10. Recpt 10		131	0.1	0	0.3
11. Recpt 11		107	0.2	0	0.2
12. Recpt 12		110	0.1	0.1	0.2

1	**0.4**
2	**0.3**
3	**0.2**
4	**0.4**
5	**0.5**
6	**0.2**
7	**0.1**
8	**0.2**
9	**0.1**
10	**0.1**
11	**0.1**
12	**0**
13	**0.3**
14	**0.3**
15	**0.3**
16	**0.3**
17	**0.3**
18	**0.3**
19	**0.3**
20	**0.3**
21	**0.4**
22	**0.4**
23	**0.3**
24	**0.3**
25	**0.3**
26	**0.4**
27	**0.3**
28	**0.4**
29	**0.3**
30	**0.4**
31	**0.4**
32	**0.4**

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Fresno Mariposa 2035 Run 2
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 5. DEGREES TEMP= 2.2 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIP	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Link A	3938	7067	4061	7016	PK	2	183.0	.0	10.0
B. Link B	4061	7016	4030	6948	PK	2	183.0	.0	10.0
C. Link C	4030	6948	3909	6995	PK	2	183.0	.0	10.0
D. Link D	3909	6995	3938	7067	PK	2	183.0	.0	10.0
E. Link E	3279	7345	3425	7282	PK	2	183.0	.0	10.0
F. Link F	3425	7282	3398	7203	PK	2	183.0	.0	10.0
G. Link G	3398	7203	3240	7271	PK	2	183.0	.0	10.0
H. Link H	3240	7271	3279	7345	PK	2	183.0	.0	10.0
I. Link I	3282	7342	3421	7281	PK	2	183.0	.0	10.0
J. Link J	3421	7281	3395	7207	PK	2	183.0	.0	10.0
K. Link K	3395	7207	3245	7272	PK	2	183.0	.0	10.0
L. Link L	3245	7272	3282	7342	PK	2	183.0	.0	10.0
M. Link M	4090	7010	4223	6957	PK	2	183.0	.0	10.0
N. Link N	4223	6957	4187	6880	PK	2	183.0	.0	10.0
O. Link O	4187	6880	4061	6933	PK	2	183.0	.0	10.0
P. Link P	4061	6933	4090	7010	PK	2	183.0	.0	10.0
Q. Link Q	4093	7005	4219	6959	PK	2	183.0	.0	10.0
R. Link R	4219	6959	4185	6884	PK	2	183.0	.0	10.0
S. Link S	4185	6884	4065	6930	PK	2	183.0	.0	10.0
T. Link T	4065	6930	4093	7005	PK	2	183.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Fresno Mariposa 2035 Run 2
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTO	COORDINATES (M) X	Y	Z
1. Recpt 1	3649	7302	1.8
2. Recpt 2	3794	7245	1.8
3. Recpt 3	3765	7179	1.8
4. Recpt 4	3623	7236	1.8
5. Recpt 5	3463	7258	1.8
6. Recpt 6	3547	7235	1.8
7. Recpt 7	3507	7143	1.8
8. Recpt 8	3433	7181	1.8
9. Recpt 9	3663	7188	1.8
10. Recpt 1	3754	7152	1.8
11. Recpt 1	3717	7059	1.8
12. Recpt 1	3621	7096	1.8
13. Recpt 1	3933	7077	1.8
14. Recpt 1	4064	7025	1.8
15. Recpt 1	4026	6941	1.8
16. Recpt 1	3897	6991	1.8
17. Recpt 1	3277	7350	1.8
18. Recpt 1	3422	7280	1.8
19. Recpt 1	3402	7196	1.8
20. Recpt 2	3230	7270	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Fresno Mariposa 2035 Run 2
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. Recpt 1	272	0	.0	.0	.0	.0	.0	.0	.0	.0
2. Recpt 2	135	0	.0	.0	.0	.0	.0	.0	.0	.0
3. Recpt 3	119	0	.0	.0	.0	.0	.0	.0	.0	.0
4. Recpt 4	271	0	.0	.0	.0	.0	.0	.0	.0	.0
5. Recpt 5	296	0.2	.0	.0	.0	.0	.0	.0	.0	.0
6. Recpt 6	291	0.1	.0	.0	.0	.0	.0	.0	.0	.0
7. Recpt 7	298	0.1	.0	.0	.0	.0	.0	.0	.0	.0
8. Recpt 8	298	0.2	.0	.0	.0	.0	.0	.0	.1	.0
9. Recpt 9	291	0	.0	.0	.0	.0	.0	.0	.0	.0
10. Recpt 1	123	0	.0	.0	.0	.0	.0	.0	.0	.0
11. Recpt 1	109	0	.0	.0	.0	.0	.0	.0	.0	.0
12. Recpt 1	109	0	.0	.0	.0	.0	.0	.0	.0	.0
13. Recpt 1	115	0.2	.0	.0	.0	.0	.0	.0	.0	.0
14. Recpt 1	115	0.2	.0	.0	.0	.0	.0	.0	.0	.0
15. Recpt 1	108	0.2	.0	.0	.0	.0	.0	.0	.0	.0
16. Recpt 1	108	0.2	.0	.0	.0	.0	.0	.0	.0	.0
17. Recpt 1	117	0.3	.0	.0	.0	.0	.1	.0	.0	.0
18. Recpt 1	295	0.3	.0	.0	.0	.0	.1	.0	.0	.0
19. Recpt 1	298	0.3	.0	.0	.0	.0	.0	.0	.1	.0
20. Recpt 2	109	0.3	.0	.0	.0	.0	.0	.0	.1	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Fresno Mariposa 2035 Run 2
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

CONC/LINK
(PPM)

RECEPTOR	I	J	K	L	M	N	O	P	Q	R	S	T
1. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. Recpt 2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. Recpt 3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. Recpt 4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. Recpt 5	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. Recpt 6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. Recpt 7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. Recpt 8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. Recpt 9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
14. Recpt 1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
15. Recpt 1	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
16. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. Recpt 1	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. Recpt 1	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. Recpt 1	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. Recpt 2	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Fresno Mariposa 2035 Run 3
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 5. DEGREES TEMP= 2.2 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIP	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	EF VPH	H (G/MI)	W (M)	(M)
A. Link A	3266	6784	3392	6732	PK	2	183.0	.0	10.0
B. Link B	3392	6732	3373	6679	PK	2	183.0	.0	10.0
C. Link C	3373	6679	3245	6731	PK	2	183.0	.0	10.0
D. Link D	3245	6731	3266	6784	PK	2	183.0	.0	10.0
E. Link E	3269	6781	3388	6731	PK	2	183.0	.0	10.0
F. Link F	3388	6731	3370	6682	PK	2	183.0	.0	10.0
G. Link G	3370	6682	3250	6731	PK	2	183.0	.0	10.0
H. Link H	3250	6731	3269	6781	PK	2	183.0	.0	10.0
I. Link I	3520	7396	3635	7346	PK	2	183.0	.0	10.0
J. Link J	3635	7346	3599	7249	PK	2	183.0	.0	10.0
K. Link K	3599	7249	3481	7299	PK	2	183.0	.0	10.0
L. Link L	3481	7299	3520	7396	PK	2	183.0	.0	10.0
M. Link M	3522	7391	3631	7344	PK	2	183.0	.0	10.0
N. Link N	3631	7344	3596	7254	PK	2	183.0	.0	10.0
O. Link O	3596	7254	3486	7301	PK	2	183.0	.0	10.0
P. Link P	3486	7301	3522	7391	PK	2	183.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Fresno Mariposa 2035 Run 3
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTO	COORDINATES (M) X	Y	Z
1. Recpt 1	3649	7302	1.8
2. Recpt 2	3794	7245	1.8
3. Recpt 3	3765	7179	1.8
4. Recpt 4	3623	7236	1.8
5. Recpt 5	3463	7258	1.8
6. Recpt 6	3547	7235	1.8
7. Recpt 7	3507	7143	1.8
8. Recpt 8	3433	7181	1.8
9. Recpt 9	3663	7188	1.8
10. Recpt 1	3754	7152	1.8
11. Recpt 1	3717	7059	1.8
12. Recpt 1	3621	7096	1.8
13. Recpt 1	3933	7077	1.8
14. Recpt 1	4064	7025	1.8
15. Recpt 1	4026	6941	1.8
16. Recpt 1	3897	6991	1.8
17. Recpt 1	3277	7350	1.8
18. Recpt 1	3422	7280	1.8
19. Recpt 1	3402	7196	1.8
20. Recpt 2	3230	7270	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Fresno Mariposa 2035 Run 3
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOI	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Recpt 1	311	0.1	.0	.0	.0	.0	.0	.0	.0	.0
2. Recpt 2	299	0	.0	.0	.0	.0	.0	.0	.0	.0
3. Recpt 3	314	0	.0	.0	.0	.0	.0	.0	.0	.0
4. Recpt 4	296	0.2	.0	.0	.0	.0	.0	.0	.0	.0
5. Recpt 5	24	0.2	.0	.0	.0	.0	.0	.0	.0	.0
6. Recpt 6	44	0	.0	.0	.0	.0	.0	.0	.0	.0
7. Recpt 7	359	0	.0	.0	.0	.0	.0	.0	.0	.0
8. Recpt 8	56	0	.0	.0	.0	.0	.0	.0	.0	.0
9. Recpt 9	307	0.1	.0	.0	.0	.0	.0	.0	.0	.0
10. Recpt 1	301	0	.0	.0	.0	.0	.0	.0	.0	.0
11. Recpt 1	323	0	.0	.0	.0	.0	.0	.0	.0	.0
12. Recpt 1	357	0	.0	.0	.0	.0	.0	.0	.0	.0
13. Recpt 1	309	0	.0	.0	.0	.0	.0	.0	.0	.0
14. Recpt 1	297	0	.0	.0	.0	.0	.0	.0	.0	.0
15. Recpt 1	313	0	.0	.0	.0	.0	.0	.0	.0	.0
16. Recpt 1	310	0	.0	.0	.0	.0	.0	.0	.0	.0
17. Recpt 1	88	0	.0	.0	.0	.0	.0	.0	.0	.0
18. Recpt 1	93	0	.0	.0	.0	.0	.0	.0	.0	.0
19. Recpt 1	35	0	.0	.0	.0	.0	.0	.0	.0	.0
20. Recpt 2	88	0	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Fresno Mariposa 2035 Run 3
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

CONC/LINK
(PPM)

RECEPTOR	I	J	K	L	M	N	O	P
1. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0
2. Recpt 2	.0	.0	.0	.0	.0	.0	.0	.0
3. Recpt 3	.0	.0	.0	.0	.0	.0	.0	.0
4. Recpt 4	.0	.0	.1	.0	.0	.0	.0	.0
5. Recpt 5	.0	.0	.0	.0	.0	.0	.0	.0
6. Recpt 6	.0	.0	.0	.0	.0	.0	.0	.0
7. Recpt 7	.0	.0	.0	.0	.0	.0	.0	.0
8. Recpt 8	.0	.0	.0	.0	.0	.0	.0	.0
9. Recpt 9	.0	.0	.0	.0	.0	.0	.0	.0
10. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0
11. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0
12. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0
13. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0
14. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0
15. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0
16. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0
17. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0
18. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0
19. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0
20. Recpt 2	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Fresno Mariposa 2035 Run 4
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 5. DEGREES TEMP= 2.2 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIP	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Link A	3654	7299	3788	7246	PK	2	367.0	.0	10.0
B. Link B	3788	7246	3761	7186	PK	2	183.0	.0	10.0
C. Link C	3761	7186	3628	7239	PK	2	183.0	.0	10.0
D. Link D	3628	7239	3654	7299	PK	2	183.0	.0	10.0
E. Link E	3657	7295	3784	7244	PK	2	183.0	.0	10.0
F. Link F	3784	7244	3758	7190	PK	2	183.0	.0	10.0
G. Link G	3758	7190	3632	7241	PK	2	183.0	.0	10.0
H. Link H	3632	7241	3657	7295	PK	2	183.0	.0	10.0
I. Link I	3470	7258	3554	7228	PK	2	50.0	.0	10.0
J. Link J	3554	7228	3516	7143	PK	2	50.0	.0	10.0
K. Link K	3516	7143	3434	7180	PK	2	50.0	.0	10.0
L. Link L	3434	7180	3470	7258	PK	2	50.0	.0	10.0
M. Link M	3665	7184	3748	7149	PK	2	50.0	.0	10.0
N. Link N	3748	7149	3713	7059	PK	2	50.0	.0	10.0
O. Link O	3713	7059	3627	7096	PK	2	50.0	.0	10.0
P. Link P	3627	7096	3665	7184	PK	2	50.0	.0	10.0
Q. Link Q	3935	7071	4065	7016	PK	2	183.0	.0	10.0
R. Link R	4065	7016	4032	6943	PK	2	183.0	.0	10.0
S. Link S	4032	6943	3905	6995	PK	2	183.0	.0	10.0
T. Link T	3905	6995	3935	7071	PK	2	183.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Fresno Mariposa 2035 Run 4
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTO	COORDINATES (M) X	Y	Z
1. Recpt 1	3264	6789	1.8
2. Recpt 2	3397	6732	1.8
3. Recpt 3	3373	6677	1.8
4. Recpt 4	3241	6728	1.8
5. Recpt 5	4091	7015	1.8
6. Recpt 6	4226	6957	1.8
7. Recpt 7	4192	6873	1.8
8. Recpt 8	4056	6930	1.8
9. Recpt 9	3517	7401	1.8
10. Recpt 1	3638	7347	1.8
11. Recpt 1	3601	7244	1.8
12. Recpt 1	3477	7296	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOI	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Recpt 1	47	0	.0	.0	.0	.0	.0	.0	.0	.0
2. Recpt 2	35	0	.0	.0	.0	.0	.0	.0	.0	.0
3. Recpt 3	33	0	.0	.0	.0	.0	.0	.0	.0	.0
4. Recpt 4	45	0	.0	.0	.0	.0	.0	.0	.0	.0
5. Recpt 5	286	0.1	.0	.0	.0	.0	.0	.0	.0	.0
6. Recpt 6	291	0	.0	.0	.0	.0	.0	.0	.0	.0
7. Recpt 7	310	0	.0	.0	.0	.0	.0	.0	.0	.0
8. Recpt 8	295	0.1	.0	.0	.0	.0	.0	.0	.0	.0
9. Recpt 9	124	0.1	.0	.0	.0	.0	.0	.0	.0	.0
10. Recpt 1	131	0.1	.0	.0	.0	.0	.0	.0	.0	.0
11. Recpt 1	107	0.2	.0	.0	.1	.0	.0	.0	.0	.0
12. Recpt 1	110	0.1	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Fresno Mariposa 2035 Run 4
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

CONC/LINK
(PPM)

RECEPTOI	I	J	K	L	M	N	O	P	Q	R	S	T
1. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. Recpt 2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. Recpt 3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. Recpt 4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. Recpt 5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. Recpt 6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. Recpt 7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. Recpt 8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0
9. Recpt 9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Fresno Mariposa 2035 Run 5
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 5. DEGREES TEMP= 2.2 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIP	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Link A	3938	7067	4061	7016	PK	2	367.0	.0	10.0
B. Link B	4061	7016	4030	6948	PK	2	183.0	.0	10.0
C. Link C	4030	6948	3909	6995	PK	2	183.0	.0	10.0
D. Link D	3909	6995	3938	7067	PK	2	183.0	.0	10.0
E. Link E	3279	7345	3425	7282	PK	2	183.0	.0	10.0
F. Link F	3425	7282	3398	7203	PK	2	183.0	.0	10.0
G. Link G	3398	7203	3240	7271	PK	2	183.0	.0	10.0
H. Link H	3240	7271	3279	7345	PK	2	183.0	.0	10.0
I. Link I	3282	7342	3421	7281	PK	2	183.0	.0	10.0
J. Link J	3421	7281	3395	7207	PK	2	183.0	.0	10.0
K. Link K	3395	7207	3245	7272	PK	2	183.0	.0	10.0
L. Link L	3245	7272	3282	7342	PK	2	183.0	.0	10.0
M. Link M	4090	7010	4223	6957	PK	2	183.0	.0	10.0
N. Link N	4223	6957	4187	6880	PK	2	183.0	.0	10.0
O. Link O	4187	6880	4061	6933	PK	2	183.0	.0	10.0
P. Link P	4061	6933	4090	7010	PK	2	183.0	.0	10.0
Q. Link Q	4093	7005	4219	6959	PK	2	183.0	.0	10.0
R. Link R	4219	6959	4185	6884	PK	2	183.0	.0	10.0
S. Link S	4185	6884	4065	6930	PK	2	183.0	.0	10.0
T. Link T	4065	6930	4093	7005	PK	2	183.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Fresno Mariposa 2035 Run 5
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTO	COORDINATES (M) X	Y	Z
1. Recpt 1	3264	6789	1.8
2. Recpt 2	3397	6732	1.8
3. Recpt 3	3373	6677	1.8
4. Recpt 4	3241	6728	1.8
5. Recpt 5	4091	7015	1.8
6. Recpt 6	4226	6957	1.8
7. Recpt 7	4192	6873	1.8
8. Recpt 8	4056	6930	1.8
9. Recpt 9	3517	7401	1.8
10. Recpt 1	3638	7347	1.8
11. Recpt 1	3601	7244	1.8
12. Recpt 1	3477	7296	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOI	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Recpt 1	78	0	.0	.0	.0	.0	.0	.0	.0	.0
2. Recpt 2	71	0	.0	.0	.0	.0	.0	.0	.0	.0
3. Recpt 3	68	0	.0	.0	.0	.0	.0	.0	.0	.0
4. Recpt 4	74	0	.0	.0	.0	.0	.0	.0	.0	.0
5. Recpt 5	116	0.2	.0	.0	.0	.0	.0	.0	.0	.0
6. Recpt 6	290	0.4	.0	.0	.0	.0	.0	.0	.0	.0
7. Recpt 7	296	0.3	.0	.0	.0	.0	.0	.0	.0	.0
8. Recpt 8	108	0.3	.0	.0	.0	.0	.0	.0	.0	.0
9. Recpt 9	215	0	.0	.0	.0	.0	.0	.0	.0	.0
10. Recpt 1	131	0	.0	.0	.0	.0	.0	.0	.0	.0
11. Recpt 1	117	0	.0	.0	.0	.0	.0	.0	.0	.0
12. Recpt 1	278	0.1	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Fresno Mariposa 2035 Run 5
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

CONC/LINK
(PPM)

RECEPTOI	I	J	K	L	M	N	O	P	Q	R	S	T
1. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. Recpt 2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. Recpt 3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. Recpt 4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. Recpt 5	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
6. Recpt 6	.0	.0	.0	.0	.1	.0	.0	.0	.1	.0	.0	.0
7. Recpt 7	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
8. Recpt 8	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.1	.0
9. Recpt 9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Fresno Mariposa 2035 Run 6
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 5. DEGREES TEMP= 2.2 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIP	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Link A	3266	6784	3392	6732	PK	2	367.0	.0	10.0
B. Link B	3392	6732	3373	6679	PK	2	183.0	.0	10.0
C. Link C	3373	6679	3245	6731	PK	2	183.0	.0	10.0
D. Link D	3245	6731	3266	6784	PK	2	183.0	.0	10.0
E. Link E	3269	6781	3388	6731	PK	2	183.0	.0	10.0
F. Link F	3388	6731	3370	6682	PK	2	183.0	.0	10.0
G. Link G	3370	6682	3250	6731	PK	2	183.0	.0	10.0
H. Link H	3250	6731	3269	6781	PK	2	183.0	.0	10.0
I. Link I	3520	7396	3635	7346	PK	2	183.0	.0	10.0
J. Link J	3635	7346	3599	7249	PK	2	183.0	.0	10.0
K. Link K	3599	7249	3481	7299	PK	2	183.0	.0	10.0
L. Link L	3481	7299	3520	7396	PK	2	183.0	.0	10.0
M. Link M	3522	7391	3631	7344	PK	2	183.0	.0	10.0
N. Link N	3631	7344	3596	7254	PK	2	183.0	.0	10.0
O. Link O	3596	7254	3486	7301	PK	2	183.0	.0	10.0
P. Link P	3486	7301	3522	7391	PK	2	183.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Fresno Mariposa 2035 Run 6
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTO	COORDINATES (M) X	Y	Z
1. Recpt 1	3264	6789	1.8
2. Recpt 2	3397	6732	1.8
3. Recpt 3	3373	6677	1.8
4. Recpt 4	3241	6728	1.8
5. Recpt 5	4091	7015	1.8
6. Recpt 6	4226	6957	1.8
7. Recpt 7	4192	6873	1.8
8. Recpt 8	4056	6930	1.8
9. Recpt 9	3517	7401	1.8
10. Recpt 1	3638	7347	1.8
11. Recpt 1	3601	7244	1.8
12. Recpt 1	3477	7296	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOI	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Recpt 1	116	0.4	.3	.0	.0	.0	.1	.0	.0	.0
2. Recpt 2	290	0.4	.3	.0	.0	.0	.1	.0	.0	.0
3. Recpt 3	295	0.3	.0	.0	.1	.0	.0	.0	.1	.0
4. Recpt 4	108	0.3	.0	.0	.1	.0	.0	.0	.1	.0
5. Recpt 5	250	0	.0	.0	.0	.0	.0	.0	.0	.0
6. Recpt 6	301	0	.0	.0	.0	.0	.0	.0	.0	.0
7. Recpt 7	261	0	.0	.0	.0	.0	.0	.0	.0	.0
8. Recpt 8	312	0	.0	.0	.0	.0	.0	.0	.0	.0
9. Recpt 9	118	0.2	.0	.0	.0	.0	.0	.0	.0	.0
10. Recpt 1	290	0.3	.0	.0	.0	.0	.0	.0	.0	.0
11. Recpt 1	298	0.2	.0	.0	.0	.0	.0	.0	.0	.0
12. Recpt 1	108	0.2	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Fresno Mariposa 2035 Run 6
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P
1. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0
2. Recpt 2	.0	.0	.0	.0	.0	.0	.0	.0
3. Recpt 3	.0	.0	.0	.0	.0	.0	.0	.0
4. Recpt 4	.0	.0	.0	.0	.0	.0	.0	.0
5. Recpt 5	.0	.0	.0	.0	.0	.0	.0	.0
6. Recpt 6	.0	.0	.0	.0	.0	.0	.0	.0
7. Recpt 7	.0	.0	.0	.0	.0	.0	.0	.0
8. Recpt 8	.0	.0	.0	.0	.0	.0	.0	.0
9. Recpt 9	.1	.0	.0	.0	.0	.0	.0	.0
10. Recpt 1	.1	.0	.0	.0	.1	.0	.0	.0
11. Recpt 1	.0	.0	.1	.0	.0	.0	.1	.0
12. Recpt 1	.0	.0	.1	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Fresno Kern 2035 Run 1
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 5. DEGREES TEMP= 2.2 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIP	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Link A	3654	7299	3788	7246	PK	2	275.0	.0	10.0
B. Link B	3788	7246	3761	7186	PK	2	275.0	.0	10.0
C. Link C	3761	7186	3628	7239	PK	2	275.0	.0	10.0
D. Link D	3628	7239	3654	7299	PK	2	275.0	.0	10.0
E. Link E	3657	7295	3784	7244	PK	2	275.0	.0	10.0
F. Link F	3784	7244	3758	7190	PK	2	275.0	.0	10.0
G. Link G	3758	7190	3632	7241	PK	2	275.0	.0	10.0
H. Link H	3632	7241	3657	7295	PK	2	275.0	.0	10.0
I. Link I	3780	7136	3876	7098	PK	2	88.0	.0	10.0
J. Link J	3876	7098	3841	7022	PK	2	88.0	.0	10.0
K. Link K	3841	7022	3751	7060	PK	2	88.0	.0	10.0
L. Link L	3751	7060	3780	7136	PK	2	88.0	.0	10.0
M. Link M	3985	7058	4065	7016	PK	2	88.0	.0	10.0
N. Link N	4065	7016	4032	6943	PK	2	88.0	.0	10.0
O. Link O	4032	6943	3955	6974	PK	2	88.0	.0	10.0
P. Link P	3955	6974	3985	7058	PK	2	88.0	.0	10.0
Q. Link Q	4090	7010	4223	6957	PK	2	275.0	.0	10.0
R. Link R	4223	6957	4187	6880	PK	2	275.0	.0	10.0
S. Link S	4187	6880	4061	6933	PK	2	275.0	.0	10.0
T. Link T	4061	6933	4090	7010	PK	2	275.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Fresno Kern 2035 Run 1
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTO	COORDINATES (M) X	Y	Z
1. Recpt 1	3649	7302	1.8
2. Recpt 2	3794	7245	1.8
3. Recpt 3	3765	7179	1.8
4. Recpt 4	3623	7236	1.8
5. Recpt 5	3779	7141	1.8
6. Recpt 6	3879	7101	1.8
7. Recpt 7	3842	7018	1.8
8. Recpt 8	3744	7058	1.8
9. Recpt 9	3983	7058	1.8
10. Recpt 1	4064	7025	1.8
11. Recpt 1	4026	6941	1.8
12. Recpt 1	3949	6971	1.8
13. Recpt 1	4091	7015	1.8
14. Recpt 1	4226	6957	1.8
15. Recpt 1	4192	6873	1.8
16. Recpt 1	4056	6930	1.8
17. Recpt 1	3307	7340	1.8
18. Recpt 1	3422	7280	1.8
19. Recpt 1	3402	7196	1.8
20. Recpt 2	3269	7249	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Fresno Kern 2035 Run 1
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOI	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H	PRED CONC (PPM)
1. Recpt 1	114	0.4	.2	.0	.0	.0	.2	.0	.0	.0	0
2. Recpt 2	289	0.4	.2	.0	.0	.0	.2	.0	.0	.0	0
3. Recpt 3	297	0.4	.0	.0	.2	.0	.0	.0	.2	.0	0
4. Recpt 4	107	0.4	.0	.0	.2	.0	.0	.0	.1	.0	0
5. Recpt 5	310	0.1	.0	.0	.0	.0	.0	.0	.0	.0	0
6. Recpt 6	302	0.1	.0	.0	.0	.0	.0	.0	.0	.0	0
7. Recpt 7	332	0	.0	.0	.0	.0	.0	.0	.0	.0	0
8. Recpt 8	9	0.1	.0	.0	.0	.0	.0	.0	.0	.0	0
9. Recpt 9	299	0.1	.0	.0	.0	.0	.0	.0	.0	.0	0
10. Recpt 1	115	0.2	.0	.0	.0	.0	.0	.0	.0	.0	0.2
11. Recpt 1	108	0.2	.0	.0	.0	.0	.0	.0	.0	.0	0.1
12. Recpt 1	109	0.1	.0	.0	.0	.0	.0	.0	.0	.0	0
13. Recpt 1	116	0.2	.0	.0	.0	.0	.0	.0	.0	.0	0.2
14. Recpt 1	292	0.3	.0	.0	.0	.0	.0	.0	.0	.0	0.3
15. Recpt 1	297	0.2	.0	.0	.0	.0	.0	.0	.0	.0	0.2
16. Recpt 1	109	0.2	.0	.0	.0	.0	.0	.0	.0	.0	0.1
17. Recpt 1	107	0	.0	.0	.0	.0	.0	.0	.0	.0	0.3
18. Recpt 1	103	0.1	.0	.0	.0	.0	.0	.0	.0	.0	0.4
19. Recpt 1	82	0	.0	.0	.0	.0	.0	.0	.0	.0	0.4
20. Recpt 2	94	0	.0	.0	.0	.0	.0	.0	.0	.0	0.3

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Fresno Kern 2035 Run 1
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

CONC/LINK
(PPM)

RECEPTOR	I	J	K	L	M	N	O	P	Q	R	S	T
1. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. Recpt 2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. Recpt 3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. Recpt 4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. Recpt 5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. Recpt 6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. Recpt 7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. Recpt 8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. Recpt 9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
11. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0
12. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
14. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
15. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0
16. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0
17. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. Recpt 2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

Table C-14.7
Fresno Kern Option Parking Lot 1 CALINE Output

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	PRED CONC (PPM)
1. Recpt 1	40	0	0.4
2. Recpt 2	26	0	0.4
3. Recpt 3	27	0	0.4
4. Recpt 4	39	0	0.4

1	**0.4**
2	**0.4**
3	**0.4**
4	**0.4**
5	**0.1**
6	**0.1**
7	**0**
8	**0.1**
9	**0.1**
10	**0.4**
11	**0.3**
12	**0.1**
13	**0.4**
14	**0.6**
15	**0.4**
16	**0.3**
17	**0.3**
18	**0.5**
19	**0.4**
20	**0.3**
21	**0.4**
22	**0.4**
23	**0.4**
24	**0.4**
25	**0**
26	**0**

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Fresno Kern 2035 Run 2
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 5. DEGREES TEMP= 2.2 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIP	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Link A	4093	7006	4219	6956	PK	2	275.0	.0	10.0
B. Link B	4219	6956	4185	6883	PK	2	275.0	.0	10.0
C. Link C	4185	6883	4065	6933	PK	2	275.0	.0	10.0
D. Link D	4065	6933	4093	7006	PK	2	275.0	.0	10.0
E. Link E	3308	7331	3425	7282	PK	2	275.0	.0	10.0
F. Link F	3425	7282	3398	7203	PK	2	275.0	.0	10.0
G. Link G	3398	7203	3274	7254	PK	2	275.0	.0	10.0
H. Link H	3274	7254	3308	7331	PK	2	275.0	.0	10.0
I. Link I	3311	7328	3421	7281	PK	2	275.0	.0	10.0
J. Link J	3421	7281	3395	7207	PK	2	275.0	.0	10.0
K. Link K	3395	7207	3278	7255	PK	2	275.0	.0	10.0
L. Link L	3278	7255	3311	7328	PK	2	275.0	.0	10.0
M. Link M	3266	6784	3392	6732	PK	2	275.0	.0	10.0
N. Link N	3392	6732	3373	6679	PK	2	275.0	.0	10.0
O. Link O	3373	6679	3245	6731	PK	2	275.0	.0	10.0
P. Link P	3245	6731	3266	6784	PK	2	275.0	.0	10.0
Q. Link Q	3269	6781	3388	6731	PK	2	275.0	.0	10.0
R. Link R	3388	6731	3370	6682	PK	2	275.0	.0	10.0
S. Link S	3370	6682	3250	6731	PK	2	275.0	.0	10.0
T. Link T	3250	6731	3269	6781	PK	2	275.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Fresno Kern 2035 Run 2
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTO	COORDINATES (M) X	Y	Z
1. Recpt 1	3649	7302	1.8
2. Recpt 2	3794	7245	1.8
3. Recpt 3	3765	7179	1.8
4. Recpt 4	3623	7236	1.8
5. Recpt 5	3779	7141	1.8
6. Recpt 6	3879	7101	1.8
7. Recpt 7	3842	7018	1.8
8. Recpt 8	3744	7058	1.8
9. Recpt 9	3983	7058	1.8
10. Recpt 1	4064	7025	1.8
11. Recpt 1	4026	6941	1.8
12. Recpt 1	3949	6971	1.8
13. Recpt 1	4091	7015	1.8
14. Recpt 1	4226	6957	1.8
15. Recpt 1	4192	6873	1.8
16. Recpt 1	4056	6930	1.8
17. Recpt 1	3307	7340	1.8
18. Recpt 1	3422	7280	1.8
19. Recpt 1	3402	7196	1.8
20. Recpt 2	3269	7249	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Fresno Kern 2035 Run 2
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOI	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Recpt 1	270	0	.0	.0	.0	.0	.0	.0	.0	.0
2. Recpt 2	269	0	.0	.0	.0	.0	.0	.0	.0	.0
3. Recpt 3	277	0	.0	.0	.0	.0	.0	.0	.0	.0
4. Recpt 4	269	0	.0	.0	.0	.0	.0	.0	.0	.0
5. Recpt 5	291	0	.0	.0	.0	.0	.0	.0	.0	.0
6. Recpt 6	291	0	.0	.0	.0	.0	.0	.0	.0	.0
7. Recpt 7	300	0	.0	.0	.0	.0	.0	.0	.0	.0
8. Recpt 8	302	0	.0	.0	.0	.0	.0	.0	.0	.0
9. Recpt 9	290	0	.0	.0	.0	.0	.0	.0	.0	.0
10. Recpt 1	116	0.2	.2	.0	.0	.0	.0	.0	.0	.0
11. Recpt 1	107	0.1	.0	.0	.1	.0	.0	.0	.0	.0
12. Recpt 1	109	0	.0	.0	.0	.0	.0	.0	.0	.0
13. Recpt 1	118	0.2	.2	.0	.0	.0	.0	.0	.0	.0
14. Recpt 1	289	0.3	.2	.0	.0	.0	.0	.0	.0	.0
15. Recpt 1	298	0.2	.0	.0	.2	.0	.0	.0	.0	.0
16. Recpt 1	30	0.1	.0	.0	.0	.1	.0	.0	.0	.0
17. Recpt 1	120	0.3	.0	.0	.0	.0	.1	.0	.0	.0
18. Recpt 1	294	0.4	.0	.0	.0	.0	.2	.0	.0	.0
19. Recpt 1	298	0.4	.0	.0	.0	.0	.0	.0	.2	.0
20. Recpt 2	29	0.3	.0	.0	.0	.0	.0	.0	.0	.1

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Fresno Kern 2035 Run 2
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

CONC/LINK
(PPM)

RECEPTOI	I	J	K	L	M	N	O	P	Q	R	S	T
1. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. Recpt 2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. Recpt 3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. Recpt 4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5. Recpt 5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6. Recpt 6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
7. Recpt 7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8. Recpt 8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9. Recpt 9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
14. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
16. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17. Recpt 1	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18. Recpt 1	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19. Recpt 1	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
20. Recpt 2	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Fresno Kern 2035 Run 3
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 5. DEGREES TEMP= 2.2 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Link A	3654	7299	3788	7246	PK	2	275.0	.0	10.0
B. Link B	3788	7246	3761	7186	PK	2	275.0	.0	10.0
C. Link C	3761	7186	3628	7239	PK	2	275.0	.0	10.0
D. Link D	3628	7239	3654	7299	PK	2	275.0	.0	10.0
E. Link E	3657	7295	3784	7244	PK	2	275.0	.0	10.0
F. Link F	3784	7244	3758	7190	PK	2	275.0	.0	10.0
G. Link G	3758	7190	3632	7241	PK	2	275.0	.0	10.0
H. Link H	3632	7241	3657	7295	PK	2	275.0	.0	10.0
I. Link I	3780	7136	3876	7098	PK	2	88.0	.0	10.0
J. Link J	3876	7098	3841	7022	PK	2	88.0	.0	10.0
K. Link K	3841	7022	3751	7060	PK	2	88.0	.0	10.0
L. Link L	3751	7060	3780	7136	PK	2	88.0	.0	10.0
M. Link M	3985	7058	4065	7016	PK	2	88.0	.0	10.0
N. Link N	4065	7016	4032	6943	PK	2	88.0	.0	10.0
O. Link O	4032	6943	3955	6974	PK	2	88.0	.0	10.0
P. Link P	3955	6974	3985	7058	PK	2	88.0	.0	10.0
Q. Link Q	4090	7010	4223	6957	PK	2	275.0	.0	10.0
R. Link R	4223	6957	4187	6880	PK	2	275.0	.0	10.0
S. Link S	4187	6880	4061	6933	PK	2	275.0	.0	10.0
T. Link T	4061	6933	4090	7010	PK	2	275.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Fresno Kern 2035 Run 3
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	3264	6789	1.8
2. Recpt 2	3397	6732	1.8
3. Recpt 3	3373	6677	1.8
4. Recpt 4	3241	6728	1.8

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. Recpt 1	40	0	.0	.0	.0	.0	.0	.0	.0	.0
2. Recpt 2	26	0	.0	.0	.0	.0	.0	.0	.0	.0
3. Recpt 3	27	0	.0	.0	.0	.0	.0	.0	.0	.0
4. Recpt 4	39	0	.0	.0	.0	.0	.0	.0	.0	.0

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. Recpt 2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. Recpt 3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. Recpt 4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Fresno Kern 2035 Run 4
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 5. DEGREES TEMP= 2.2 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIP	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Link A	4093	7006	4219	6956	PK	2	275.0	.0	10.0
B. Link B	4219	6956	4185	6883	PK	2	275.0	.0	10.0
C. Link C	4185	6883	4065	6933	PK	2	275.0	.0	10.0
D. Link D	4065	6933	4093	7006	PK	2	275.0	.0	10.0
E. Link E	3308	7331	3425	7282	PK	2	275.0	.0	10.0
F. Link F	3425	7282	3398	7203	PK	2	275.0	.0	10.0
G. Link G	3398	7203	3274	7254	PK	2	275.0	.0	10.0
H. Link H	3274	7254	3308	7331	PK	2	275.0	.0	10.0
I. Link I	3311	7328	3421	7281	PK	2	275.0	.0	10.0
J. Link J	3421	7281	3395	7207	PK	2	275.0	.0	10.0
K. Link K	3395	7207	3278	7255	PK	2	275.0	.0	10.0
L. Link L	3278	7255	3311	7328	PK	2	275.0	.0	10.0
M. Link M	3266	6784	3392	6732	PK	2	275.0	.0	10.0
N. Link N	3392	6732	3373	6679	PK	2	275.0	.0	10.0
O. Link O	3373	6679	3245	6731	PK	2	275.0	.0	10.0
P. Link P	3245	6731	3266	6784	PK	2	275.0	.0	10.0
Q. Link Q	3269	6781	3388	6731	PK	2	275.0	.0	10.0
R. Link R	3388	6731	3370	6682	PK	2	275.0	.0	10.0
S. Link S	3370	6682	3250	6731	PK	2	275.0	.0	10.0
T. Link T	3250	6731	3269	6781	PK	2	275.0	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Fresno Kern 2035 Run 4
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTO	COORDINATES (M) X	Y	Z
1. Recpt 1	3264	6789	1.8
2. Recpt 2	3397	6732	1.8
3. Recpt 3	3373	6677	1.8
4. Recpt 4	3241	6728	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOI	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Recpt 1	117	0.4	.0	.0	.0	.0	.0	.0	.0	.0
2. Recpt 2	289	0.4	.0	.0	.0	.0	.0	.0	.0	.0
3. Recpt 3	295	0.4	.0	.0	.0	.0	.0	.0	.0	.0
4. Recpt 4	108	0.4	.0	.0	.0	.0	.0	.0	.0	.0

RECEPTOI	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. Recpt 1	.0	.0	.0	.0	.2	.0	.0	.0	.2	.0	.0	.0
2. Recpt 2	.0	.0	.0	.0	.2	.0	.0	.0	.2	.0	.0	.0
3. Recpt 3	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.2	.0
4. Recpt 4	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.2	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: BKF South 2035
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 5. DEGREES TEMP= 7.8 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Link A	7680	6098	7733	6114	PK	45	3.2	.0	10.0
B. Link B	7733	6114	7746	6068	PK	45	1.9	.0	10.0
C. Link C	7746	6068	7677	6049	PK	45	1.9	.0	10.0
D. Link D	7677	6049	7680	6098	PK	45	1.9	.0	10.0
E. Link E	7797	6115	7852	6099	PK	45	1.9	.0	10.0
F. Link F	7852	6099	7846	6045	PK	45	1.9	.0	10.0
G. Link G	7846	6045	7783	6066	PK	45	1.9	.0	10.0
H. Link H	7783	6066	7797	6115	PK	45	1.9	.0	10.0
I. Link I	7874	6157	8035	6177	PK	1150	.8	.0	10.0
J. Link J	8035	6177	8032	5994	PK	1150	.8	.0	10.0
K. Link K	8032	5994	7872	5996	PK	1150	.8	.0	10.0
L. Link L	7872	5996	7874	6157	PK	1150	.8	.0	10.0
M. Link M	7879	6153	8031	6174	PK	1150	2.3	.0	10.0
N. Link N	8031	6174	8028	5998	PK	1150	2.3	.0	10.0
O. Link O	8028	5998	7876	5999	PK	1150	2.3	.0	10.0
P. Link P	7876	5999	7879	6153	PK	1150	2.3	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: BKF South 2035
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. Recpt 1	*	7673	6108	1.8
2. Recpt 2	*	7742	6120	1.8
3. Recpt 3	*	7681	6042	1.8
4. Recpt 4	*	7753	6057	1.8
5. Recpt 5	*	7789	6116	1.8
6. Recpt 6	*	7858	6092	1.8
7. Recpt 7	*	7847	6040	1.8
8. Recpt 8	*	7775	6059	1.8
9. Recpt 9	*	7870	6161	1.8
10. Recpt 10	*	7954	6173	1.8
11. Recpt 11	*	8040	6182	1.8
12. Recpt 12	*	8040	6117	1.8
13. Recpt 13	*	8038	6052	1.8
14. Recpt 14	*	8034	5990	1.8
15. Recpt 15	*	7950	5989	1.8
16. Recpt 16	*	7870	5990	1.8
17. Recpt 17	*	7865	6058	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: BKF South 2035
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. Recpt 1	112	0.1	.0	.0	.0	.0	.0	.0	.0	.0
2. Recpt 2	78	0.2	.0	.0	.0	.0	.0	.0	.0	.0
3. Recpt 3	99	0.1	.0	.0	.0	.0	.0	.0	.0	.0
4. Recpt 4	62	0.1	.0	.0	.0	.0	.0	.0	.0	.0
5. Recpt 5	73	0.2	.0	.0	.0	.0	.0	.0	.0	.0
6. Recpt 6	29	0.3	.0	.0	.0	.0	.0	.0	.0	.0
7. Recpt 7	110	0.2	.0	.0	.0	.0	.0	.0	.0	.0
8. Recpt 8	110	0.2	.0	.0	.0	.0	.0	.0	.0	.0
9. Recpt 9	90	0.5	.0	.0	.0	.0	.0	.0	.0	.0
10. Recpt 1	249	0.4	.0	.0	.0	.0	.0	.0	.0	.0
11. Recpt 1	188	0.5	.0	.0	.0	.0	.0	.0	.0	.0
12. Recpt 1	191	0.4	.0	.0	.0	.0	.0	.0	.0	.0
13. Recpt 1	352	0.5	.0	.0	.0	.0	.0	.0	.0	.0
14. Recpt 1	277	0.6	.0	.0	.0	.0	.0	.0	.0	.0
15. Recpt 1	78	0.4	.0	.0	.0	.0	.0	.0	.0	.0
16. Recpt 1	6	0.6	.0	.0	.0	.0	.0	.0	.0	.0
17. Recpt 1	162	0.4	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: BKF South 2035
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P
1. Recpt 1	*	.0	.0	.0	.0	.0	.0	.0	.0
2. Recpt 2	*	.0	.0	.0	.0	.0	.0	.0	.0
3. Recpt 3	*	.0	.0	.0	.0	.0	.0	.0	.0
4. Recpt 4	*	.0	.0	.0	.0	.0	.0	.0	.0
5. Recpt 5	*	.0	.0	.0	.0	.1	.0	.0	.0
6. Recpt 6	*	.0	.0	.0	.0	.0	.0	.0	.1
7. Recpt 7	*	.0	.0	.0	.0	.0	.0	.0	.0
8. Recpt 8	*	.0	.0	.0	.0	.0	.0	.0	.0
9. Recpt 9	*	.2	.0	.0	.0	.3	.0	.0	.0
10. Recpt 10	*	.1	.0	.0	.0	.3	.0	.0	.0
11. Recpt 11	*	.0	.2	.0	.0	.0	.3	.0	.0
12. Recpt 12	*	.0	.1	.0	.0	.0	.3	.0	.0
13. Recpt 13	*	.0	.1	.0	.0	.0	.3	.0	.0
14. Recpt 14	*	.0	.0	.2	.0	.0	.0	.4	.0
15. Recpt 15	*	.0	.0	.1	.0	.0	.0	.3	.0
16. Recpt 16	*	.0	.0	.0	.2	.0	.0	.0	.5
17. Recpt 17	*	.0	.0	.0	.0	.0	.0	.0	.2

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: BKF North 2035
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 5. DEGREES TEMP= 7.8 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Link A	7899	6264	8035	6262	PK	383	.8	.0	10.0
B. Link B	8035	6262	8034	6197	PK	383	.8	.0	10.0
C. Link C	8034	6197	7897	6179	PK	383	.8	.0	10.0
D. Link D	7897	6179	7899	6264	PK	383	.8	.0	10.0
E. Link E	7825	6115	8030	6134	PK	767	.8	.0	10.0
F. Link F	8030	6134	8027	6012	PK	767	.8	.0	10.0
G. Link G	8027	6012	7823	6016	PK	767	.8	.0	10.0
H. Link H	7823	6016	7825	6115	PK	767	.8	.0	10.0
I. Link I	7902	6261	8032	6259	PK	383	2.3	.0	10.0
J. Link J	8032	6259	8030	6201	PK	383	2.3	.0	10.0
K. Link K	8030	6201	7901	6182	PK	383	2.3	.0	10.0
L. Link L	7901	6182	7902	6261	PK	383	2.3	.0	10.0
M. Link M	7828	6112	8026	6131	PK	767	2.3	.0	10.0
N. Link N	8026	6131	8023	6014	PK	767	2.3	.0	10.0
O. Link O	8023	6014	7826	6019	PK	767	2.3	.0	10.0
P. Link P	7826	6019	7828	6112	PK	767	2.3	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: BKF North 2035
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. Recpt 1	*	7895	6269	1.8
2. Recpt 2	*	7970	6269	1.8
3. Recpt 3	*	8039	6268	1.8
4. Recpt 4	*	8042	6235	1.8
5. Recpt 5	*	8039	6195	1.8
6. Recpt 6	*	7971	6182	1.8
7. Recpt 7	*	7891	6174	1.8
8. Recpt 8	*	7891	6216	1.8
9. Recpt 9	*	7818	6115	1.8
10. Recpt 10	*	7933	6133	1.8
11. Recpt 11	*	8037	6138	1.8
12. Recpt 12	*	8033	6063	1.8
13. Recpt 13	*	8033	6009	1.8
14. Recpt 14	*	7943	6006	1.8
15. Recpt 15	*	7816	6010	1.8
16. Recpt 16	*	7818	6060	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: BKF North 2035
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. Recpt 1	172	0.2	.0	.0	.0	.0	.0	.0	.0	.0
2. Recpt 2	217	0.2	.0	.0	.0	.0	.0	.0	.0	.0
3. Recpt 3	188	0.2	.0	.0	.0	.0	.0	.0	.0	.0
4. Recpt 4	209	0.2	.0	.0	.0	.0	.0	.0	.0	.0
5. Recpt 5	268	0.2	.0	.0	.0	.0	.0	.0	.0	.0
6. Recpt 6	276	0.1	.0	.0	.0	.0	.0	.0	.0	.0
7. Recpt 7	76	0.2	.0	.0	.0	.0	.0	.0	.0	.0
8. Recpt 8	137	0.2	.0	.0	.0	.0	.0	.0	.0	.0
9. Recpt 9	87	0.5	.0	.0	.0	.0	.1	.0	.0	.0
10. Recpt 1	252	0.3	.0	.0	.0	.0	.0	.0	.0	.0
11. Recpt 1	260	0.4	.0	.0	.0	.0	.1	.0	.0	.0
12. Recpt 1	349	0.3	.0	.0	.0	.0	.0	.0	.0	.0
13. Recpt 1	276	0.5	.0	.0	.0	.0	.0	.0	.1	.0
14. Recpt 1	282	0.3	.0	.0	.0	.0	.0	.0	.0	.0
15. Recpt 1	85	0.4	.0	.0	.0	.0	.0	.0	.1	.0
16. Recpt 1	25	0.3	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: BKF North 2035
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P
1. Recpt 1	*	.0	.0	.0	.1	.0	.0	.0	.0
2. Recpt 2	*	.0	.0	.0	.0	.0	.0	.0	.0
3. Recpt 3	*	.0	.0	.0	.0	.0	.0	.0	.0
4. Recpt 4	*	.0	.0	.0	.0	.0	.0	.0	.0
5. Recpt 5	*	.0	.0	.1	.0	.0	.0	.0	.0
6. Recpt 6	*	.0	.0	.0	.0	.0	.0	.0	.0
7. Recpt 7	*	.0	.0	.1	.0	.0	.0	.0	.0
8. Recpt 8	*	.0	.0	.0	.0	.0	.0	.0	.0
9. Recpt 9	*	.0	.0	.0	.0	.4	.0	.0	.0
10. Recpt 10	*	.0	.0	.0	.0	.2	.0	.0	.0
11. Recpt 11	*	.0	.0	.0	.0	.3	.0	.0	.0
12. Recpt 12	*	.0	.0	.0	.0	.0	.2	.0	.0
13. Recpt 13	*	.0	.0	.0	.0	.0	.0	.3	.0
14. Recpt 14	*	.0	.0	.0	.0	.0	.0	.2	.0
15. Recpt 15	*	.0	.0	.0	.0	.0	.0	.2	.0
16. Recpt 16	*	.0	.0	.0	.0	.0	.0	.0	.1

```
CALINE4:      CALIFORNI LINE      SOURCE    DISPERSIOI MODEL
JUNE               1989 VERSION
PAGE                  1
JOB:          Bakersfield Hybrid  Parking   Lot        A
RUN:          Hour              1
POLLUTANT:    Carbon    Monoxide
I.            SITE      VARIABLES
U=                 0.5 M/S       Z0=              100 CM       ALT=              0 (M)
BRG=                 0 DEGREES   VD=                0 CM/S
CLAS=                7 (G)       VS=                0 CM/S
MIXH=             1000 M         AMB=               0 PPM
SIGTH=               5 DEGREES   TEMP=            7.8 DEGREE    (C)
II.           LINK      VARIABLES
LINK                            *         LINK      COORDINATES       (M)      *                          EF       H        W
DESCRIPTION                     *         X1        Y1        X2        Y2       *         TYPE     VPH    (G/MI)   (M)      (M)
----------------*-------------------------*------------------------------
A.            Link      A       *              5385      5148      5406      5103 *         AG             17     0.8      0        10
B.            Link      B       *              5406      5103      5468      5138 *         AG             17     0.8      0        10
C.            Link      C       *              5468      5138      5448      5178 *         AG             17     0.8      0        10
D.            Link      D       *              5448      5178      5385      5148 *         AG             17     0.8      0        10
E.            Link      E       *              5389      5147      5408      5107 *         AG             17     2.3      0        10
F.            Link      F       *              5408      5107      5464      5140 *         AG             17     2.3      0        10
G.            Link      G       *              5464      5140      5446      5175 *         AG             17     2.3      0        10
H.            Link      H       *              5446      5175      5389      5147 *         AG             17     2.3      0        10
III.          RECEPTOR  LOCATIONS
                                *         COORDINATES       (M)
RECEPTOR                        *         X         Y         Z
------------*--------------------
            1 Recpt           1 *              5382      5149       1.8
            2 Recpt           2 *              5392      5124       1.8
            3 Recpt           3 *              5405      5100       1.8
            4 Recpt           4 *              5441      5119       1.8
            5 Recpt           5 *              5472      5137       1.8
            6 Recpt           6 *              5461      5160       1.8
            7 Recpt           7 *              5449      5182       1.8
            8 Recpt           8 *              5417      5167       1.8
```

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Bakersfield Hybrid Parking Lot A
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.)

RECEPTOR			* PRED CONC (PPM) *	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1	Recpt	1	* 0 *	0	0	0	0	0	0	0	0
2	Recpt	2	* 0 *	0	0	0	0	0	0	0	0
3	Recpt	3	* 0 *	0	0	0	0	0	0	0	0
4	Recpt	4	* 0 *	0	0	0	0	0	0	0	0
5	Recpt	5	* 0 *	0	0	0	0	0	0	0	0
6	Recpt	6	* 0 *	0	0	0	0	0	0	0	0
7	Recpt	7	* 0 *	0	0	0	0	0	0	0	0
8	Recpt	8	* 0 *	0	0	0	0	0	0	0	0

```
CALINE4:      CALIFORNI LINE      SOURCE  DISPERSIOI MODEL
JUNE               1989 VERSION
PAGE                  1
JOB:          Bakersfield Hybrid  Parking Structure  B
RUN:          Hour              1
POLLUTANT:    Carbon    Monoxide
I.            SITE      VARIABLES
U=                0.5 M/S     Z0=          100 CM      ALT=              0 (M)
BRG=                0 DEGREES VD=            0 CM/S
CLAS=               7 (G)     VS=            0 CM/S
MIXH=            1000 M       AMB=           0 PPM
SIGTH=              5 DEGREES TEMP=        7.8 DEGREE    (C)
II.           LINK      VARIABLES
LINK                        *       LINK    COORDINATES       (M)     *                          EF      H       W
DESCRIPTION                 *       X1      Y1        X2      Y2      *       TYPE    VPH        (G/MI)  (M)     (M)
----------------*------------------------*-----------------------------
A.            Link      A         *         5532      5271      5565      5198 *       AG            406     0.8     0       10
B.            Link      B         *         5565      5198      5667      5263 *       AG            406     0.8     0       10
C.            Link      C         *         5667      5263      5640      5323 *       AG            406     0.8     0       10
D.            Link      D         *         5640      5323      5532      5271 *       AG            406     0.8     0       10
E.            Link      E         *         5534      5270      5566      5202 *       AG            406     2.3     0       10
F.            Link      F         *         5566      5202      5664      5263 *       AG            406     2.3     0       10
G.            Link      G         *         5664      5263      5639      5320 *       AG            406     2.3     0       10
H.            Link      H         *         5639      5320      5534      5270 *       AG            406     2.3     0       10
III.          RECEPTOR  LOCATIONS
                            *       COORDINATES       (M)
RECEPTOR                    *       X       Y         Z
------------*--------------------
            1 Recpt         1 *         5529      5272      1.8
            2 Recpt         2 *         5545      5233      1.8
            3 Recpt         3 *         5564      5195      1.8
            4 Recpt         4 *         5619      5228      1.8
            5 Recpt         5 *         5671      5261      1.8
            6 Recpt         6 *         5658      5296      1.8
            7 Recpt         7 *         5643      5326      1.8
            8 Recpt         8 *         5585      5301      1.8
```

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Bakersfield Hybrid Parking Structure B
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.)

RECEPTOR			* PRED CONC (PPM) *	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1	Recpt	1	* 0 *	0	0	0	0	0	0	0	0
2	Recpt	2	* 0.2 *	0	0	0	0	0.1	0	0	0
3	Recpt	3	* 0.1 *	0	0	0	0	0	0	0	0
4	Recpt	4	* 0.1 *	0	0	0	0	0	0	0	0
5	Recpt	5	* 0 *	0	0	0	0	0	0	0	0
6	Recpt	6	* 0 *	0	0	0	0	0	0	0	0
7	Recpt	7	* 0 *	0	0	0	0	0	0	0	0
8	Recpt	8	* 0 *	0	0	0	0	0	0	0	0

```
CALINE4:     CALIFORNI LINE      SOURCE    DISPERSIOI MODEL
JUNE              1989 VERSION
PAGE                 1
JOB:         Bakersfield Hybrid  Parking   Lot        C
RUN:         Hour              1
POLLUTANT:   Carbon    Monoxide
I.           SITE      VARIABLES
U=               0.5 M/S       Z0=            100 CM       ALT=              0 (M)
BRG=               0 DEGREES   VD=              0 CM/S
CLAS=              7 (G)       VS=              0 CM/S
MIXH=           1000 M         AMB=             0 PPM
SIGTH=             5 DEGREES   TEMP=          7.8 DEGREE    (C)
II.          LINK      VARIABLES
LINK         *         LINK      COORDINA (M)      *        EF        H         W
DESCRIPTION  *         X1        Y1       X2       Y2       *         TYPE      VPH       (G/MI)    (M)       (M)
----------------*------------------------*------------------------------
A.           Link      A         *            5462     5000     5492     4936 *         AG                43        0.8       0         10
B.           Link      B         *            5492     4936     5583     4981 *         AG                43        0.8       0         10
C.           Link      C         *            5583     4981     5553     5046 *         AG                43        0.8       0         10
D.           Link      D         *            5553     5046     5462     5000 *         AG                43        0.8       0         10
E.           Link      E         *            5467     4999     5492     4942 *         AG                43        2.3       0         10
F.           Link      F         *            5492     4942     5577     4983 *         AG                43        2.3       0         10
G.           Link      G         *            5577     4983     5552     5042 *         AG                43        2.3       0         10
H.           Link      H         *            5552     5042     5467     4999 *         AG                43        2.3       0         10
III.         RECEPTOR  LOCATIONS
*            COORDINA (M)
RECEPTOR     *         X         Y        Z
------------*--------------------
           1 Recpt           1 *            5458     5000      1.8
           2 Recpt           2 *            5471     4968      1.8
           3 Recpt           3 *            5489     4932      1.8
           4 Recpt           4 *            5542     4955      1.8
           5 Recpt           5 *            5587     4979      1.8
           6 Recpt           6 *            5573     5015      1.8
           7 Recpt           7 *            5556     5051      1.8
           8 Recpt           8 *            5505     5027      1.8
```

Table C-14.15
Bakersfield Hybrid Option Parking Lot 3 CALINE Output

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Bakersfield Hybrid Parking Lot C
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.)

RECEPTOR			* PRED CONC (PPM) *	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1	Recpt	1	* 0 *	0	0	0	0	0	0	0	0
2	Recpt	2	* 0 *	0	0	0	0	0	0	0	0
3	Recpt	3	* 0 *	0	0	0	0	0	0	0	0
4	Recpt	4	* 0 *	0	0	0	0	0	0	0	0
5	Recpt	5	* 0 *	0	0	0	0	0	0	0	0
6	Recpt	6	* 0 *	0	0	0	0	0	0	0	0
7	Recpt	7	* 0 *	0	0	0	0	0	0	0	0
8	Recpt	8	* 0 *	0	0	0	0	0	0	0	0

```
CALINE4:      CALIFORNI LINE      SOURCE    DISPERSIO MODEL
JUNE               1989 VERSION
PAGE                  1
JOB:          Bakersfield Hybrid  Parking   Lot       D
RUN:          Hour              1
POLLUTANT:    Carbon    Monoxide
I.            SITE      VARIABLES
U=                0.5 M/S       Z0=             100 CM       ALT=              0 (M)
BRG=                0 DEGREES   VD=               0 CM/S
CLAS=               7 (G)       VS=               0 CM/S
MIXH=            1000 M         AMB=              0 PPM
SIGTH=              5 DEGREES   TEMP=            7.8 DEGREE   (C)
II.           LINK      VARIABLES
LINK                            *         LINK      COORDINATES       (M)       *                          EF        H         W
DESCRIPTION                     *         X1        Y1        X2        Y2        *         TYPE     VPH     (G/MI)    (M)       (M)
----------------*-------------------------*------------------------------
A.            Link      A       *              5656      5140      5673      5119 *         AG              21       0.8       0        10
B.            Link      B       *              5673      5119      5729      5155 *         AG              21       0.8       0        10
C.            Link      C       *              5729      5155      5712      5177 *         AG              21       0.8       0        10
D.            Link      D       *              5712      5177      5656      5140 *         AG              21       0.8       0        10
E.            Link      E       *              5658      5139      5673      5122 *         AG              21       2.3       0        10
F.            Link      F       *              5673      5122      5725      5154 *         AG              21       2.3       0        10
G.            Link      G       *              5725      5154      5712      5173 *         AG              21       2.3       0        10
H.            Link      H       *              5712      5173      5658      5139 *         AG              21       2.3       0        10
III.          RECEPTOR  LOCATIONS
                                *         COORDINATES       (M)
RECEPTOR                        *         X         Y         Z
------------*--------------------
            1 Recpt           1 *              5653      5140       1.8
            2 Recpt           2 *              5663      5127       1.8
            3 Recpt           3 *              5672      5117       1.8
            4 Recpt           4 *              5704      5136       1.8
            5 Recpt           5 *              5732      5154       1.8
            6 Recpt           6 *              5722      5168       1.8
            7 Recpt           7 *              5713      5180       1.8
            8 Recpt           8 *              5682      5161       1.8
```

Table C-14.16
Bakersfield Hybrid Option Parking Lot 4 CALINE Output

CALINE4: CALIFORNI LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Bakersfield Hybrid Parking Lot D
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.)

RECEPTOR		* PRED CONC (PPM) *	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1 Recpt 1	*	0 *	0	0	0	0	0	0	0	0
2 Recpt 2	*	0 *	0	0	0	0	0	0	0	0
3 Recpt 3	*	0 *	0	0	0	0	0	0	0	0
4 Recpt 4	*	0 *	0	0	0	0	0	0	0	0
5 Recpt 5	*	0 *	0	0	0	0	0	0	0	0
6 Recpt 6	*	0 *	0	0	0	0	0	0	0	0
7 Recpt 7	*	0 *	0	0	0	0	0	0	0	0
8 Recpt 8	*	0 *	0	0	0	0	0	0	0	0

```
CALINE4:     CALIFORNI LINE      SOURCE    DISPERSIOI MODEL
JUNE              1989 VERSION
PAGE                 1
JOB:         Bakersfield Hybrid  Parking   Lot        E
RUN:         Hour              1
POLLUTANT:   Carbon    Monoxide
I.           SITE      VARIABLES
U=               0.5 M/S       Z0=            100 CM       ALT=              0 (M)
BRG=               0 DEGREES   VD=              0 CM/S
CLAS=              7 (G)       VS=              0 CM/S
MIXH=           1000 M         AMB=             0 PPM
SIGTH=             5 DEGREES   TEMP=          7.8 DEGREE    (C)
II.          LINK      VARIABLES
LINK         *         LINK     COORDINA (M)      *         EF        H         W
DESCRIPTION  *         X1       Y1       X2       Y2        *         TYPE      VPH       (G/MI)    (M)       (M)
----------------*------------------------*------------------------------
A.           Link      A        *            5661     5094     5694     5034 *         AG             26        0.8       0         10
B.           Link      B        *            5694     5034     5763     5068 *         AG             26        0.8       0         10
C.           Link      C        *            5763     5068     5731     5130 *         AG             26        0.8       0         10
D.           Link      D        *            5731     5130     5661     5094 *         AG             26        0.8       0         10
E.           Link      E        *            5667     5093     5696     5039 *         AG             26        2.3       0         10
F.           Link      F        *            5696     5039     5757     5069 *         AG             26        2.3       0         10
G.           Link      G        *            5757     5069     5728     5125 *         AG             26        2.3       0         10
H.           Link      H        *            5728     5125     5667     5093 *         AG             26        2.3       0         10
III.         RECEPTOR  LOCATIONS
                                *        COORDINATES       (M)
RECEPTOR                        *        X         Y       Z
------------*--------------------
           1 Recpt           1 *            5657     5094     1.8
           2 Recpt           2 *            5673     5062     1.8
           3 Recpt           3 *            5693     5030     1.8
           4 Recpt           4 *            5733     5049     1.8
           5 Recpt           5 *            5769     5066     1.8
           6 Recpt           6 *            5751     5102     1.8
           7 Recpt           7 *            5732     5135     1.8
           8 Recpt           8 *            5696     5117     1.8
```

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Bakersfield Hybrid Parking Lot E
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.)

RECEPTOR			* PRED CONC (PPM) *	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1	Recpt	1	* 0.0 *	0	0	0	0	0	0	0	0
2	Recpt	2	* 0.0 *	0	0	0	0	0	0	0	0
3	Recpt	3	* 0.0 *	0	0	0	0	0	0	0	0
4	Recpt	4	* 0.0 *	0	0	0	0	0	0	0	0
5	Recpt	5	* 0.0 *	0	0	0	0	0	0	0	0
6	Recpt	6	* 0.0 *	0	0	0	0	0	0	0	0
7	Recpt	7	* 0.0 *	0	0	0	0	0	0	0	0
8	Recpt	8	* 0.0 *	0	0	0	0	0	0	0	0

```
CALINE4:      CALIFORNI LINE      SOURCE    DISPERSIOI MODEL
JUNE               1989 VERSION
PAGE                  1
JOB:          Bakersfield Hybrid  Parking   Structure  F
RUN:          Hour              1
POLLUTANT:    Carbon    Monoxide
I.            SITE      VARIABLES
U=                0.5 M/S       Z0=              100 CM       ALT=              0 (M)
BRG=                0 DEGREES   VD=                0 CM/S
CLAS=               7 (G)       VS=                0 CM/S
MIXH=            1000 M         AMB=               0 PPM
SIGTH=              5 DEGREES   TEMP=            7.8 DEGREE   (C)
II.           LINK      VARIABLES
LINK                            *         LINK      COORDINATES       (M)      *                          EF       H        W
DESCRIPTION                     *         X1        Y1        X2        Y2       *         TYPE     VPH    (G/MI)   (M)      (M)
----------------*-------------------------*------------------------------
A.            Link      A       *            5759      5203      5775      5171 *         AG            305     0.8      0        10
B.            Link      B       *            5775      5171      5880      5194 *         AG            305     0.8      0        10
C.            Link      C       *            5880      5194      5872      5275 *         AG            305     0.8      0        10
D.            Link      D       *            5872      5275      5759      5203 *         AG            305     0.8      0        10
E.            Link      E       *            5763      5202      5777      5176 *         AG            305     2.3      0        10
F.            Link      F       *            5777      5176      5873      5197 *         AG            305     2.3      0        10
G.            Link      G       *            5873      5197      5869      5269 *         AG            305     2.3      0        10
H.            Link      H       *            5869      5269      5763      5202 *         AG            305     2.3      0        10
III.          RECEPTOR  LOCATIONS
                                *         COORDINATES       (M)
RECEPTOR                        *         X         Y         Z
------------*--------------------
            1 Recpt           1 *            5756      5203       1.8
            2 Recpt           2 *            5765      5185       1.8
            3 Recpt           3 *            5774      5169       1.8
            4 Recpt           4 *            5828      5178       1.8
            5 Recpt           5 *            5883      5191       1.8
            6 Recpt           6 *            5881      5234       1.8
            7 Recpt           7 *            5876      5279       1.8
            8 Recpt           8 *            5812      5242       1.8
```

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Bakersfield Hybrid Parking Structure F
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.)

RECEPTOR			* PRED CONC (PPM) *	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1	Recpt	1	* 0 *	0	0	0	0	0	0	0	0
2	Recpt	2	* 0.1 *	0	0	0	0	0	0	0	0
3	Recpt	3	* 0.1 *	0	0	0	0	0	0	0	0
4	Recpt	4	* 0 *	0	0	0	0	0	0	0	0
5	Recpt	5	* 0 *	0	0	0	0	0	0	0	0
6	Recpt	6	* 0 *	0	0	0	0	0	0	0	0
7	Recpt	7	* 0 *	0	0	0	0	0	0	0	0
8	Recpt	8	* 0 *	0	0	0	0	0	0	0	0

```
CALINE4:     CALIFORNI LINE      SOURCE    DISPERSIOI MODEL
JUNE              1989 VERSION
PAGE                 1
JOB:         Bakersfield Hybrid  Parking   Structure  G
RUN:         Hour              1
POLLUTANT:   Carbon    Monoxide
I.           SITE      VARIABLES
U=               0.5 M/S     Z0=            100 CM      ALT=            0 (M)
BRG=               0 DEGREES VD=              0 CM/S
CLAS=              7 (G)     VS=              0 CM/S
MIXH=           1000 M       AMB=             0 PPM
SIGTH=             5 DEGREES TEMP=          7.8 DEGREE    (C)
II.          LINK      VARIABLES
LINK         *         LINK      COORDINA (M)      *         EF        H         W
DESCRIPTION  *         X1        Y1        X2      Y2        *         TYPE      VPH       (G/MI)    (M)       (M)
----------------*------------------------*------------------------------
A.           Link      A         *            5789      5145      5831      5056 *         AG            333       0.8       0         10
B.           Link      B         *            5831      5056      5890      5067 *         AG            333       0.8       0         10
C.           Link      C         *            5890      5067      5880      5163 *         AG            333       0.8       0         10
D.           Link      D         *            5880      5163      5789      5145 *         AG            333       0.8       0         10
E.           Link      E         *            5793      5143      5834      5060 *         AG            333       2.3       0         10
F.           Link      F         *            5834      5060      5885      5071 *         AG            333       2.3       0         10
G.           Link      G         *            5885      5071      5877      5160 *         AG            333       2.3       0         10
H.           Link      H         *            5877      5160      5793      5143 *         AG            333       2.3       0         10
III.         RECEPTOR  LOCATIONS
                                 *         COORDINATES       (M)
RECEPTOR                         *         X         Y       Z
------------*--------------------
           1 Recpt           1 *            5785      5147      1.8
           2 Recpt           2 *            5806      5101      1.8
           3 Recpt           3 *            5827      5054      1.8
           4 Recpt           4 *            5859      5058      1.8
           5 Recpt           5 *            5891      5064      1.8
           6 Recpt           6 *            5890      5117      1.8
           7 Recpt           7 *            5883      5166      1.8
           8 Recpt           8 *            5836      5161      1.8
```

Table C-14.19
Bakersfield Hybrid Option Parking Lot 7 CALINE Output

CALINE4: CALIFORNI LINE SOURCE DISPERSIOI MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Bakersfield Hybrid Parking Structure G
RUN: Hour 1
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (PRED. CONC. INCLUDES AMB.)

RECEPTOR			* PRED CONC (PPM) *	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1	Recpt	1	* 0 *	0	0	0	0	0	0	0	0
2	Recpt	2	* 0.1 *	0	0	0	0	0	0	0	0
3	Recpt	3	* 0.1 *	0	0	0	0	0	0	0	0
4	Recpt	4	* 0 *	0	0	0	0	0	0	0	0
5	Recpt	5	* 0 *	0	0	0	0	0	0	0	0
6	Recpt	6	* 0 *	0	0	0	0	0	0	0	0
7	Recpt	7	* 0 *	0	0	0	0	0	0	0	0
8	Recpt	8	* 0 *	0	0	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: VTH Station 2035
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 1000. M AMB= .0 PPM
SIGTH= 5. DEGREES TEMP= 10.6 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Link A	6778	4253	7048	4246	PK	200	.9	.0	10.0
B. Link B	7048	4246	7046	4145	PK	200	.9	.0	10.0
C. Link C	7046	4145	6777	4151	PK	200	.9	.0	10.0
D. Link D	6777	4151	6778	4253	PK	200	.9	.0	10.0
E. Link E	6775	4111	7036	4104	PK	200	.9	.0	10.0
F. Link F	7036	4104	7026	4029	PK	200	.9	.0	10.0
G. Link G	7026	4029	6771	3991	PK	200	.9	.0	10.0
H. Link H	6771	3991	6775	4111	PK	200	.9	.0	10.0
I. Link I	6782	4249	7044	4243	PK	200	2.6	.0	10.0
J. Link J	7044	4243	7042	4150	PK	200	2.6	.0	10.0
K. Link K	7042	4150	6781	4154	PK	200	2.6	.0	10.0
L. Link L	6781	4154	6782	4249	PK	200	2.6	.0	10.0
M. Link M	6779	4107	7032	4100	PK	200	2.6	.0	10.0
N. Link N	7032	4100	7023	4032	PK	200	2.6	.0	10.0
O. Link O	7023	4032	6775	3994	PK	200	2.6	.0	10.0
P. Link P	6775	3994	6779	4107	PK	200	2.6	.0	10.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: VTH Station 2035
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. Recpt 1	*	6772	4270	1.8
2. Recpt 2	*	6902	4265	1.8
3. Recpt 3	*	7046	4257	1.8
4. Recpt 4	*	6769	4201	1.8
5. Recpt 5	*	7055	4197	1.8
6. Recpt 6	*	6767	4134	1.8
7. Recpt 7	*	6897	4127	1.8
8. Recpt 8	*	7038	4123	1.8
9. Recpt 9	*	6767	4052	1.8
10. Recpt 10	*	7040	4066	1.8
11. Recpt 11	*	6763	3979	1.8
12. Recpt 12	*	6896	4000	1.8
13. Recpt 13	*	7040	4016	1.8

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. Recpt 1	173	0.1	.0	.0	.0	.0	.0	.0	.0	.0
2. Recpt 2	211	0	.0	.0	.0	.0	.0	.0	.0	.0
3. Recpt 3	184	0.2	.0	.0	.0	.0	.0	.0	.0	.0
4. Recpt 4	157	0	.0	.0	.0	.0	.0	.0	.0	.0
5. Recpt 5	203	0.1	.0	.0	.0	.0	.0	.0	.0	.0
6. Recpt 6	172	0	.0	.0	.0	.0	.0	.0	.0	.0
7. Recpt 7	108	0	.0	.0	.0	.0	.0	.0	.0	.0
8. Recpt 8	190	0.1	.0	.0	.0	.0	.0	.0	.0	.0
9. Recpt 9	17	0.1	.0	.0	.0	.0	.0	.0	.0	.0
10. Recpt 1	337	0	.0	.0	.0	.0	.0	.0	.0	.0
11. Recpt 1	11	0.1	.0	.0	.0	.0	.0	.0	.0	.0
12. Recpt 1	70	0	.0	.0	.0	.0	.0	.0	.0	.0
13. Recpt 1	347	0	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: VTH Station 2035
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P
1. Recpt 1	*	.0	.0	.0	.0	.0	.0	.0	.0
2. Recpt 2	*	.0	.0	.0	.0	.0	.0	.0	.0
3. Recpt 3	*	.0	.0	.0	.0	.0	.0	.0	.0
4. Recpt 4	*	.0	.0	.0	.0	.0	.0	.0	.0
5. Recpt 5	*	.0	.0	.0	.0	.0	.0	.0	.0
6. Recpt 6	*	.0	.0	.0	.0	.0	.0	.0	.0
7. Recpt 7	*	.0	.0	.0	.0	.0	.0	.0	.0
8. Recpt 8	*	.0	.0	.0	.0	.0	.0	.0	.0
9. Recpt 9	*	.0	.0	.0	.0	.0	.0	.0	.0
10. Recpt 10	*	.0	.0	.0	.0	.0	.0	.0	.0
11. Recpt 11	*	.0	.0	.0	.0	.0	.0	.0	.0
12. Recpt 12	*	.0	.0	.0	.0	.0	.0	.0	.0
13. Recpt 13	*	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNI LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 1

JOB: West Hanford At Grade Parking Lots 2-Jan
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	1	M/S	Z0=	100	CM	ALT=	0	(M)
BRG=	WORST	CASE	VD=	0	CM/S			
CLAS=	7	(G)	VS=	0	CM/S			
MIXH=	1000	M	AMB=	0	PPM			
SIGTH=	5	DEGREES	TEMP=	4.4	DEGREE	(C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK X1	COORDINA (M) Y1	X2	* Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A.	Link	A	6598	4135	6654	4203	AG	175	0.9	0	10
B.	Link	B	6654	4203	6632	4273	AG	175	0.9	0	10
C.	Link	C	6632	4273	6655	4338	AG	175	0.9	0	10
D.	Link	D	6655	4338	6581	4425	AG	175	0.9	0	10
E.	Link	E	6581	4425	6517	4290	AG	175	0.9	0	10
F.	Link	F	6517	4290	6598	4135	AG	175	0.9	0	10
G.	Link	G	6598	4135	6654	4203	AG	175	2.6	0	10
H.	Link	H	6654	4203	6632	4273	AG	175	2.6	0	10
I.	Link	I	6632	4273	6655	4338	AG	175	2.6	0	10
J.	Link	J	6655	4338	6581	4425	AG	175	2.6	0	10
K.	Link	K	6581	4425	6517	4290	AG	175	2.6	0	10
L.	Link	L	6517	4290	6598	4135	AG	175	2.6	0	10

III. RECEPTOR LOCATIONS

* RECEPTOR	*	COORDINA (M) X	Y	Z
1	Recpt 1	6595	4131	1.8
2	Recpt 2	6661	4205	1.8
3	Recpt 3	6637	4278	1.8
4	Recpt 4	6658	4347	1.8
5	Recpt 5	6576	4435	1.8
6	Recpt 6	6506	4298	1.8

CALINE4: CALIFORNI LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 2

JOB: West Hanford At Grade Parking Lots 2-Jan
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG * (DEG)	* PRED CONC *	* CONC/LINK (PPM)	A	B	C	D	E	F	G	H
1	Recpt	1	336	0.1	0	0	0	0	0	0	0	0
2	Recpt	2	224	0	0	0	0	0	0	0	0	0
3	Recpt	3	13	0	0	0	0	0	0	0	0	0
4	Recpt	4	198	0	0	0	0	0	0	0	0	0
5	Recpt	5	142	0	0	0	0	0	0	0	0	0
6	Recpt	6	147	0	0	0	0	0	0	0	0	0

RECEPTOR	*	* CONC/LINK (PPM) *	I	J	K	L
1	Recpt	1	0	0	0	0
2	Recpt	2	0	0	0	0
3	Recpt	3	0	0	0	0
4	Recpt	4	0	0	0	0
5	Recpt	5	0	0	0	0
6	Recpt	6	0	0	0	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 1

JOB: West Hanford At-Grade Parking Structure
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

I. SITE VARIABLES

U=	1	M/S	Z0=	100	CM	ALT=	0 (M)
BRG=	WORST	CASE	VD=	0	CM/S		
CLAS=	7	(G)	VS=	0	CM/S		
MIXH=	1000	M	AMB=	0	PPM		
SIGTH=	5	DEGREES	TEMP=	4.4	DEGREE	(C)	

II. LINK VARIABLES

LINK DESCRIPTI(	*	LINK	COORDINA (M) X1	Y1	* X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A.	Link	A	6910	4013	6862	4070	AG	263	0.9	0	10
B.	Link	B	6862	4070	6792	4043	AG	263	0.9	0	10
C.	Link	C	6792	4043	6720	4037	AG	263	0.9	0	10
D.	Link	D	6720	4037	6702	3964	AG	263	0.9	0	10
E.	Link	E	6702	3964	6806	3968	AG	263	0.9	0	10
F.	Link	F	6806	3968	6910	4013	AG	263	0.9	0	10
G.	Link	G	6910	4013	6862	4070	AG	263	2.6	0	10
H.	Link	H	6862	4070	6792	4043	AG	263	2.6	0	10
I.	Link	I	6792	4043	6720	4037	AG	263	2.6	0	10
J.	Link	J	6720	4037	6702	3964	AG	263	2.6	0	10
K.	Link	K	6702	3964	6806	3968	AG	263	2.6	0	10
L.	Link	L	6806	3968	6910	4013	AG	263	2.6	0	10

III. RECEPTOR LOCATIONS

* RECEPTOR	* COORDINA (M)	X	Y	Z
1	Recpt 1	6915	4015	1.8
2	Recpt 2	6861	4080	1.8
3	Recpt 3	6789	4054	1.8
4	Recpt 4	6714	4043	1.8
5	Recpt 5	6696	3961	1.8
6	Recpt 6	6807	3963	1.8

CALINE4: CALIFORNI LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 2

JOB: West Hanford At-Grade Parking Structure
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	* BRG * (DEG)	* PRED * CONC *	CONC/LINK * (PPM) A	B	C	D	E	F	G	H
1	Recpt	1	248	0.2	0	0	0	0	0	0	0
2	Recpt	2	148	0	0	0	0	0	0	0	0
3	Recpt	3	249	0	0	0	0	0	0	0	0
4	Recpt	4	94	0	0	0	0	0	0	0	0
5	Recpt	5	84	0.1	0	0	0	0	0	0	0
6	Recpt	6	61	0.1	0	0	0	0	0	0	0

RECEPTOR	*	CONC/LINK * (PPM)	I	J	K	L
1	Recpt	1	0	0	0	0
2	Recpt	2	0	0	0	0
3	Recpt	3	0	0	0	0
4	Recpt	4	0	0	0	0
5	Recpt	5	0	0	0	0
6	Recpt	6	0	0	0	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 1

JOB: West Hanford At Grade Parking Lots 2-Jan
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

I. SITE VARIABLES

U= 1 M/S Z0= 100 CM ALT= 0 (M)
BRG= WORST CASE VD= 0 CM/S
CLAS= 7 (G) VS= 0 CM/S
MIXH= 1000 M AMB= 0 PPM
SIGTH= 5 DEGREES TEMP= 4.4 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTI(	*	LINK	COORDINA (M) X1	Y1	* X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A.	Link	A	6598	4135	6654	4203	AG	145	0.9	0	10
B.	Link	B	6654	4203	6632	4273	AG	145	0.9	0	10
C.	Link	C	6632	4273	6655	4338	AG	145	0.9	0	10
D.	Link	D	6655	4338	6581	4425	AG	145	0.9	0	10
E.	Link	E	6581	4425	6517	4290	AG	145	0.9	0	10
F.	Link	F	6517	4290	6598	4135	AG	145	0.9	0	10
G.	Link	G	6598	4135	6654	4203	AG	145	2.6	0	10
H.	Link	H	6654	4203	6632	4273	AG	145	2.6	0	10
I.	Link	I	6632	4273	6655	4338	AG	145	2.6	0	10
J.	Link	J	6655	4338	6581	4425	AG	145	2.6	0	10
K.	Link	K	6581	4425	6517	4290	AG	145	2.6	0	10
L.	Link	L	6517	4290	6598	4135	AG	145	2.6	0	10

III. RECEPTOR LOCATIONS

*	COORDINA (M)			
RECEPTOR *		X	Y	Z
1	Recpt 1	6595	4131	1.8
2	Recpt 2	6661	4205	1.8
3	Recpt 3	6637	4278	1.8
4	Recpt 4	6658	4347	1.8
5	Recpt 5	6576	4435	1.8
6	Recpt 6	6506	4298	1.8

CALINE4: CALIFORNI LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 2

JOB: West Hanford At Grade Parking Lots 2-Jan
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

*	*	PRED	*	CONC/LINK								
*	BRG	*	CONC	*	(PPM)							
RECEPTOR	*	(DEG)	*	(PPM)	A	B	C	D	E	F	G	H
1	Recpt 1	336	0	0	0	0	0	0	0	0	0	0
2	Recpt 2	224	0	0	0	0	0	0	0	0	0	0
3	Recpt 3	13	0	0	0	0	0	0	0	0	0	0
4	Recpt 4	198	0	0	0	0	0	0	0	0	0	0
5	Recpt 5	142	0	0	0	0	0	0	0	0	0	0
6	Recpt 6	147	0	0	0	0	0	0	0	0	0	0

*	CONC/LINK				
*	(PPM)				
RECEPTOR	*	I	J	K	L
1	Recpt 1	0	0	0	0
2	Recpt 2	0	0	0	0
3	Recpt 3	0	0	0	0
4	Recpt 4	0	0	0	0
5	Recpt 5	0	0	0	0
6	Recpt 6	0	0	0	0

CALINE4: CALIFORNI LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 1

JOB: West Hanford Below-Gra Parking Structu
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	1	M/S	Z0=	100	CM	ALT=	0 (M)
BRG=	WORST	CASE	VD=	0	CM/S		
CLAS=	7	(G)	VS=	0	CM/S		
MIXH=	1000	M	AMB=	0	PPM		
SIGTH=	5	DEGREES	TEMP=	4.4	DEGREE	(C)	

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK *	COORDINA X1	(M) Y1	* X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A.	Link	A	6910	4013	6862	4070	AG	275	0.9	0	10
B.	Link	B	6862	4070	6792	4043	AG	275	0.9	0	10
C.	Link	C	6792	4043	6720	4037	AG	275	0.9	0	10
D.	Link	D	6720	4037	6702	3964	AG	275	0.9	0	10
E.	Link	E	6702	3964	6806	3968	AG	275	0.9	0	10
F.	Link	F	6806	3968	6910	4013	AG	275	0.9	0	10
G.	Link	G	6910	4013	6862	4070	AG	275	2.6	0	10
H.	Link	H	6862	4070	6792	4043	AG	275	2.6	0	10
I.	Link	I	6792	4043	6720	4037	AG	275	2.6	0	10
J.	Link	J	6720	4037	6702	3964	AG	275	2.6	0	10
K.	Link	K	6702	3964	6806	3968	AG	275	2.6	0	10
L.	Link	L	6806	3968	6910	4013	AG	275	2.6	0	10

III. RECEPTOR LOCATIONS

* RECEPTOR	*	COORDINA (M) X	Y	Z
1	Recpt 1	6915	4015	1.8
2	Recpt 2	6861	4080	1.8
3	Recpt 3	6789	4054	1.8
4	Recpt 4	6714	4043	1.8
5	Recpt 5	6696	3961	1.8
6	Recpt 6	6807	3963	1.8

CALINE4: CALIFORNI LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 2

JOB: West Hanford Below-Gra Parking Structu
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	* BRG * (DEG)	* PRED * (DEG)	* CONC * (PPM)	CONC/LINK * (PPM)	A	B	C	D	E	F	G	H
1	Recpt	1	248	0.2	0	0	0	0	0	0	0	0
2	Recpt	2	148	0.1	0	0	0	0	0	0	0	0
3	Recpt	3	249	0	0	0	0	0	0	0	0	0
4	Recpt	4	94	0.1	0	0	0	0	0	0	0	0
5	Recpt	5	84	0.1	0	0	0	0	0	0	0	0
6	Recpt	6	61	0.1	0	0	0	0	0	0	0	0

RECEPTOR	*	CONC/LINK * (PPM)	I	J	K	L
1	Recpt	1	0	0	0	0
2	Recpt	2	0	0	0	0
3	Recpt	3	0	0	0	0
4	Recpt	4	0	0	0	0
5	Recpt	5	0	0	0	0
6	Recpt	6	0	0	0	0

Summary of Average Speeds and Emission Factors for CO Hot Spot Analysis

Intersection		Alternatives	Analysis Year	Average Speed - Approach (mph)							
				NBL	NBT	SBL	SBT	EBL	EBT	WBL	WBT
Int 23	Tulare Street and F Street (AM only)	Existing 2009	2009	13.7	13.7	13.7	13.7	16.7	16.7	16.7	16.7
		Existing plus project 2009	2009	9.1	9.1	9.1	9.1	13.7	13.7	13.7	13.7
		No Build 2035	2035	7.4	7.4	7.4	7.4	13.7	10.6	13.7	13.7
		Build 2035	2035	7.4	7.4	7.4	7.4	13.7	12.4	13.7	13.7
Int 83	F Street and Fresno Street (AM only)	Existing 2009	2009	5.3	5.3	5.3	5.3	11.8	10.3	11.8	11.8
		Existing plus project 2009	2009	5.3	5.3	5.3	5.3	11.8	10.3	11.8	11.8
		No Build 2035	2035	5.3	5.3	5.3	5.3	11.8	9.3	11.8	11.0
		Build 2035	2035	7.7	7.7	7.7	7.7	11.8	9.3	11.8	11.0

Notes:

1) If average speeds were less than 3 mph, they were set equal to 3 mph.

Summary of Average Speeds and Emission Factors for CO Hot Spot Analysis

Intersection		Alternatives	Analysis Year	Approach Emission Factors (g/mile)							
				NBL	NBT	SBL	SBT	EBL	EBT	WBL	WBT
Int 23	Tulare Street and F Street (AM only)	Existing 2009	2009	7.36	7.36	7.36	7.36	6.60	6.60	6.60	6.60
		Existing plus project 2009	2009	9.07	9.07	9.07	9.07	7.36	7.36	7.36	7.36
		No Build 2035	2035	1.78	1.78	1.78	1.78	1.35	1.51	1.35	1.35
		Build 2035	2035	1.78	1.78	1.78	1.78	1.35	1.45	1.35	1.35
Int 83	F Street and Fresno Street (AM only)	Existing 2009	2009	10.98	10.98	10.98	10.98	7.97	8.68	7.97	7.97
		Existing plus project 2009	2009	10.98	10.98	10.98	10.98	7.97	8.68	7.97	7.97
		No Build 2035	2035	1.95	1.95	1.95	1.95	1.45	1.63	1.45	1.51
		Build 2035	2035	1.70	1.70	1.70	1.70	1.45	1.63	1.45	1.51

Notes:

1) If average speeds were less than 3 mph, they were set equal to 3 mph.

Summary of Average Speeds and Emission Factors for CO Hot Spot Analysis

Intersection		Alternatives	Analysis Year	Average Speed - Departure (mph)				Departure Emission Factors (g/mile)			
				NB	SB	EB	WB	NB	SB	EB	WB
Int 23	Tulare Street and F Street (AM only)	Existing 2009	2009	25.9	25.9	27.0	27.0	5.17	5.17	5.06	5.06
		Existing plus project 2009	2009	23.0	23.0	25.9	25.9	5.55	5.55	5.17	5.17
		No Build 2035	2035	21.5	21.5	23.0	25.9	1.10	1.10	1.08	1.03
		Build 2035	2035	21.5	21.5	24.1	25.9	1.10	1.10	1.06	1.03
Int 83	F Street and Fresno Street (AM only)	Existing 2009	2009	20.4	20.4	26.7	27.6	6.00	6.00	5.06	4.96
		Existing plus project 2009	2009	20.4	20.4	26.7	27.6	6.00	6.00	5.06	4.96
		No Build 2035	2035	20.4	20.4	25.6	27.1	1.14	1.14	1.03	1.01
		Build 2035	2035	23.9	23.9	25.6	27.1	1.06	1.06	1.03	1.01

Notes:

1) If average speeds were less than 3 mph, they were set equal to 3 mph.

Summary of Average Speeds and Emission Factors for CO Hot Spot Analysis

Intersection		Alternatives	Analysis Year	Average Speed - Approach (mph)							
				NBL	NBT	SBL	SBT	EBL	EBT	WBL	WBT
Int 17	Van Ness and Inyo Street (PM only)	Existing 2009	2009	13.7	13.1	13.7	13.7	11.1	11.1	11.1	11.1
		Existing plus project 2009	2009	13.7	13.1	13.7	13.7	11.1	11.1	11.1	11.1
		No Build 2035	2035	11.1	9.0	11.1	10.5	9.1	3.5	9.1	8.5
		Build 2035	2035	9.1	6.1	9.1	8.5	9.1	3.5	9.1	7.6
Int 25	H Street and Tulare Street (PM only)	Existing 2009	2009	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1
		Existing plus project 2009	2009	9.1	8.5	9.1	9.1	9.1	9.1	9.1	9.1
		No Build 2035	2035	7.4	3.0	7.4	6.4	13.7	4.8	13.7	11.6
		Build 2035	2035	6.4	3.0	7.4	6.4	13.7	4.8	13.7	11.6
Int 42	Van Ness Avenue and Fresno Street (PM only)	Existing 2009	2009	5.1	7.4	3.0	7.4	5.1	7.4	3.0	7.4
		Existing plus project 2009	2009	3.0	6.4	3.0	6.4	5.1	7.4	3.0	5.1
		No Build 2035	2035	3.0	6.4	3.0	3.0	3.0	3.0	3.0	4.1
		Build 2035	2035	3.0	6.4	3.0	3.0	3.0	3.0	3.0	4.1

Notes:

1) If average speeds were less than 3 mph, they were set equal to 3 mph.

Summary of Average Speeds and Emission Factors for CO Hot Spot Analysis

Intersection		Alternatives	Analysis Year	Approach Emission Factors (g/mile)							
				NBL	NBT	SBL	SBT	EBL	EBT	WBL	WBT
Int 17	Van Ness and Inyo Street (PM only)	Existing 2009	2009	7.36	7.66	7.36	7.36	8.31	8.31	8.31	8.31
		Existing plus project 2009	2009	7.36	7.66	7.36	7.36	8.31	8.31	8.31	8.31
		No Build 2035	2035	1.51	1.63	1.51	1.51	1.63	1.97	1.63	1.63
		Build 2035	2035	1.63	1.86	1.63	1.63	1.63	1.97	1.63	1.70
Int 25	H Street and Tulare Street (PM only)	Existing 2009	2009	9.07	9.07	9.07	9.07	9.07	9.07	9.07	9.07
		Existing plus project 2009	2009	9.07	9.07	9.07	9.07	9.07	9.07	9.07	9.07
		No Build 2035	2035	1.78	1.99	1.78	1.86	1.35	1.95	1.35	1.45
		Build 2035	2035	1.86	1.99	1.78	1.86	1.35	1.95	1.35	1.45
Int 42	Van Ness Avenue and Fresno Street (PM only)	Existing 2009	2009	10.98	9.95	11.67	9.95	10.98	9.95	11.67	9.95
		Existing plus project 2009	2009	11.67	10.45	11.67	10.45	10.98	9.95	11.67	10.98
		No Build 2035	2035	1.99	1.86	1.99	1.99	1.99	1.99	1.99	1.97
		Build 2035	2035	1.99	1.86	1.99	1.99	1.99	1.99	1.99	1.97

Notes:

1) If average speeds were less than 3 mph, they were set equal to 3 mph.

Summary of Average Speeds and Emission Factors for CO Hot Spot Analysis

Intersection		Alternatives	Analysis Year	Average Speed - Departure (mph)				Departure Emission Factors (g/mile)			
				NB	SB	EB	WB	NB	SB	EB	WB
Int 17	Van Ness and Inyo Street (PM only)	Existing 2009	2009	25.6	25.9	24.4	24.4	5.17	5.17	5.41	5.41
		Existing plus project 2009	2009	25.6	25.6	24.4	24.4	5.17	5.17	5.41	5.41
		No Build 2035	2035	23.0	23.0	19.9	22.5	1.08	1.08	1.14	1.08
		Build 2035	2035	19.9	19.9	19.9	21.5	1.14	1.14	1.14	1.10
Int 25	H Street and Tulare Street (PM only)	Existing 2009	2009	23.0	23.0	23.0	23.0	5.55	5.55	5.55	5.55
		Existing plus project 2009	2009	23.0	23.0	23.0	23.0	5.55	5.55	5.55	5.55
		No Build 2035	2035	9.0	9.0	17.8	24.8	1.63	1.63	1.19	1.04
		Build 2035	2035	9.0	9.0	17.8	24.8	1.63	1.63	1.19	1.04
Int 42	Van Ness Avenue and Fresno Street (PM only)	Existing 2009	2009	21.5	3.0	21.5	21.5	5.69	11.67	5.69	5.69
		Existing plus project 2009	2009	21.5	3.0	18.2	21.5	5.69	11.67	6.38	5.69
		No Build 2035	2035	20.0	3.0	5.1	16.7	1.14	1.99	1.95	1.23
		Build 2035	2035	20.0	5.1	5.1	16.7	1.14	1.95	1.95	1.23

Notes:

1) If average speeds were less than 3 mph, they were set equal to 3 mph.

Summary of Average Speeds and Emission Factors for CO Hot Spots Analysis

Intersection		Alternatives	Analysis Year	Average Speed - Approach (mph)							
				NBL	NBT	SBL	SBT	EBL	EBT	WBL	WBT
Int 23	Union Avenue/ California Avenue (PM only)	Existing 2009	2009	3.0	6.4	5.1	7.6	3.0	5.1	3.0	5.1
		Existing plus project 2009	2009	3.0	6.4	5.1	7.6	3.0	5.1	3.0	5.1
		No Build 2035	2035	3.0	3.5	3.0	9.0	3.0	3.0	3.0	5.1
		Build 2035	2035	3.0	3.5	3.0	7.6	3.0	3.0	3.0	5.1
Int 30	Oak Street/ Truxtun Avenue (PM only)	Existing 2009	2009	3.0	6.4	3.0	4.1	3.0	6.4	5.1	4.1
		Existing plus project 2009	2009	3.0	6.4	3.0	4.1	3.0	6.4	5.1	4.1
		No Build 2035	2035	3.0	3.0	3.0	3.0	3.0	3.5	3.0	4.1
		Build 2035	2035	3.0	3.0	5.1	3.0	3.0	3.5	3.0	4.1
Int 47	Oak Street/ SR 178 (PM only)	Existing 2009	2009	3.0	5.1	3.0	3.0	3.0	3.0	5.1	3.0
		Existing plus project 2009	2009	3.0	5.1	3.0	3.0	3.0	3.0	5.1	3.0
		No Build 2035	2035	3.0	3.0	3.0	3.0	3.0	9.0	3.0	9.0
		Build 2035	2035	3.0	5.1	3.0	3.0	3.0	3.0	5.1	3.0

Notes:

1) If average speeds were less than 3 mph, they were set equal to 3 mph.

Summary of Average Speeds and Emission Factors for CO Hot Spots Analysis

Intersection		Alternatives	Analysis Year	Approach Emission Factors (g/mile)							
				NBL	NBT	SBL	SBT	EBL	EBT	WBL	WBT
Int 23	Union Avenue/ California Avenue (PM only)	Existing 2009	2009	11.96	10.91	11.49	9.86	11.96	11.49	11.96	11.49
		Existing plus project 2009	2009	11.96	10.91	11.49	9.86	11.96	11.49	11.96	11.49
		No Build 2035	2035	2.59	2.57	2.59	2.02	2.59	2.59	2.59	2.55
		Build 2035	2035	2.59	2.57	2.59	2.13	2.59	2.59	2.59	2.55
Int 30	Oak Street/ Truxtun Avenue (PM only)	Existing 2009	2009	11.96	10.91	11.96	11.72	11.96	10.91	11.49	11.72
		Existing plus project 2009	2009	11.96	10.91	11.96	11.72	11.96	10.91	11.49	11.72
		No Build 2035	2035	2.59	2.59	2.59	2.59	2.59	2.57	2.59	2.57
		Build 2035	2035	2.59	2.59	2.55	2.59	2.59	2.57	2.59	2.57
Int 47	Oak Street/ SR 178 (PM only)	Existing 2009	2009	11.96	11.49	11.96	11.96	11.96	11.96	11.49	11.96
		Existing plus project 2009	2009	11.96	11.49	11.96	11.96	11.96	11.96	11.49	11.96
		No Build 2035	2035	2.59	2.59	2.59	2.59	2.59	2.02	2.59	2.02
		Build 2035	2035	2.59	2.55	2.59	2.59	2.59	2.59	2.55	2.59

Notes:

1) If average speeds were less than 3 mph, they were set equal to 3 mph.

Summary of Average Speeds and Emission Factors for CO Hot Spots Analysis

Intersection		Alternatives	Analysis Year	Average Speed - Departure (mph)				Departure Emission Factors (g/mile)			
				NB	SB	EB	WB	NB	SB	EB	WB
Int 23	Union Avenue/ California Avenue (PM only)	Existing 2009	2009	16.70	23.00	3.00	18.20	6.59	5.45	11.96	6.34
		Existing plus project 2009	2009	16.70	23.00	3.00	18.20	6.59	5.45	11.96	6.34
		No Build 2035	2035	9.10	24.40	3.00	18.20	2.02	1.15	2.59	1.31
		Build 2035	2035	9.10	24.40	3.00	18.20	2.02	1.15	2.59	1.31
Int 30	Oak Street/ Truxtun Avenue (PM only)	Existing 2009	2009	3.20	21.50	3.20	21.50	11.96	5.60	11.96	5.60
		Existing plus project 2009	2009	3.20	21.50	3.20	21.50	11.96	5.60	11.96	5.60
		No Build 2035	2035	3.00	21.50	5.20	21.50	2.59	1.19	2.55	1.19
		Build 2035	2035	3.00	21.50	5.20	21.50	2.59	1.19	2.55	1.19
Int 47	Oak Street/ SR 178 (PM only)	Existing 2009	2009	18.20	3.00	19.90	24.40	6.34	11.96	5.92	5.31
		Existing plus project 2009	2009	18.20	3.00	19.90	24.40	6.34	11.96	5.92	5.31
		No Build 2035	2035	18.20	3.00	3.30	24.40	1.31	2.59	2.59	1.15
		Build 2035	2035	18.20	3.00	3.30	24.40	1.31	2.59	2.59	1.15

Notes:

1) If average speeds were less than 3 mph, they were set equal to 3 mph.

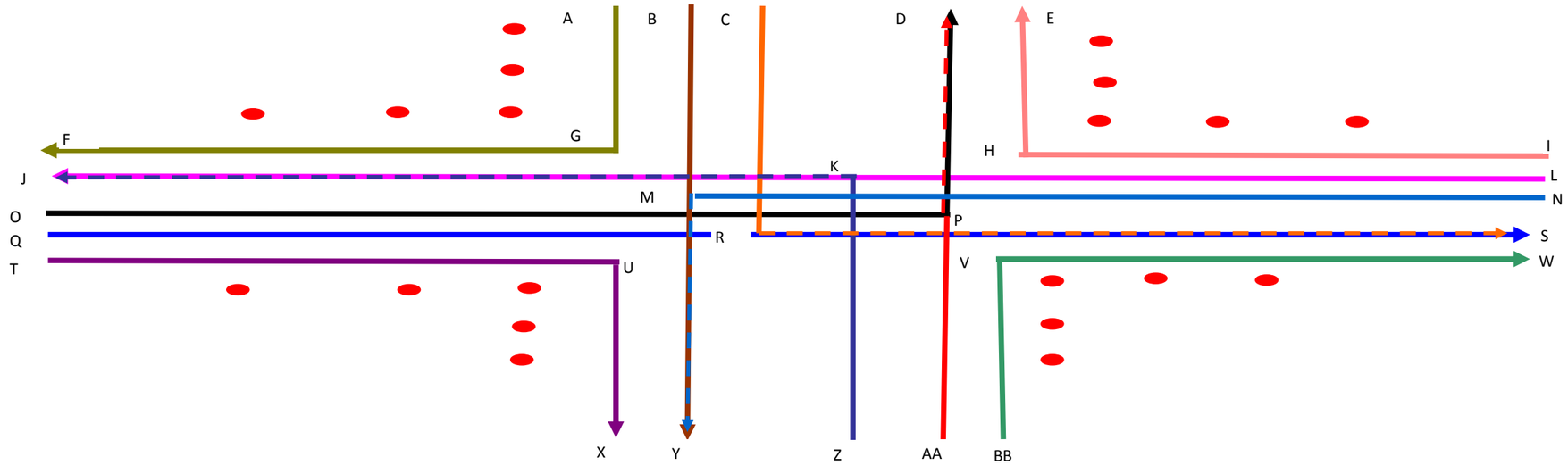
Intersection CO Analysis - Bakersfield

Model: Evening - Central Valley (Wind Speed :0.5 m/s, stdev 5 deg, Stability Class 7, 41+5 F - 5 C)

Bakersfield Caline4 Model Input and Result			
Intersection	**Oak St./ Truxton Ave.**		
AM/PM	PM		
No Build LOS	F		
Build LOS	F		
Existing (vph)	5633		
Existing + Project (vph)	5688		
Future No Build (vph)	7971		
Future Plus Project (vph)	8026		
Project Impact Ratio	0.69%	**1hr CO concentration (ppm)**	**8hr CO concentration (ppm)**
Caline Result - Existing (ppm)	3.4	6.2	4.51
Caline Result - Existing + Proj (ppm)	3.4	6.2	4.51
Caline Result - No Build (ppm)	1.0	3.8	2.83
Caline Result - Build (ppm)	1.0	3.8	2.83
Background CO 1hr (ppm)	2.8		
Background CO 8hr (ppm)	2.13		

Note: Background CO was taken from Bakersfield Golden State HWY Station (second highest data from 2008-2010)

Bakersfield - Oak St./ Truxton Ave. (PM)



CALINE INPUT						2035				2009				Receptors		
No	Link	x1	y1	x2	y2	Rate (g/mi)	Nobuild Traffic (vph)	Rate (g/mi)	Build Traffic (vph)	Rate (g/mi)	Existing Traffic (vph)	Rate (g/mi)	Existing + Proj (vph)	No	x1	y1
1	AG	795.67	446.66	791.07	382.37	2.16	942	2.16	942	10.28	545	10.28	545	1	788.45	434.73
2	BM	802.33	445.60	798.88	367.85	2.16	753	2.16	753	10.28	706	10.28	706	2	787.96	409.62
3	CR	807.35	445.40	803.69	363.84	2.16	80	2.16	87	10.28	46	10.28	53	3	786.24	387.62
4	DP	812.49	444.66	809.31	367.23	2.16	2011	2.16	2011	10.28	1292	10.28	1292	4	764.26	388.70
5	EH	815.95	444.45	813.04	379.13	2.16	89	2.16	102	10.28	69	10.28	82	5	739.82	383.57
6	FG	725.82	383.57	791.07	382.37	1.09	942	1.09	942	5.20	545	5.20	545	6	741.40	354.50
7	HI	813.04	379.13	881.50	370.59	2.16	89	2.16	102	10.28	69	10.28	82	7	766.40	352.88
8	JK	725.70	379.23	804.97	373.82	1.09	1781	1.09	1804	5.20	1311	5.20	1334	8	788.30	351.11
9	KL	804.97	373.82	881.38	365.50	2.16	1394	2.16	1417	10.28	1028	10.28	1051	9	787.50	329.11
10	MY	798.88	367.85	796.55	298.00	1.09	1116	1.09	1116	5.20	1153	5.20	1153	10	786.60	304.15
11	MN	798.88	367.85	881.44	360.00	2.16	363	2.16	363	10.28	447	10.28	447	11	821.37	429.58
12	OP	725.58	375.50	809.31	367.23	2.16	1231	2.16	1231	10.28	689	10.28	689	12	820.66	404.45
13	QR	725.40	367.08	803.69	363.84	2.16	1250	2.16	1262	10.28	662	10.28	674	13	819.83	382.50
14	RS	803.69	363.84	881.48	354.24	2.16	1330	2.16	1349	10.28	708	10.28	727	14	841.72	380.10
15	TU	725.20	362.22	793.91	357.00	2.16	393	2.16	393	10.28	331	10.28	331	15	866.65	377.40
16	UX	793.91	357.00	792.53	298.04	1.09	393	1.09	393	5.20	331	5.20	331	16	866.42	346.70
17	KZ	804.97	373.82	800.71	297.50	2.16	387	2.16	387	10.28	283	10.28	283	17	841.72	348.00
18	PAA	809.31	367.23	807.68	297.10	2.16	780	2.16	780	10.28	603	10.28	603	18	819.96	351.67
19	VBB	815.53	356.97	812.86	296.35	2.16	309	2.16	309	10.28	224	10.28	224	19	819.16	329.70
20	VW	815.53	356.97	880.98	349.65	2.16	309	2.16	309	10.28	224	10.28	224	20	818.75	304.64

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: BKF_30_Existing_2009
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT:

I. SITE VARIABLES

U=	0.5	M/S	Z0=	100	CM	ALT=	0 (M)
BRG=	WORST	CASE	VD=	0	CM/S		
CLAS=	7	(G)	VS=	0	CM/S		
MIXH=	1000	M	AMB=	0	PPM		
SIGTH=	5	DEGREES	TEMP=	5	DEGREE	(C)	

II. LINK VARIABLES

LINK DESCRIPTIO	*	LINK X1	COORDINAT Y1	(M) X2	Y2	*	EF	H TYPE	W VPH	(G/MI)	(M)	(M)		
A.	Link	A	*	796	447	791	382	*	AG	545	10.3	0	10	
B.	Link	B	*	802	446	799	368	*	AG	706	10.3	0	10	
C.	Link	C	*	807	445	804	364	*	AG	46	10.3	0	10	
D.	Link	D	*	813	445	809	367	*	AG	1292	10.3	0	10	
E.	Link	E	*	816	445	813	379	*	AG	69	10.3	0	10	
F.	Link	F	*	726	384	791	382	*	AG	545	5.2	0	10	
G.	Link	G	*	813	379	882	371	*	AG	69	10.3	0	10	
H.	Link	H	*	726	379	805	374	*	AG	1311	5.2	0	10	
I.	Link	I	*	805	374	881	366	*	AG	1028	10.3	0	10	
J.	Link	J	*	799	368	797	298	*	AG	1153	5.2	0	10	
K.	Link	K	*	799	368	881	360	*	AG	447	10.3	0	10	
L.	Link	L	*	726	376	809	367	*	AG	689	10.3	0	10	
M.	Link	M	*	725	367	804	364	*	AG	662	10.3	0	10	
N.	Link	N	*	804	364	882	354	*	AG	708	10.3	0	10	
O.	Link	O	*	725	362	794	357	*	AG	331	10.3	0	10	
P.	Link	P	*	793	357	793	298	*	AG	331	5.2	0	10	
Q.	Link	Q	*	805	374	801	298	*	AG	283	10.3	0	10	
R.	Link	R	*	809	367	808	297	*	AG	603	10.3	0	10	
S.	Link	S	*	816	357	813	296	*	AG	224	10.3	0	10	
T.	Link	T	*	816	357	881	350	*	AG	224	10.3	0	10	

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: BKF_30_Existing_2009
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT:

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1	Recpt1	* 789	435	1.8
2	Recpt2	* 788	410	1.8
3	Recpt3	* 786	388	1.8
4	Recpt4	* 764	389	1.8
5	Recpt5	* 740	384	1.8
6	Recpt6	* 741	355	1.8
7	Recpt7	* 766	353	1.8
8	Recpt8	* 788	351	1.8
9	Recpt9	* 788	329	1.8
10	Recpt10	* 787	304	1.8
11	Recpt11	* 821	430	1.8
12	Recpt12	* 821	404	1.8
13	Recpt13	* 820	383	1.8
14	Recpt14	* 842	380	1.8
15	Recpt15	* 867	377	1.8
16	Recpt16	* 866	347	1.8
17	Recpt17	* 842	348	1.8
18	Recpt18	* 820	352	1.8
19	Recpt19	* 819	330	1.8
20	Recpt20	* 819	305	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL

JUNE 1989 VERSION
PAGE 3

JOB: BKF_30_Existing_2009
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT:

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	PRED BRG (DEG)	*	CONC/LINK CONC (PPM)	*	(PPM) A	B	C	D	E	F	G	H
1	Recpt1	167	2.6	0.8	0.5	0	0.1	0	0	0	0.1		
2	Recpt2	162	2.5	0.7	0.4	0	0	0	0	0	0.2		
3	Recpt3	114	2.8	0.4	0.3	0	0.4	0	0.1	0	0		
4	Recpt4	111	2.5	0	0.2	0	0.3	0	0.3	0	0.3		
5	Recpt5	104	3.4	0	0.1	0	0.1	0	0.4	0	1		
6	Recpt6	79	2.5	0	0.1	0	0.2	0	0	0	0		
7	Recpt7	69	2.4	0	0	0	0.3	0	0	0	0		
8	Recpt8	42	2.6	0	0.1	0	0.5	0	0	0	0		
9	Recpt9	20	2.4	0	0.1	0	0.7	0.1	0	0	0.1		
10	Recpt10	15	2.3	0	0.1	0	0.6	0.1	0	0	0.1		
11	Recpt11	195	2.6	0	0.1	0	1.2	0.1	0	0	0.1		
12	Recpt12	203	2.4	0	0	0	0.9	0.1	0	0	0		
13	Recpt13	228	2.8	0	0	0	0.8	0	0	0	0		
14	Recpt14	256	2.7	0	0.1	0	0.3	0	0	0.1	0.1		
15	Recpt15	263	2.7	0	0.1	0	0.2	0	0	0.1	0.1		
16	Recpt16	288	2.6	0	0.1	0	0.1	0	0.1	0	0.3		
17	Recpt17	298	2.3	0	0.1	0	0.1	0	0.1	0	0.3		
18	Recpt18	343	2.8	0.2	0.4	0	1	0	0	0	0		
19	Recpt19	346	2.5	0.2	0.4	0	0.5	0	0	0	0		
20	Recpt20	349	2.4	0.2	0.4	0	0.3	0	0	0	0.1		

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: BKF_30_Existing_2009

RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT:

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	I	J	K	L	M	N	O	P	Q	R	S	T
*	CONC/LINK (PPM)												
1	Recpt1	*	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0.1	0.3	0.1	0
2	Recpt2	*	0	0.1	0.1	0.2	0.1	0.1	0	0	0.2	0.3	0.1	0
3	Recpt3	*	0.8	0	0.3	0	0	0.4	0	0	0	0	0	0.1
4	Recpt4	*	0.4	0	0.3	0.1	0	0.4	0	0	0	0	0	0.1
5	Recpt5	*	0.2	0	0.3	0.5	0.1	0.4	0	0	0.1	0.1	0	0.1
6	Recpt6	*	0.5	0.1	0.2	0.3	0.5	0.1	0.5	0	0.1	0.1	0	0
7	Recpt7	*	0.4	0.1	0.2	0.3	0.4	0.1	0.4	0	0.1	0	0	0
8	Recpt8	*	0.3	0.3	0.2	0.3	0.3	0	0.2	0.1	0.1	0	0	0
9	Recpt9	*	0.1	0.4	0.1	0.2	0.2	0	0	0.2	0.1	0	0	0
10	Recpt10	*	0.1	0.5	0.1	0.1	0.1	0.1	0	0.3	0.2	0.1	0	0
11	Recpt11	*	0.1	0.3	0.1	0.1	0.1	0.1	0	0.1	0.2	0.1	0	0
12	Recpt12	*	0.3	0.3	0.1	0.2	0.1	0.1	0	0.1	0.2	0.1	0	0
13	Recpt13	*	0.6	0.2	0.2	0.3	0.3	0	0.1	0	0.1	0	0	0
14	Recpt14	*	0.7	0	0.1	0.4	0.4	0	0.2	0	0.1	0	0	0
15	Recpt15	*	0.9	0.1	0.2	0.4	0.4	0.1	0.1	0	0.1	0	0	0
16	Recpt16	*	0	0.1	0.2	0.3	0.1	0.6	0	0	0.1	0.1	0	0.4
17	Recpt17	*	0	0	0.2	0.3	0.1	0.5	0	0	0.1	0.1	0	0.3
18	Recpt18	*	0.4	0	0.2	0	0	0.4	0	0	0	0	0.1	0.2
19	Recpt19	*	0.2	0	0.1	0.1	0	0.2	0	0	0.1	0.3	0.3	0
20	Recpt20	*	0.1	0	0.1	0.1	0	0.1	0	0	0.1	0.4	0.4	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: BKF_30_Existing_Plus_Proj_2009
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT:

I. SITE VARIABLES

U=	0.5	M/S	Z0=	100	CM	ALT=	0 (M)
BRG=	WORST	CASE	VD=	0	CM/S		
CLAS=	7	(G)	VS=	0	CM/S		
MIXH=	1000	M	AMB=	0	PPM		
SIGTH=	5	DEGREES	TEMP=	5	DEGREE	(C)	

II. LINK VARIABLES

LINK DESCRIPTIO	*	LINK X1	COORDINAT Y1	(M) X2	Y2	*	EF	H TYPE	W VPH	(G/MI)	(M)	(M)	
A.	Link	A	*	796	447	791	382	*	AG	545	10.3	0	10
B.	Link	B	*	802	446	799	368	*	AG	706	10.3	0	10
C.	Link	C	*	807	445	804	364	*	AG	53	10.3	0	10
D.	Link	D	*	813	445	809	367	*	AG	1292	10.3	0	10
E.	Link	E	*	816	445	813	379	*	AG	82	10.3	0	10
F.	Link	F	*	726	384	791	382	*	AG	545	5.2	0	10
G.	Link	G	*	813	379	882	371	*	AG	82	10.3	0	10
H.	Link	H	*	726	379	805	374	*	AG	1334	5.2	0	10
I.	Link	I	*	805	374	881	366	*	AG	1051	10.3	0	10
J.	Link	J	*	799	368	797	298	*	AG	1153	5.2	0	10
K.	Link	K	*	799	368	881	360	*	AG	447	10.3	0	10
L.	Link	L	*	726	376	809	367	*	AG	689	10.3	0	10
M.	Link	M	*	725	367	804	364	*	AG	674	10.3	0	10
N.	Link	N	*	804	364	882	354	*	AG	727	10.3	0	10
O.	Link	O	*	725	362	794	357	*	AG	331	10.3	0	10
P.	Link	P	*	793	357	793	298	*	AG	331	5.2	0	10
Q.	Link	Q	*	805	374	801	298	*	AG	283	10.3	0	10
R.	Link	R	*	809	367	808	297	*	AG	603	10.3	0	10
S.	Link	S	*	816	357	813	296	*	AG	224	10.3	0	10
T.	Link	T	*	816	357	881	350	*	AG	224	10.3	0	10

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: BKF_30_Existing_Plus_Proj_2009
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT:

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINAT (M) X	Y	Z
1	Recpt1	* 789	435	1.8
2	Recpt2	* 788	410	1.8
3	Recpt3	* 786	388	1.8
4	Recpt4	* 764	389	1.8
5	Recpt5	* 740	384	1.8
6	Recpt6	* 741	355	1.8
7	Recpt7	* 766	353	1.8
8	Recpt8	* 788	351	1.8
9	Recpt9	* 788	329	1.8
10	Recpt10	* 787	304	1.8
11	Recpt11	* 821	430	1.8
12	Recpt12	* 821	404	1.8
13	Recpt13	* 820	383	1.8
14	Recpt14	* 842	380	1.8
15	Recpt15	* 867	377	1.8
16	Recpt16	* 866	347	1.8
17	Recpt17	* 842	348	1.8
18	Recpt18	* 820	352	1.8
19	Recpt19	* 819	330	1.8
20	Recpt20	* 819	305	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL

JUNE 1989 VERSION
PAGE 3

JOB: BKF_30_Existing_Plus_Proj_2009
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT:

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	Recpt1	*	167	*	2.6	*	0.8	0.5	0	0.1	0	0	0	0.1
2	Recpt2	*	162	*	2.5	*	0.7	0.4	0	0	0	0	0	0.2
3	Recpt3	*	114	*	2.8	*	0.4	0.3	0	0.4	0	0.1	0	0
4	Recpt4	*	111	*	2.5	*	0	0.2	0	0.3	0	0.3	0	0.3
5	Recpt5	*	104	*	3.4	*	0	0.1	0	0.1	0	0.4	0	1.1
6	Recpt6	*	79	*	2.5	*	0	0.1	0	0.2	0	0	0.1	0
7	Recpt7	*	69	*	2.4	*	0	0	0	0.3	0	0	0	0
8	Recpt8	*	42	*	2.6	*	0	0.1	0	0.5	0	0	0	0
9	Recpt9	*	20	*	2.4	*	0	0.1	0	0.7	0.1	0	0	0.1
10	Recpt10	*	15	*	2.3	*	0	0.1	0	0.6	0.1	0	0	0.1
11	Recpt11	*	195	*	2.6	*	0	0.1	0	1.2	0.1	0	0	0.1
12	Recpt12	*	203	*	2.4	*	0	0	0	0.9	0.1	0	0	0
13	Recpt13	*	228	*	2.9	*	0	0	0	0.8	0	0	0.1	0
14	Recpt14	*	256	*	2.8	*	0	0.1	0	0.3	0	0	0.1	0.1
15	Recpt15	*	263	*	2.8	*	0	0.1	0	0.2	0	0	0.2	0.1
16	Recpt16	*	288	*	2.7	*	0	0.1	0	0.1	0	0.1	0	0.3
17	Recpt17	*	298	*	2.3	*	0	0.1	0	0.1	0	0.1	0	0.3
18	Recpt18	*	343	*	2.9	*	0.2	0.4	0.1	1	0	0	0	0
19	Recpt19	*	346	*	2.5	*	0.2	0.4	0.1	0.5	0	0	0	0
20	Recpt20	*	349	*	2.4	*	0.2	0.4	0	0.3	0	0	0	0.1

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: BKF_30_Existing_Plus_Proj_2009

RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT:

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	I	J	K	L	M	N	O	P	Q	R	S	T
*	CONC/LINK (PPM)												
1	Recpt1	*	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0.1	0.3	0.1	0
2	Recpt2	*	0	0.1	0.1	0.2	0.1	0.1	0	0	0.2	0.3	0.1	0
3	Recpt3	*	0.8	0	0.3	0	0	0.4	0	0	0	0	0	0.1
4	Recpt4	*	0.4	0	0.3	0.1	0	0.4	0	0	0	0	0	0.1
5	Recpt5	*	0.2	0	0.3	0.5	0.1	0.4	0	0	0.1	0.1	0	0.1
6	Recpt6	*	0.5	0.1	0.2	0.3	0.5	0.1	0.5	0	0.1	0.1	0	0
7	Recpt7	*	0.4	0.1	0.2	0.3	0.4	0.1	0.4	0	0.1	0	0	0
8	Recpt8	*	0.3	0.3	0.2	0.3	0.3	0	0.2	0.1	0.1	0	0	0
9	Recpt9	*	0.1	0.4	0.1	0.2	0.2	0	0	0.2	0.1	0	0	0
10	Recpt10	*	0.1	0.5	0.1	0.1	0.1	0.1	0	0.3	0.2	0.1	0	0
11	Recpt11	*	0.1	0.3	0.1	0.1	0.1	0.1	0	0.1	0.2	0.1	0	0
12	Recpt12	*	0.3	0.3	0.1	0.2	0.1	0.1	0	0.1	0.2	0.1	0	0
13	Recpt13	*	0.6	0.2	0.2	0.3	0.3	0	0.1	0	0.1	0	0	0
14	Recpt14	*	0.8	0	0.1	0.4	0.4	0	0.2	0	0.1	0	0	0
15	Recpt15	*	0.9	0.1	0.2	0.4	0.4	0.1	0.1	0	0.1	0	0	0
16	Recpt16	*	0	0.1	0.2	0.3	0.1	0.7	0	0	0.1	0.1	0	0.4
17	Recpt17	*	0	0	0.2	0.3	0.1	0.5	0	0	0.1	0.1	0	0.3
18	Recpt18	*	0.4	0	0.2	0	0	0.4	0	0	0	0	0.1	0.2
19	Recpt19	*	0.2	0	0.1	0.1	0	0.2	0	0	0.1	0.3	0.3	0
20	Recpt20	*	0.1	0	0.1	0.1	0	0.1	0	0	0.1	0.4	0.4	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: BKF_30_Future_No_Proj_2035
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT:

I. SITE VARIABLES

U=	0.5	M/S	Z0=	100	CM	ALT=	0 (M)
BRG=	WORST	CASE	VD=	0	CM/S		
CLAS=	7	(G)	VS=	0	CM/S		
MIXH=	1000	M	AMB=	0	PPM		
SIGTH=	5	DEGREES	TEMP=	5	DEGREE	(C)	

II. LINK VARIABLES

LINK DESCRIPTIO	*	LINK X1	COORDINAT Y1	(M) X2	Y2	*	EF	H TYPE	W VPH	(G/MI)	(M)	(M)	
A.	Link	A	*	796	447	791	382	*	AG	942	2.2	0	10
B.	Link	B	*	802	446	799	368	*	AG	753	2.2	0	10
C.	Link	C	*	807	445	804	364	*	AG	80	2.2	0	10
D.	Link	D	*	813	445	809	367	*	AG	2011	2.2	0	10
E.	Link	E	*	816	445	813	379	*	AG	89	2.2	0	10
F.	Link	F	*	726	384	791	382	*	AG	942	1.1	0	10
G.	Link	G	*	813	379	882	371	*	AG	89	2.2	0	10
H.	Link	H	*	726	379	805	374	*	AG	1781	1.1	0	10
I.	Link	I	*	805	374	881	366	*	AG	1394	2.2	0	10
J.	Link	J	*	799	368	797	298	*	AG	1116	1.1	0	10
K.	Link	K	*	799	368	881	360	*	AG	363	2.2	0	10
L.	Link	L	*	726	376	809	367	*	AG	1231	2.2	0	10
M.	Link	M	*	725	367	804	364	*	AG	1250	2.2	0	10
N.	Link	N	*	804	364	882	354	*	AG	1330	2.2	0	10
O.	Link	O	*	725	362	794	357	*	AG	393	2.2	0	10
P.	Link	P	*	793	357	793	298	*	AG	393	1.1	0	10
Q.	Link	Q	*	805	374	801	298	*	AG	387	2.2	0	10
R.	Link	R	*	809	367	808	297	*	AG	780	2.2	0	10
S.	Link	S	*	816	357	813	296	*	AG	309	2.2	0	10
T.	Link	T	*	816	357	881	350	*	AG	309	2.2	0	10

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: BKF_30_Future_No_Proj_2035
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT:

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINAT (M) X	Y	Z
1	Recpt1	* 789	435	1.8
2	Recpt2	* 788	410	1.8
3	Recpt3	* 786	388	1.8
4	Recpt4	* 764	389	1.8
5	Recpt5	* 740	384	1.8
6	Recpt6	* 741	355	1.8
7	Recpt7	* 766	353	1.8
8	Recpt8	* 788	351	1.8
9	Recpt9	* 788	329	1.8
10	Recpt10	* 787	304	1.8
11	Recpt11	* 821	430	1.8
12	Recpt12	* 821	404	1.8
13	Recpt13	* 820	383	1.8
14	Recpt14	* 842	380	1.8
15	Recpt15	* 867	377	1.8
16	Recpt16	* 866	347	1.8
17	Recpt17	* 842	348	1.8
18	Recpt18	* 820	352	1.8
19	Recpt19	* 819	330	1.8
20	Recpt20	* 819	305	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL

JUNE 1989 VERSION
PAGE 3

JOB: BKF_30_Future_No_Proj_2035
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT:

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	PRED BRG (DEG)	*	CONC/LINK CONC (PPM)	*	(PPM) A	B	C	D	E	F	G	H
1	Recpt1	167	0.7	0.3	0.1	0	0	0	0	0	0	0	0
2	Recpt2	163	0.7	0.3	0.1	0	0	0	0	0	0	0	0
3	Recpt3	115	0.8	0.1	0.1	0	0.1	0	0	0	0	0	0
4	Recpt4	112	0.7	0	0	0	0.1	0	0.1	0	0.1	0	0.1
5	Recpt5	105	1	0	0	0	0	0	0.1	0	0.3	0	0.3
6	Recpt6	77	0.7	0	0	0	0.1	0	0	0	0	0	0
7	Recpt7	67	0.7	0	0	0	0.1	0	0	0	0	0	0
8	Recpt8	42	0.7	0	0	0	0.2	0	0	0	0	0	0
9	Recpt9	20	0.6	0	0	0	0.2	0	0	0	0	0	0
10	Recpt10	15	0.6	0	0	0	0.2	0	0	0	0	0	0
11	Recpt11	195	0.7	0	0	0	0.4	0	0	0	0	0	0
12	Recpt12	205	0.7	0	0	0	0.3	0	0	0	0	0	0
13	Recpt13	228	0.8	0	0	0	0.3	0	0	0	0	0	0
14	Recpt14	257	0.8	0	0	0	0.1	0	0	0	0	0	0
15	Recpt15	263	0.8	0	0	0	0.1	0	0	0	0	0	0
16	Recpt16	288	0.8	0	0	0	0	0	0	0	0	0	0.1
17	Recpt17	291	0.7	0	0	0	0	0	0	0	0	0	0.1
18	Recpt18	342	0.8	0.1	0.1	0	0.3	0	0	0	0	0	0
19	Recpt19	346	0.7	0.1	0.1	0	0.2	0	0	0	0	0	0
20	Recpt20	349	0.7	0.1	0.1	0	0.1	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: BKF_30_Future_No_Proj_2035

RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT:

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	I	J	K	L	M	N	O	P	Q	R	S	T
*	CONC/LINK (PPM)												
1	Recpt1	*	0	0	0	0	0	0	0	0	0	0.1	0	0
2	Recpt2	*	0	0	0	0.1	0	0	0	0	0	0.1	0	0
3	Recpt3	*	0.2	0	0.1	0	0	0.1	0	0	0	0	0	0
4	Recpt4	*	0.1	0	0.1	0	0	0.2	0	0	0	0	0	0
5	Recpt5	*	0	0	0	0.2	0.1	0.1	0	0	0	0	0	0
6	Recpt6	*	0.1	0	0	0.1	0.2	0	0.1	0	0	0	0	0
7	Recpt7	*	0.1	0	0	0.1	0.2	0	0.1	0	0	0	0	0
8	Recpt8	*	0.1	0.1	0	0.1	0.1	0	0	0	0	0	0	0
9	Recpt9	*	0	0.1	0	0.1	0.1	0	0	0.1	0	0	0	0
10	Recpt10	*	0	0.1	0	0	0	0	0	0.1	0	0	0	0
11	Recpt11	*	0	0.1	0	0	0	0	0	0	0	0	0	0
12	Recpt12	*	0.1	0.1	0	0.1	0	0	0	0	0	0	0	0
13	Recpt13	*	0.2	0	0	0.1	0.1	0	0	0	0	0	0	0
14	Recpt14	*	0.2	0	0	0.1	0.2	0	0	0	0	0	0	0
15	Recpt15	*	0.2	0	0	0.1	0.1	0	0	0	0	0	0	0
16	Recpt16	*	0	0	0	0.1	0	0.2	0	0	0	0	0	0.1
17	Recpt17	*	0	0	0	0.2	0.1	0.1	0	0	0	0	0	0.1
18	Recpt18	*	0.1	0	0	0	0	0.2	0	0	0	0	0	0
19	Recpt19	*	0.1	0	0	0	0	0.1	0	0	0	0.1	0.1	0
20	Recpt20	*	0	0	0	0	0	0	0	0	0	0.1	0.1	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: BKF_30_Future_Plus_Proj_2035
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT:

I. SITE VARIABLES

U=	0.5	M/S	Z0=	100	CM	ALT=	0	(M)
BRG=	WORST	CASE	VD=	0	CM/S			
CLAS=	7	(G)	VS=	0	CM/S			
MIXH=	1000	M	AMB=	0	PPM			
SIGTH=	5	DEGREES	TEMP=	5	DEGREE	(C)		

II. LINK VARIABLES

LINK DESCRIPTIO	*	LINK X1	COORDINAT Y1	(M) X2	Y2	*	EF	H TYPE	W VPH	(G/MI)	(M)	(M)		
A.	Link	A	*	796	447	791	382	*	AG	942	2.2	0	10	
B.	Link	B	*	802	446	799	368	*	AG	753	2.2	0	10	
C.	Link	C	*	807	445	804	364	*	AG	87	2.2	0	10	
D.	Link	D	*	813	445	809	367	*	AG	2011	2.2	0	10	
E.	Link	E	*	816	445	813	379	*	AG	102	2.2	0	10	
F.	Link	F	*	726	384	791	382	*	AG	942	1.1	0	10	
G.	Link	G	*	813	379	882	371	*	AG	102	2.2	0	10	
H.	Link	H	*	726	379	805	374	*	AG	1804	1.1	0	10	
I.	Link	I	*	805	374	881	366	*	AG	1417	2.2	0	10	
J.	Link	J	*	799	368	797	298	*	AG	1116	1.1	0	10	
K.	Link	K	*	799	368	881	360	*	AG	363	2.2	0	10	
L.	Link	L	*	726	376	809	367	*	AG	1231	2.2	0	10	
M.	Link	M	*	725	367	804	364	*	AG	1262	2.2	0	10	
N.	Link	N	*	804	364	882	354	*	AG	1349	2.2	0	10	
O.	Link	O	*	725	362	794	357	*	AG	393	2.2	0	10	
P.	Link	P	*	793	357	793	298	*	AG	393	1.1	0	10	
Q.	Link	Q	*	805	374	801	298	*	AG	387	2.2	0	10	
R.	Link	R	*	809	367	808	297	*	AG	780	2.2	0	10	
S.	Link	S	*	816	357	813	296	*	AG	309	2.2	0	10	
T.	Link	T	*	816	357	881	350	*	AG	309	2.2	0	10	

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: BKF_30_Future_Plus_Proj_2035
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT:

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINAT (M) X	Y	Z
1	Recpt1	* 789	435	1.8
2	Recpt2	* 788	410	1.8
3	Recpt3	* 786	388	1.8
4	Recpt4	* 764	389	1.8
5	Recpt5	* 740	384	1.8
6	Recpt6	* 741	355	1.8
7	Recpt7	* 766	353	1.8
8	Recpt8	* 788	351	1.8
9	Recpt9	* 788	329	1.8
10	Recpt10	* 787	304	1.8
11	Recpt11	* 821	430	1.8
12	Recpt12	* 821	404	1.8
13	Recpt13	* 820	383	1.8
14	Recpt14	* 842	380	1.8
15	Recpt15	* 867	377	1.8
16	Recpt16	* 866	347	1.8
17	Recpt17	* 842	348	1.8
18	Recpt18	* 820	352	1.8
19	Recpt19	* 819	330	1.8
20	Recpt20	* 819	305	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL

JUNE 1989 VERSION
PAGE 3

JOB: BKF_30_Future_Plus_Proj_2035
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT:

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	Recpt1	167	0.7	0.3	0.1	0	0	0	0	0	0
2	Recpt2	163	0.7	0.3	0.1	0	0	0	0	0	0
3	Recpt3	115	0.8	0.1	0.1	0	0.1	0	0	0	0
4	Recpt4	112	0.7	0	0	0	0.1	0	0.1	0	0.1
5	Recpt5	104	1	0	0	0	0	0	0.1	0	0.3
6	Recpt6	77	0.7	0	0	0	0.1	0	0	0	0
7	Recpt7	67	0.7	0	0	0	0.1	0	0	0	0
8	Recpt8	42	0.7	0	0	0	0.2	0	0	0	0
9	Recpt9	20	0.6	0	0	0	0.2	0	0	0	0
10	Recpt10	15	0.6	0	0	0	0.2	0	0	0	0
11	Recpt11	195	0.7	0	0	0	0.4	0	0	0	0
12	Recpt12	205	0.7	0	0	0	0.3	0	0	0	0
13	Recpt13	228	0.8	0	0	0	0.3	0	0	0	0
14	Recpt14	257	0.8	0	0	0	0.1	0	0	0	0
15	Recpt15	263	0.8	0	0	0	0.1	0	0	0	0
16	Recpt16	288	0.8	0	0	0	0	0	0	0	0.1
17	Recpt17	292	0.7	0	0	0	0	0	0	0	0.1
18	Recpt18	343	0.8	0.1	0.1	0	0.3	0	0	0	0
19	Recpt19	346	0.7	0.1	0.1	0	0.2	0	0	0	0
20	Recpt20	349	0.7	0.1	0.1	0	0.1	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: BKF_30_Future_Plus_Proj_2035

RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT:

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	I	J	K	L	M	N	O	P	Q	R	S	T
*	CONC/LINK (PPM)												
1	Recpt1	*	0	0	0	0	0	0	0	0	0	0.1	0	0
2	Recpt2	*	0	0	0	0.1	0	0	0	0	0	0.1	0	0
3	Recpt3	*	0.2	0	0.1	0	0	0.1	0	0	0	0	0	0
4	Recpt4	*	0.1	0	0.1	0	0	0.2	0	0	0	0	0	0
5	Recpt5	*	0	0	0	0.2	0	0.2	0	0	0	0	0	0
6	Recpt6	*	0.1	0	0	0.1	0.2	0	0.1	0	0	0	0	0
7	Recpt7	*	0.1	0	0	0.1	0.2	0	0.1	0	0	0	0	0
8	Recpt8	*	0.1	0.1	0	0.1	0.1	0	0	0	0	0	0	0
9	Recpt9	*	0	0.1	0	0.1	0.1	0	0	0.1	0	0	0	0
10	Recpt10	*	0	0.1	0	0	0	0	0	0.1	0	0	0	0
11	Recpt11	*	0	0.1	0	0	0	0	0	0	0	0	0	0
12	Recpt12	*	0.1	0.1	0	0.1	0	0	0	0	0	0	0	0
13	Recpt13	*	0.2	0	0	0.1	0.1	0	0	0	0	0	0	0
14	Recpt14	*	0.2	0	0	0.1	0.2	0	0	0	0	0	0	0
15	Recpt15	*	0.2	0	0	0.1	0.1	0	0	0	0	0	0	0
16	Recpt16	*	0	0	0	0.1	0	0.2	0	0	0	0	0	0.1
17	Recpt17	*	0	0	0	0.2	0.1	0.1	0	0	0	0	0	0.1
18	Recpt18	*	0.1	0	0	0	0	0.2	0	0	0	0	0	0
19	Recpt19	*	0.1	0	0	0	0	0.1	0	0	0	0.1	0.1	0
20	Recpt20	*	0	0	0	0	0	0	0	0	0	0.1	0.1	0

Region_Typ	Region	CalYr	Season	Veh	Fuel	Veh & Tech	MdlYr	Speed	ROG_RUNI	TOG_RUNI	CO_RUNEX	NOx_RUNE	CO2_RUNE	CO2(Pavley	PM10_RUN	PM2_5_RU	SOx_RUNEX
County	Kern	2009	Annual	AllVehicles	TOT	AllVehicles	AllMYr	05 MPH	2.0809145	2.4594828	10.28306	7.4453939	1819.9032	1819.756	0.3195224	0.2937501	0.0067264
County	Kern	2009	Annual	AllVehicles	TOT	AllVehicles	AllMYr	10 MPH	1.2815413	1.5149695	7.9466199	5.3916345	1417.3568	1417.2444	0.2265788	0.2083147	0.0067264
County	Kern	2009	Annual	AllVehicles	TOT	AllVehicles	AllMYr	15 MPH	0.7388295	0.8780085	6.233455	3.9554956	1113.7553	1113.6677	0.1559798	0.1434027	0.0067264
County	Kern	2009	Annual	AllVehicles	TOT	AllVehicles	AllMYr	20 MPH	0.4136223	0.4965472	5.2046075	3.0998989	885.30331	885.23457	0.1026245	0.0943306	0.0067264
County	Kern	2009	Annual	AllVehicles	TOT	AllVehicles	AllMYr	25 MPH	0.3300678	0.3945455	4.5470044	2.9018323	768.43993	768.38296	0.0870628	0.080029	0.0067264
County	Kern	2009	Annual	AllVehicles	TOT	AllVehicles	AllMYr	30 MPH	0.2727441	0.3248657	4.0908406	2.7498449	686.12025	686.07153	0.0758066	0.0696817	0.0067264
County	Kern	2009	Annual	AllVehicles	TOT	AllVehicles	AllMYr	35 MPH	0.2266469	0.2696655	3.6709239	2.6263916	629.1076	629.06348	0.068575	0.0630381	0.0067264
County	Kern	2009	Annual	AllVehicles	TOT	AllVehicles	AllMYr	40 MPH	0.2121493	0.2514133	3.6358531	2.5808362	591.41372	591.37481	0.0654844	0.0601883	0.0067264
County	Kern	2009	Annual	AllVehicles	TOT	AllVehicles	AllMYr	45 MPH	0.1880473	0.2228669	3.3476204	2.5197469	570.47142	570.43272	0.066033	0.0607011	0.0067264
County	Kern	2009	Annual	AllVehicles	TOT	AllVehicles	AllMYr	50 MPH	0.2022618	0.2381103	3.6245463	2.565541	563.93751	563.90166	0.0706958	0.0649753	0.0067264
County	Kern	2009	Annual	AllVehicles	TOT	AllVehicles	AllMYr	55 MPH	0.2227148	0.2610706	3.9581696	2.6427639	572.37915	572.34385	0.0791106	0.0727019	0.0067264
County	Kern	2009	Annual	AllVehicles	TOT	AllVehicles	AllMYr	60 MPH	0.2015959	0.2379729	3.4302452	2.6210435	598.2952	598.25061	0.0908434	0.0835245	0.0067264
County	Kern	2009	Annual	AllVehicles	TOT	AllVehicles	AllMYr	65 MPH	0.2357682	0.2774868	3.8830806	2.7618473	643.22909	643.17952	0.1067742	0.0981709	0.0067264
County	Kern	2009	Annual	AllVehicles	TOT	AllVehicles	AllMYr	70 MPH	0.2947026	0.3445699	4.7887094	3.0159507	682.35403	682.30303	0.1274233	0.1171497	0.0067264

Region_Typ	Region	CalYr	Season	Veh	Fuel	Veh & Tech	MdlYr	Speed	ROG_RUNI	TOG_RUNI	CO_RUNEX	NOx_RUNE	CO2_RUNE	CO2(Pavley	PM10_RUN	PM2_5_RU	SOx_RUNEX
County	Kern	2035	Annual	AllVehicles	TOT	AllVehicles	AllMYr	05 MPH	0.5374053	0.6492007	2.1606658	1.3176564	1869.7957	1421.7115	0.0252358	0.0232954	0.0068805
County	Kern	2035	Annual	AllVehicles	TOT	AllVehicles	AllMYr	10 MPH	0.3295484	0.3985542	1.7080404	1.0145236	1461.0137	1120.9009	0.0201858	0.0186203	0.0068805
County	Kern	2035	Annual	AllVehicles	TOT	AllVehicles	AllMYr	15 MPH	0.1841676	0.2250228	1.3433115	0.7809335	1152.1604	887.43139	0.0166143	0.0153179	0.0068805
County	Kern	2035	Annual	AllVehicles	TOT	AllVehicles	AllMYr	20 MPH	0.0981244	0.1223142	1.090871	0.6099911	914.69167	703.81915	0.013957	0.0128634	0.0068805
County	Kern	2035	Annual	AllVehicles	TOT	AllVehicles	AllMYr	25 MPH	0.0828195	0.1019891	0.9962406	0.5502142	798.04685	619.20256	0.012545	0.0115583	0.0068805
County	Kern	2035	Annual	AllVehicles	TOT	AllVehicles	AllMYr	30 MPH	0.0714885	0.0872679	0.9220308	0.5009286	715.21152	558.43557	0.0118579	0.0109225	0.0068805
County	Kern	2035	Annual	AllVehicles	TOT	AllVehicles	AllMYr	35 MPH	0.0630614	0.0765112	0.8652875	0.4615222	657.34895	515.43736	0.0117706	0.0108398	0.0068805
County	Kern	2035	Annual	AllVehicles	TOT	AllVehicles	AllMYr	40 MPH	0.0571195	0.0690099	0.8221881	0.4329203	618.46977	486.03667	0.0122129	0.0112453	0.0068805
County	Kern	2035	Annual	AllVehicles	TOT	AllVehicles	AllMYr	45 MPH	0.0532631	0.0641636	0.7967554	0.4127484	596.48107	468.89776	0.0131429	0.0121	0.0068805
County	Kern	2035	Annual	AllVehicles	TOT	AllVehicles	AllMYr	50 MPH	0.0516433	0.0620774	0.786224	0.4036457	588.95518	462.23994	0.0145377	0.0133829	0.0068805
County	Kern	2035	Annual	AllVehicles	TOT	AllVehicles	AllMYr	55 MPH	0.0523003	0.0627456	0.7989609	0.4040638	596.88698	466.89415	0.0163894	0.0150866	0.0068805
County	Kern	2035	Annual	AllVehicles	TOT	AllVehicles	AllMYr	60 MPH	0.0556505	0.0666157	0.8427593	0.4146808	622.29463	484.34526	0.0187445	0.017254	0.0068805
County	Kern	2035	Annual	AllVehicles	TOT	AllVehicles	AllMYr	65 MPH	0.0629395	0.0751619	0.9266075	0.4361607	666.3968	515.10373	0.0215424	0.0198292	0.0068805
County	Kern	2035	Annual	AllVehicles	TOT	AllVehicles	AllMYr	70 MPH	0.0751189	0.0889303	1.0956205	0.4706458	705.24744	544.03486	0.0247195	0.0227529	0.0068805

Table 3.3-12

Modeled CO Concentrations at Intersections in Corcoran

	1-Hour Concentration (ppm)			8-Hour Concentration (ppm)		
	Max. Modeled Increase	**1-Hour Back-ground**	**Total Concen-tration**	**Max. Modeled Increase**	**8-Hour Back-ground**	**Total Concen-tration**
2009 Existing						
Intersection 3	0.1	3.5	3.60	0.07	2.14	2.21
2009 Existing Plus Project						
Intersection 3	0.2	3.5	3.70	0.14	2.14	2.28
2035 No Build						
Intersection 3	0.1	3.5	3.60	0.07	2.14	2.21
2035 Project						
Intersection 3	0.1	3.5	3.60	0.07	2.14	2.21

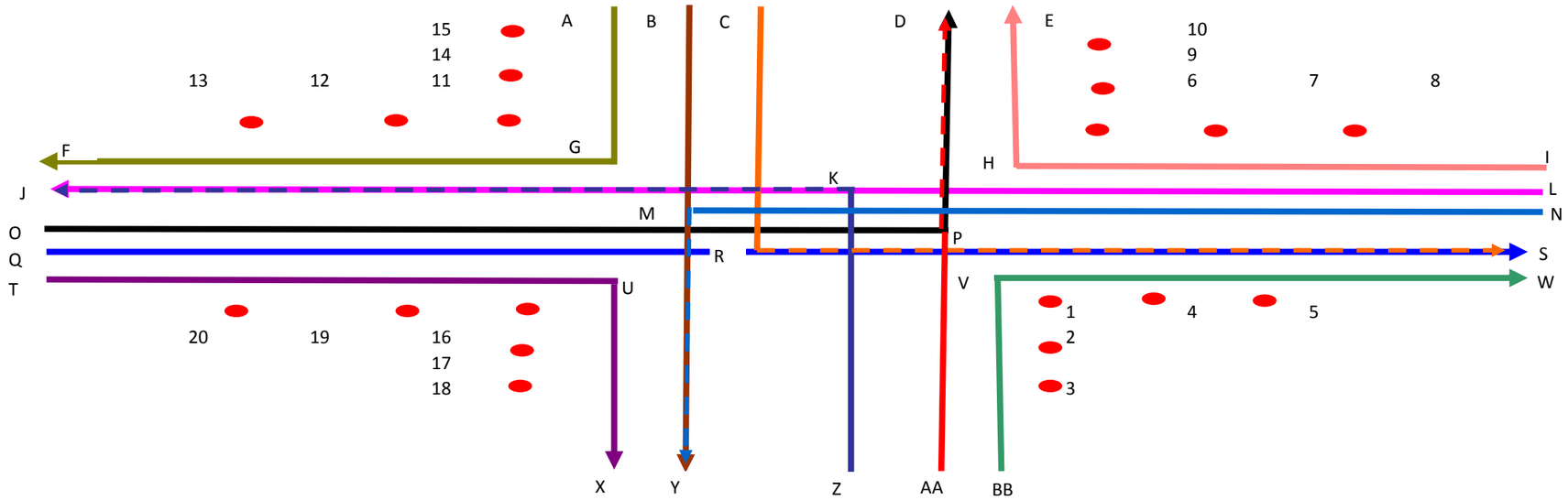
Note: The 8-hour modeled increase is derived from the 1-hour modeled increase concentration by multiplying by a persistence factor of 0.7; see Coe, D.; Eisinger, D.S.; Prouty, J.D.; Kear. T. *Users' Guide for CL4: A User Friendly Interface for the CALINE4 Model for Transportation Project Impact Assessments*; Caltrans - University of California, Davis Air Quality Project, Sacramento (1998).

Background CO was taken from Fresno Drummond Station (second highest data from the last three years, 2007-2009)

CO = carbon monoxide

ppm = parts per million

Corocoran Whitley Avenue and Pickerell Avenue PM peak



CALINE INPUT						2035				2009				Receptors		
No	Link	x1	y1	x2	y2	Rate (g/mi)	Nobuild Traffic (vph)	Rate (g/mi)	Build Traffic (vph)	Rate (g/mi)	Existing Traffic (vph)	Rate (g/mi)	Existing + Proj (vph)	Receptor No	x1	y1
1	AG	70052.54	97904.65	70050.42	97849.05	1.19	26	1.19	51	6.00	26	6.00	50	1	70061.66	97828.41
2	BM	70053.94	97904.51	70052.76	97849.79	1.19	28	1.19	28	6.00	12	6.00	12	2	70061.08	97806.46
3	CR	70055.47	97880.13	70053.72	97842.00	1.19	4	1.19	4	6.00	4	6.00	4	3	70060.59	97782.31
4	DP	70060.08	97907.71	70055.14	97840.69	1.19	317	1.19	377	6.00	38	6.00	98	4	70085.56	97829.48
5	EH	70061.53	97907.24	70055.35	97842.97	1.19	5	1.19	145	6.00	5	6.00	13	5	70110.60	97828.50
6	FG	69996.08	97852.03	70050.42	97849.05	1.19	26	1.19	51	6.00	26	6.00	50	6	70065.11	97854.34
7	HI	70053.90	97778.11	70055.35	97842.97	1.19	5	1.19	145	6.00	5	6.00	13	7	70087.11	97853.54
8	JK	69996.62	97849.07	70055.35	97842.97	1.19	82	1.19	641	6.00	80	6.00	121	8	70111.96	97852.85
9	KL	70055.35	97842.97	70116.22	97846.05	1.19	71	1.19	630	6.00	71	6.00	112	9	70065.12	97877.87
10	MY	70052.76	97849.79	70051.40	97778.28	1.19	40	1.19	116	6.00	24	6.00	27	10	70065.72	97902.50
11	MN	70052.76	97849.79	70116.19	97845.98	1.19	12	1.19	88	6.00	12	6.00	15	11	70044.99	97855.43
12	OP	69994.11	97842.63	70055.14	97840.69	1.19	63	1.19	123	6.00	24	6.00	84	12	70023.09	97855.94
13	QR	69994.40	97839.57	70053.72	97842.00	1.19	87	1.19	148	6.00	87	6.00	114	13	69998.01	97856.64
14	RS	70053.72	97842.00	70114.11	97838.98	1.19	91	1.19	152	6.00	91	6.00	118	14	70047.45	97878.59
15	TU	69994.03	97836.48	70050.95	97834.64	1.19	6	1.19	6	6.00	6	6.00	6	15	70048.64	97903.44
16	UX	70050.95	97834.64	70049.64	97778.28	1.19	6	1.19	6	6.00	6	6.00	6	16	70047.12	97829.61
17	ZK	70053.90	97778.28	70055.35	97842.97	1.19	11	1.19	11	6.00	9	6.00	9	17	70046.34	97807.72
18	PAA	70055.14	97840.69	70055.77	97778.28	1.19	254	1.19	254	6.00	14	6.00	14	18	70045.50	97782.60
19	BBV	70057.84	97778.28	70057.84	97835.31	1.19	26	1.19	26	6.00	17	6.00	17	19	70023.59	97831.16
20	VW	70057.84	97835.31	70115.01	97833.92	1.19	26	1.19	26	6.00	17	6.00	17	20	69998.50	97831.45

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Corcoran Whitley Pickerell PM E
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 63. (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 7 (G) VS= 0.0 CM/S
MIXH= 1000. M AMB= 0.0 PPM
SIGTH= 5. DEGREES TEMP= 4.4 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	* LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A.	70053	97905	70050	97849	AG	26	6	0	10
B.	70054	97905	70053	97850	AG	12	6	0	10
C.	70055	97880	70054	97842	AG	4	6	0	10
D.	70060	97908	70055	97841	AG	38	6	0	10
E.	70062	97907	70055	97843	AG	5	6	0	10
F.	69996	97852	70050	97849	AG	26	6	0	10
G.	70054	97778	70055	97843	AG	5	6	0	10
H.	69997	97849	70055	97843	AG	80	6	0	10
I.	70055	97843	70116	97846	AG	71	6	0	10
J.	70053	97850	70051	97778	AG	24	6	0	10
K.	70053	97850	70116	97846	AG	12	6	0	10
L.	69994	97843	70055	97841	AG	24	6	0	10
M.	69994	97840	70054	97842	AG	87	6	0	10
N.	70054	97842	70114	97839	AG	91	6	0	10
O.	69994	97836	70051	97835	AG	6	6	0	10
P.	70051	97835	70050	97778	AG	6	6	0	10
Q.	70054	97778	70055	97843	AG	9	6	0	10
R.	70055	97841	70056	97778	AG	14	6	0	10
S.	70058	97778	70058	97835	AG	17	6	0	10
T.	70058	97835	70115	97834	AG	17	6	0	10

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Corcoran Whitley Pickerell PM E
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1	1 *	70062	97828	1.8
2	2 *	70061	97806	1.8
3	3 *	70061	97782	1.8
4	4 *	70086	97829	1.8
5	5 *	70111	97829	1.8
6	6 *	70065	97854	1.8
7	7 *	70087	97854	1.8
8	8 *	70112	97853	1.8
9	9 *	70065	97878	1.8
10	10 *	70066	97903	1.8
11	11 *	70045	97855	1.8
12	12 *	70023	97856	1.8
13	13 *	69998	97857	1.8
14	14 *	70047	97879	1.8
15	15 *	70049	97903	0
16	16 *	70047	97830	0
17	17 *	70046	97808	0
18	18 *	70046	97783	0
19	19 *	70024	97831	0
20	20 *	69999	97831	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Corcoran Whitley Pickerell PM E
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	* PRED * BRG	* CONC * (DEG)	CONC/LINK (PPM) (PPM)	A	B	C	D	E	F	G	H
1	1	294	0.1	0	0	0	0	0	0	0	0
2	2	352	0.1	0	0	0	0	0	0	0	0
3	3	354	0.1	0	0	0	0	0	0	0	0
4	4	286	0.1	0	0	0	0	0	0	0	0
5	5	283	0.1	0	0	0	0	0	0	0	0
6	6	254	0.1	0	0	0	0	0	0	0	0
7	7	258	0.1	0	0	0	0	0	0	0	0
8	8	260	0.1	0	0	0	0	0	0	0	0
9	9	192	0.1	0	0	0	0	0	0	0	0
10	10	191	0.1	0	0	0	0	0	0	0	0
11	11	109	0.1	0	0	0	0	0	0	0	0
12	12	106	0.1	0	0	0	0	0	0	0	0
13	13	104	0.1	0	0	0	0	0	0	0	0
14	14	173	0.1	0	0	0	0	0	0	0	0
15	15	175	0.1	0	0	0	0	0	0	0	0
16	16	11	0.1	0	0	0	0	0	0	0	0
17	17	9	0.1	0	0	0	0	0	0	0	0
18	18	8	0.1	0	0	0	0	0	0	0	0
19	19	76	0.1	0	0	0	0	0	0	0	0
20	20	78	0.1	0	0	0	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Corcoran Whitley Pickerell PM E
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	* CONC/LINK (PPM)	I	J	K	L	M	N	O	P	Q	R	S	T
1	1	0	0	0	0	0	0	0	0	0	0	0	0
2	2	0	0	0	0	0	0	0	0	0	0	0	0
3	3	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

5	5 *	0	0	0	0	0	0	0	0	0	0	0	0
6	6 *	0	0	0	0	0	0	0	0	0	0	0	0
7	7 *	0	0	0	0	0	0	0	0	0	0	0	0
8	8 *	0	0	0	0	0	0	0	0	0	0	0	0
9	9 *	0	0	0	0	0	0	0	0	0	0	0	0
10	10 *	0	0	0	0	0	0	0	0	0	0	0	0
11	11 *	0	0	0	0	0	0	0	0	0	0	0	0
12	12 *	0	0	0	0	0	0	0	0	0	0	0	0
13	13 *	0	0	0	0	0	0	0	0	0	0	0	0
14	14 *	0	0	0	0	0	0	0	0	0	0	0	0
15	15 *	0	0	0	0	0	0	0	0	0	0	0	0
16	16 *	0	0	0	0	0	0	0	0	0	0	0	0
17	17 *	0	0	0	0	0	0	0	0	0	0	0	0
18	18 *	0	0	0	0	0	0	0	0	0	0	0	0
19	19 *	0	0	0	0	0	0	0	0	0	0	0	0
20	20 *	0	0	0	0	0	0	0	0	0	0	0	0

CALINE4: CALIFORN LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Corcoran Whitley Pickerell PM EP
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	1	M/S	Z0=	100	CM	ALT=	63	(M)
BRG=	WORST	CASE	VD=	0	CM/S			
CLAS=	7	(G)	VS=	0	CM/S			
MIXH=	1000	M	AMB=	0	PPM			
SIGTH=	5	DEGREES	TEMP=	4.4	DEGREE	(C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK X1	COORDIN/ Y1	(M) X2	* Y2	EF *	H TYPE	W VPH	(G/MI)	(M)	(M)	
A.	AG	*	70053	97905	70050	97849	*	AG	50	6	0	10
B.	BM	*	70054	97905	70053	97850	*	AG	12	6	0	10
C.	CR	*	70055	97880	70054	97842	*	AG	4	6	0	10
D.	DP	*	70060	97908	70055	97841	*	AG	98	6	0	10
E.	EH	*	70062	97907	70055	97843	*	AG	13	6	0	10
F.	FG	*	69996	97852	70050	97849	*	AG	50	6	0	10
G.	HI	*	70054	97778	70055	97843	*	AG	13	6	0	10
H.	JK	*	69997	97849	70055	97843	*	AG	121	6	0	10
I.	KL	*	70055	97843	70116	97846	*	AG	112	6	0	10
J.	MY	*	70053	97850	70051	97778	*	AG	27	6	0	10
K.	MN	*	70053	97850	70116	97846	*	AG	15	6	0	10
L.	OP	*	69994	97843	70055	97841	*	AG	84	6	0	10
M.	QR	*	69994	97840	70054	97842	*	AG	114	6	0	10
N.	RS	*	70054	97842	70114	97839	*	AG	118	6	0	10
O.	TU	*	69994	97836	70051	97835	*	AG	6	6	0	10
P.	UX	*	70051	97835	70050	97778	*	AG	6	6	0	10
Q.	ZK	*	70054	97778	70055	97843	*	AG	9	6	0	10
R.	PAA	*	70055	97841	70056	97778	*	AG	14	6	0	10
S.	BBV	*	70058	97778	70058	97835	*	AG	17	6	0	10
T.	VW	*	70058	97835	70115	97834	*	AG	17	6	0	10

CALINE4: CALIFORN LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Corcoran Whitley Pickerell PM EP
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	* COORDINA	(M) X	Y	Z
1	1	* 70062	97828	0
2	2	* 70061	97806	0
3	3	* 70061	97782	0
4	4	* 70086	97829	0
5	5	* 70111	97829	0
6	6	* 70065	97854	0
7	7	* 70087	97854	0
8	8	* 70112	97853	0
9	9	* 70065	97878	0
10	10	* 70066	97903	0
11	11	* 70045	97855	0
12	12	* 70023	97856	0
13	13	* 69998	97857	0
14	14	* 70047	97879	0
15	15	* 70049	97903	0
16	16	* 70047	97830	0
17	17	* 70046	97808	0
18	18	* 70046	97783	0
19	19	* 70024	97831	0
20	20	* 69999	97831	0

CALINE4: CALIFORN LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION

PAGE 3

JOB: Corcoran Whitley Pickerell PM EP
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

* RECEPTOR	* BRG	* PRED CONC (PPM)	* CONC (DEG)	* CONC/LINK (PPM)	* A	B	C	D	E	F	G	H
1	1	351	0.1	0	0	0	0.1	0	0	0	0
2	2	353	0.1	0	0	0	0	0	0	0	0
3	3	354	0.1	0	0	0	0	0	0	0	0
4	4	286	0.2	0	0	0	0	0	0	0	0
5	5	283	0.2	0	0	0	0	0	0	0	0
6	6	254	0.2	0	0	0	0	0	0	0	0
7	7	258	0.2	0	0	0	0	0	0	0	0
8	8	260	0.2	0	0	0	0	0	0	0	0
9	9	211	0.1	0	0	0	0	0	0	0	0
10	10	195	0.1	0	0	0	0.1	0	0	0	0
11	11	110	0.1	0	0	0	0	0	0	0	0
12	12	108	0.2	0	0	0	0	0	0	0	0
13	13	105	0.2	0	0	0	0	0	0	0	0.1
14	14	172	0.1	0	0	0	0	0	0	0	0
15	15	174	0.1	0	0	0	0	0	0	0	0
16	16	12	0.2	0	0	0	0.1	0	0	0	0
17	17	9	0.1	0	0	0	0	0	0	0	0
18	18	8	0.1	0	0	0	0	0	0	0	0
19	19	65	0.1	0	0	0	0	0	0	0	0
20	20	77	0.2	0	0	0	0	0	0	0	0

CALINE4: CALIFORN LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Corcoran Whitley Pickerell PM EP
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

*	CONC/LINK (PPM) RECEPTOR *	I	J	K	L	M	N	O	P	Q	R	S	T
1	1 *	0	0	0	0	0	0	0	0	0	0	0	0
2	2 *	0	0	0	0	0	0	0	0	0	0	0	0
3	3 *	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
5	5 *	0	0	0	0	0	0	0	0	0	0	0	0
6	6 *	0	0	0	0	0	0	0	0	0	0	0	0
7	7 *	0	0	0	0	0	0	0	0	0	0	0	0
8	8 *	0	0	0	0	0	0	0	0	0	0	0	0
9	9 *	0	0	0	0	0	0	0	0	0	0	0	0
10	10 *	0	0	0	0	0	0	0	0	0	0	0	0
11	11 *	0	0	0	0	0	0	0	0	0	0	0	0
12	12 *	0	0	0	0	0	0	0	0	0	0	0	0
13	13 *	0	0	0	0	0	0	0	0	0	0	0	0
14	14 *	0	0	0	0	0	0	0	0	0	0	0	0
15	15 *	0	0	0	0	0	0	0	0	0	0	0	0
16	16 *	0	0	0	0	0	0	0	0	0	0	0	0
17	17 *	0	0	0	0	0	0	0	0	0	0	0	0
18	18 *	0	0	0	0	0	0	0	0	0	0	0	0
19	19 *	0	0	0	0	0	0	0	0	0	0	0	0
20	20 *	0	0	0	0	0	0	0	0	0	0	0	0

CALINE4: CALIFORN LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Corcoran Whitley Pickerell PM NB
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	1	M/S	Z0=	100	CM	ALT=	63	(M)
BRG=	WORST	CASE	VD=	0	CM/S			
CLAS=	7	(G)	VS=	0	CM/S			
MIXH=	1000	M	AMB=	0	PPM			
SIGTH=	5	DEGREES	TEMP=	4.4	DEGREE	(C)		

II. LINK VARIABLES

LINK	*	LINK	COORDINA	(M)	*	EF	H	W				
	DESCRIPTI	*	X1	Y1	X2	Y2	*	TYPE	VPH	(G/MI)	(M)	(M)
----------*----------*----------												
A.	AG	*	70053	97905	70050	97849	*	AG	26	1.2	0	10
B.	BM	*	70054	97905	70053	97850	*	AG	28	1.2	0	10
C.	CR	*	70055	97880	70054	97842	*	AG	4	1.2	0	10
D.	DP	*	70060	97908	70055	97841	*	AG	317	1.2	0	10
E.	EH	*	70062	97907	70055	97843	*	AG	5	1.2	0	10
F.	FG	*	69996	97852	70050	97849	*	AG	26	1.2	0	10
G.	HI	*	70054	97778	70055	97843	*	AG	5	1.2	0	10
H.	JK	*	69997	97849	70055	97843	*	AG	82	1.2	0	10
I.	KL	*	70055	97843	70116	97846	*	AG	71	1.2	0	10
J.	MY	*	70053	97850	70051	97778	*	AG	40	1.2	0	10
K.	MN	*	70053	97850	70116	97846	*	AG	12	1.2	0	10
L.	OP	*	69994	97843	70055	97841	*	AG	63	1.2	0	10
M.	QR	*	69994	97840	70054	97842	*	AG	87	1.2	0	10
N.	RS	*	70054	97842	70114	97839	*	AG	91	1.2	0	10
O.	TU	*	69994	97836	70051	97835	*	AG	6	1.2	0	10
P.	UX	*	70051	97835	70050	97778	*	AG	6	1.2	0	10
Q.	ZK	*	70054	97778	70055	97843	*	AG	11	1.2	0	10
R.	PAA	*	70055	97841	70056	97778	*	AG	254	1.2	0	10
S.	BBV	*	70058	97778	70058	97835	*	AG	26	1.2	0	10
T.	VW	*	70058	97835	70115	97834	*	AG	26	1.2	0	10

CALINE4: CALIFORN LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Corcoran Whitley Pickerell PM NB
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINA (M) X	Y	Z
1	1	* 70062	97828	0
2	2	* 70061	97806	0
3	3	* 70061	97782	0
4	4	* 70086	97829	0
5	5	* 70111	97829	0
6	6	* 70065	97854	0
7	7	* 70087	97854	0
8	8	* 70112	97853	0
9	9	* 70065	97878	0
10	10	* 70066	97903	0
11	11	* 70045	97855	0
12	12	* 70023	97856	0
13	13	* 69998	97857	0
14	14	* 70047	97879	0
15	15	* 70049	97903	0
16	16	* 70047	97830	0
17	17	* 70046	97808	0
18	18	* 70046	97783	0
19	19	* 70024	97831	0
20	20	* 69999	97831	0

CALINE4: CALIFORN LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION

PAGE 3

JOB: Corcoran Whitley Pickerell PM NB
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

*	*	PRED	*	CONC/LINK									
*	BRG	*	CONC	*	(PPM)								
	RECEPTOR	*	(DEG)	*	(PPM)	*	A	B	C	D	E	F	G	H
1	1	*	350	*	0.1	*	0	0	0	0	0	0	0	0
2	2	*	352	*	0.1	*	0	0	0	0	0	0	0	0
3	3	*	354	*	0.1	*	0	0	0	0	0	0	0	0
4	4	*	286	*	0	*	0	0	0	0	0	0	0	0
5	5	*	283	*	0	*	0	0	0	0	0	0	0	0
6	6	*	253	*	0	*	0	0	0	0	0	0	0	0
7	7	*	258	*	0	*	0	0	0	0	0	0	0	0
8	8	*	260	*	0	*	0	0	0	0	0	0	0	0
9	9	*	198	*	0	*	0	0	0	0	0	0	0	0
10	10	*	193	*	0.1	*	0	0	0	0	0	0	0	0
11	11	*	166	*	0	*	0	0	0	0	0	0	0	0
12	12	*	109	*	0	*	0	0	0	0	0	0	0	0
13	13	*	105	*	0	*	0	0	0	0	0	0	0	0
14	14	*	171	*	0	*	0	0	0	0	0	0	0	0
15	15	*	174	*	0	*	0	0	0	0	0	0	0	0
16	16	*	14	*	0.1	*	0	0	0	0	0	0	0	0
17	17	*	11	*	0	*	0	0	0	0	0	0	0	0
18	18	*	9	*	0	*	0	0	0	0	0	0	0	0
19	19	*	73	*	0	*	0	0	0	0	0	0	0	0
20	20	*	77	*	0	*	0	0	0	0	0	0	0	0

CALINE4: CALIFORN LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Corcoran Whitley Pickerell PM NB
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

* RECEPTOR		* CONC/LINK (PPM)	I	J	K	L	M	N	O	P	Q	R	S	T
1	1	*	0	0	0	0	0	0	0	0	0	0	0	0
2	2	*	0	0	0	0	0	0	0	0	0	0	0	0
3	3	*	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
5	5	*	0	0	0	0	0	0	0	0	0	0	0	0
6	6	*	0	0	0	0	0	0	0	0	0	0	0	0
7	7	*	0	0	0	0	0	0	0	0	0	0	0	0
8	8	*	0	0	0	0	0	0	0	0	0	0	0	0
9	9	*	0	0	0	0	0	0	0	0	0	0	0	0
10	10	*	0	0	0	0	0	0	0	0	0	0	0	0
11	11	*	0	0	0	0	0	0	0	0	0	0	0	0
12	12	*	0	0	0	0	0	0	0	0	0	0	0	0
13	13	*	0	0	0	0	0	0	0	0	0	0	0	0
14	14	*	0	0	0	0	0	0	0	0	0	0	0	0
15	15	*	0	0	0	0	0	0	0	0	0	0	0	0
16	16	*	0	0	0	0	0	0	0	0	0	0	0	0
17	17	*	0	0	0	0	0	0	0	0	0	0	0	0
18	18	*	0	0	0	0	0	0	0	0	0	0	0	0
19	19	*	0	0	0	0	0	0	0	0	0	0	0	0
20	20	*	0	0	0	0	0	0	0	0	0	0	0	0

CALINE4: CALIFORN LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Corcoran Whitley Pickerell PM B
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	1	M/S	Z0=	100	CM	ALT=	63 (M)
BRG=	WORST	CASE	VD=	0	CM/S		
CLAS=	7	(G)	VS=	0	CM/S		
MIXH=	1000	M	AMB=	0	PPM		
SIGTH=	5	DEGREES	TEMP=	4.4	DEGREE	(C)	

II. LINK VARIABLES

LINK	DESCRIPTI	*	LINK COORDIN/	(M)	*	EF	H	W				
		*	X1	Y1	X2	Y2	*	TYPE	VPH	(G/MI)	(M)	(M)
A.	AG	*	70053	97905	70050	97849	*	AG	51	1.2	0	10
B.	BM	*	70054	97905	70053	97850	*	AG	28	1.2	0	10
C.	CR	*	70055	97880	70054	97842	*	AG	4	1.2	0	10
D.	DP	*	70060	97908	70055	97841	*	AG	377	1.2	0	10
E.	EH	*	70062	97907	70055	97843	*	AG	145	1.2	0	10
F.	FG	*	69996	97852	70050	97849	*	AG	51	1.2	0	10
G.	HI	*	70054	97778	70055	97843	*	AG	145	1.2	0	10
H.	JK	*	69997	97849	70055	97843	*	AG	641	1.2	0	10
I.	KL	*	70055	97843	70116	97846	*	AG	630	1.2	0	10
J.	MY	*	70053	97850	70051	97778	*	AG	116	1.2	0	10
K.	MN	*	70053	97850	70116	97846	*	AG	88	1.2	0	10
L.	OP	*	69994	97843	70055	97841	*	AG	123	1.2	0	10
M.	QR	*	69994	97840	70054	97842	*	AG	148	1.2	0	10
N.	RS	*	70054	97842	70114	97839	*	AG	152	1.2	0	10
O.	TU	*	69994	97836	70051	97835	*	AG	6	1.2	0	10
P.	UX	*	70051	97835	70050	97778	*	AG	6	1.2	0	10
Q.	ZK	*	70054	97778	70055	97843	*	AG	11	1.2	0	10
R.	PAA	*	70055	97841	70056	97778	*	AG	254	1.2	0	10
S.	BBV	*	70058	97778	70058	97835	*	AG	26	1.2	0	10
T.	VW	*	70058	97835	70115	97834	*	AG	26	1.2	0	10

CALINE4: CALIFORN LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Corcoran Whitley Pickerell PM B
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

*	COORDIN/	(M)		
RECEPTOR	*	X	Y	Z
1	1	*	70062	97828	0
2	2	*	70061	97806	0
3	3	*	70061	97782	0
4	4	*	70086	97829	0
5	5	*	70111	97829	0
6	6	*	70065	97854	0
7	7	*	70087	97854	0
8	8	*	70112	97853	0
9	9	*	70065	97878	0
10	10	*	70066	97903	0
11	11	*	70045	97855	0
12	12	*	70023	97856	0
13	13	*	69998	97857	0
14	14	*	70047	97879	0
15	15	*	70049	97903	0
16	16	*	70047	97830	0
17	17	*	70046	97808	0
18	18	*	70046	97783	0
19	19	*	70024	97831	0
20	20	*	69999	97831	0

JOB: Corcoran Whitley Pickerell PM B
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

*	*	PRED	*	CONC/LINK									
*	BRG	*	CONC	*	(PPM)								
	RECEPTOR	*	(DEG)	*	(PPM)	*	A	B	C	D	E	F	G	H
1	1	*	349	*	0.1	*	0	0	0	0	0	0	0	0
2	2	*	352	*	0.1	*	0	0	0	0	0	0	0	0
3	3	*	354	*	0.1	*	0	0	0	0	0	0	0	0
4	4	*	287	*	0.1	*	0	0	0	0	0	0	0	0
5	5	*	284	*	0.1	*	0	0	0	0	0	0	0	0
6	6	*	253	*	0.1	*	0	0	0	0	0	0	0	0
7	7	*	256	*	0.1	*	0	0	0	0	0	0	0	0
8	8	*	258	*	0.1	*	0	0	0	0	0	0	0	0
9	9	*	196	*	0.1	*	0	0	0	0	0	0	0	0
10	10	*	192	*	0.1	*	0	0	0	0	0	0	0	0
11	11	*	166	*	0.1	*	0	0	0	0	0	0	0	0
12	12	*	110	*	0.1	*	0	0	0	0	0	0	0	0
13	13	*	108	*	0.1	*	0	0	0	0	0	0	0	0.1
14	14	*	172	*	0.1	*	0	0	0	0	0	0	0	0
15	15	*	174	*	0.1	*	0	0	0	0	0	0	0	0
16	16	*	15	*	0.1	*	0	0	0	0	0	0	0	0
17	17	*	12	*	0.1	*	0	0	0	0	0	0	0	0
18	18	*	10	*	0.1	*	0	0	0	0	0	0	0	0
19	19	*	74	*	0.1	*	0	0	0	0	0	0	0	0
20	20	*	78	*	0.1	*	0	0	0	0	0	0	0	0

CALINE4: CALIFORN LINE SOURCE DISPERSIO MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Corcoran Whitley Pickerell PM B
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

*	CONC/LINK (PPM) RECEPTOR *	I	J	K	L	M	N	O	P	Q	R	S	T
1	1 *	0	0	0	0	0	0	0	0	0	0	0	0
2	2 *	0	0	0	0	0	0	0	0	0	0	0	0
3	3 *	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
5	5 *	0	0	0	0	0	0	0	0	0	0	0	0
6	6 *	0	0	0	0	0	0	0	0	0	0	0	0
7	7 *	0	0	0	0	0	0	0	0	0	0	0	0
8	8 *	0.1	0	0	0	0	0	0	0	0	0	0	0
9	9 *	0	0	0	0	0	0	0	0	0	0	0	0
10	10 *	0	0	0	0	0	0	0	0	0	0	0	0
11	11 *	0	0	0	0	0	0	0	0	0	0	0	0
12	12 *	0	0	0	0	0	0	0	0	0	0	0	0
13	13 *	0	0	0	0	0	0	0	0	0	0	0	0
14	14 *	0	0	0	0	0	0	0	0	0	0	0	0
15	15 *	0	0	0	0	0	0	0	0	0	0	0	0
16	16 *	0	0	0	0	0	0	0	0	0	0	0	0
17	17 *	0	0	0	0	0	0	0	0	0	0	0	0
18	18 *	0	0	0	0	0	0	0	0	0	0	0	0
19	19 *	0	0	0	0	0	0	0	0	0	0	0	0
20	20 *	0	0	0	0	0	0	0	0	0	0	0	0

Title : Kings 2009 and 2035
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/05/10 09:56:54
Scen Year: 2009 -- All model years in the range 1965 to 2009 selected
Season : Winter
Area : Kings
****
Year: 2009 -- Model Years 1965 to 2009 Inclusive -- Winter
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average Kings County Average

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Carbon Monoxide Temperature: 35F Relative Humidity: 41%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	ALL NCAT	ALL CAT	ALL DSL	ALL ALL
27	94.706	3.606	0.797	4.344	95.461	5.921	0.617	7.59	93.834	5.277	0.742	6.138	77.609	4.571	5.867	6.004

Title : Kings 2009 and 2035
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/05/10 09:56:54
Scen Year: 2035 -- All model years in the range 1991 to 2035 selected
Season : Winter
Area : Kings
****
Year: 2035 -- Model Years 1991 to 2035 Inclusive -- Winter
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average Kings County Average

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Carbon Monoxide Temperature: 35F Relative Humidity: 41%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	ALL NCAT	ALL CAT	ALL DSL	ALL ALL
27	0	0.611	0.537	0.611	0	0.715	0.545	0.714	0	1.192	0.553	1.192	39.817	1.047	1.102	1.185

Appendix D

Potential Impact from Induced Winds

Potential Impact from Induced Winds for High-Speed Trains

PREPARED FOR: PMT

PREPARED BY: Mark Bennett/CH2M HILL, Avanti Tamhane/URS, Jonathan Tamimi/URS, Nathalia Prasetyo Jo/URS

COPIES: file

DATE: March 28, 2012

1.0 Background

The operation of a high-speed train (HST) causes aerodynamic forces such as airflow induced by these trains. These aerodynamic forces are influenced by factors such as train speed and distance from the train. The moving train creates a boundary layer along the length of the train and a wake behind the train that results in airflow in the general direction of the moving train. Turbulent fluctuations at the wake behind the train and sideways turbulent fluctuations accompany the airflow. Trains for the California HST system could reach a maximum speed of 220 miles per hour (mph).

This technical memorandum summarizes existing credible scientific evidence related to evaluating potential impacts from induced winds from HSTs on the environment. Specifically, it evaluates the potential for generating fugitive dust emissions and the potential for impacts to honeybees used to pollinate crops. It also includes a discussion of the relevance of incomplete or unavailable information to evaluating potential impacts.

2.0 Induced Wind

The Federal Railroad Administration (FRA) document, *Assessment of Potential Aerodynamic Effects on Personnel and Equipment in Proximity to High-Speed Train Operations* (FRA 1999), based on reviews of both the theoretical and experimental data available at the time, made conclusions on induced winds for trains with speeds of 150 mph or less. The document concludes that at a distance of 26 feet from a train traveling at 150 mph, the induced wind would be in the range of 10 mph to 40 mph. There is a range of induced wind speeds because of variations between trains and uncertainties in the experimental data.

A literature search for HST aerodynamics showed that most research in this area is concerned with determining the dynamic forces on the HST itself (Schetz 2001; Baker 2010) and has been conducted to facilitate the design of HSTs that are both safe and comfortable. In addition to that body of work, Chris Baker and Mark Sterling have produced recent papers on the induced wind caused by HSTs (Baker et al. 2001; Sterling et al. 2008; Jordan et al. 2010).

Sterling and Baker are both professors at the School of Civil Engineering at the University of Birmingham, Birmingham, UK. Their studies focus mainly on the impact of the induced wind (which they refer to as the “slipstream”) on the safety of both workers and the public, waiting along the track. The paper *Modelling the Response of a Standing Person to the Slipstream Generated by a Passenger Train* (Jordan et al. 2010) illustrates that, due to the complex nature of the fluid flow around an HST (such as the shape of the train and the resultant turbulent fluid flow), there is no simple mathematical formula for the induced wind as a function of train speed.

During an August 2010 phone call, Professors Sterling and Baker said that due to European HST safety standards, the measurements of induced wind speed done in Europe are at distances of 9.8 feet or less (Sterling and Baker 2010). They said they considered two sets of induced wind profiles from the German

Intercity Connect HST (presented in Figure 18 of their recent paper [Sterling et al. 2008]) to be high-quality data that show the induced velocity as a function of the distance from the train (Sterling and Baker 2010).

Jordan et al., 2010, notes that the induced winds caused by an HST have three distinct components: (1) flow around the nose of the train, (2) flow along the train, and (3) flow in the wake of the train. As explained above, exact analytical solutions for these flow fields are not possible. This is especially true of the flow in the wake of the train. However, the average magnitude of the induced wind does diminish as the distance from the train increases. For the analysis in their most recent paper, the authors represent the induced velocity in the wake of the train as the product of an exponential and parabolic function of the distance with each function having a separate decay constant (Jordan et al. 2010).

Understanding that while an exact analytic solution to the induced winds from HSTs is not possible, it is nevertheless possible and useful to quantify certain aspects of the flow, such as average and peak speeds, in order to evaluate the potential impacts on the environment. Consequently, URS and CH2MHill developed a methodology based on papers by Li and the FRA (Li, Renxian et al. 2008; FRA1999) to estimate induced wind speed as a function of distance."

2.1 Methodology to Estimate Induced Winds

A study on the potential aerodynamic forces created by a passing HST on nearby objects (such as humans standing in the proximity of the train) are influenced by train speed, distance from the train, and the geometry of the train. *A Study of the Influence of Aerodynamic Forces on a Human Body near a High-Speed Train, Aerodynamics of Heavy Vehicles, Trucks, Buses, and Trains* , analyzed the maximum wind velocity around a human body, assumed to be a cylinder with a height of approximately 5.7 feet, for a specific train speed, as a function of human-train distance based on different train shape models (Li et al. 2008). The range of distance from train specified for Eq. 1 is between 0 feet to 11 feet.

$$u = (1.2319)^{0.072v-4} \times \left(0.4575d^2 - 3.5496d + 9.1545\right) \qquad \text{(Eq.1)}$$

Where:

u: the maximum wind velocity around human body near the train (mph).
d: human-train distance (feet).
v: train running speed (mph).

The analysis above is only appropriate for distance from the train up to 11 feet. If this equation is used for distance beyond 11 feet, then the results become invalid and another equation is needed. According to *Assessment of Potential Aerodynamic Effects on Personnel and Equipment in Proximity to HST Operations*, a train passing a station platform induces wind in its surroundings that diminishes with distance away from the train (FRA 1999). The paper computed induced wind speeds for two different train-passing speeds (100 mph and 150 mph), based on the high and low induced wind speed curves. The speed of the induced wind can be very high near the passing train but drops off sharply a short distance away. There are sufficient variations in the strength of the aerodynamic forces due to a train's design, such that a streamlined train with a slender nose, traveling at high speeds, creates aerodynamic forces that are no more severe than a train with a bluff nose traveling at slow speeds. If a train proposed for high-speed operation has a streamlined body design with a slender nose at the head and tail ends (such as the California HST traveling at 200 mph), it is possible that its favorable aerodynamic characteristics would offset the higher aerodynamic forces that would otherwise be created by its increase in speed. Therefore, a streamlined HST traveling at 220 mph could have an induced wind speed curve similar to a blunt-nosed train traveling at 150 mph, and the induced wind speed curve equation for a train traveling at 150 mph can be used to estimate wind speeds for an HST traveling at 220 mph by fitting a logarithmic equation to FRA-computed airflow for passing trains. This equation can be used to obtain the following model for distances from 11 feet to 30 feet):

$$u = -3.5515 \times \ln d + 8.8894 \quad \text{(Eq.2)}$$

Where:

u: the maximum wind velocity around human body near the train (mph).
d: human-train distance (feet).
This equation is only applicable for a train traveling at a speed of 220 mph

Based on the FRA-computed model, induced air flow beyond 30 feet would be significantly less because induced airflow tends to plateau, as shown in Figure 1). Again, a cylinder of approximately 5.7 feet was assumed to represent the human body for this analysis.

Eq. 2 cannot be applied to distances beyond 30 feet because the results become invalid, and literature searches have not shown any quantitative models to estimate induced wind speed past this distance. Therefore, Table 1 only lists the induced airflow as a function of distance from the train from 0 feet to 30 feet.

Table 1
Induced Air Flow from Passing Train Traveling at 220 mph

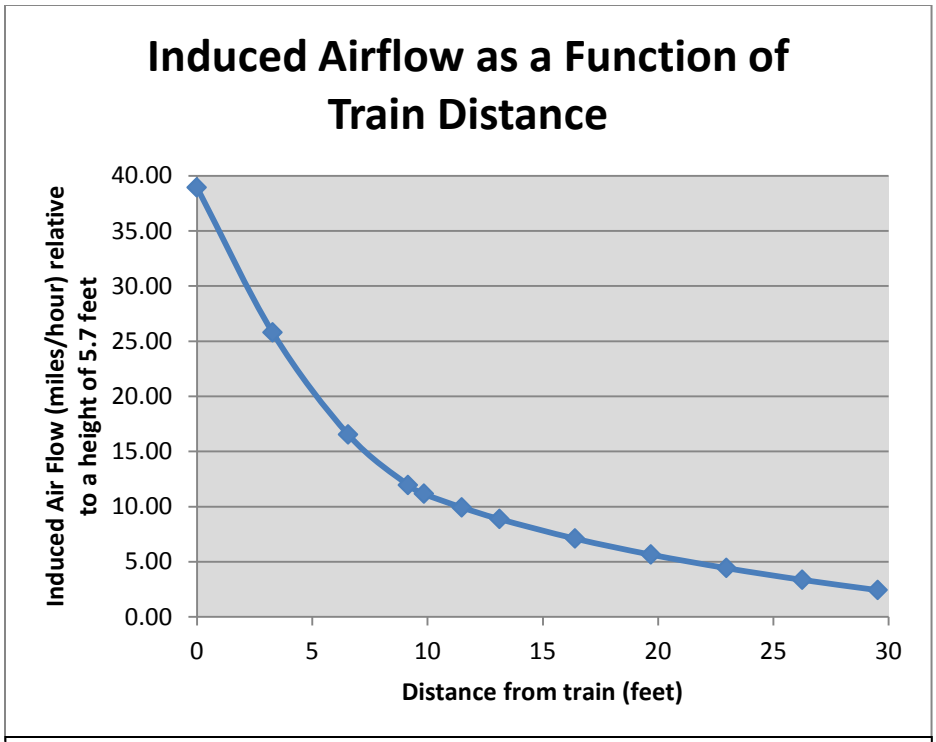
Distance from Train-Body[a] (feet)	Wind Speed u (mph)
0	38.94
3	25.79
7	16.53
9	11.96
10	11.16
11	9.93
13	8.87
16	7.10
20	5.65
23	4.43
26	3.36
30	2.43

[a] The values in Table 1 were developed using the methodology listed in Section 2.1 using the following equations:

For distance of 0 to 11 feet, the following equation is used to estimate induced air flow: $u = (1.2319)^{0.072v-4} \times (0.4575d^2 - 3.5496d + 9.1545)$ (Eq1)

For distance of 11 to 30 feet, the following equation is used to estimate induced air flow: $u = -3.5515 \times \ln d + 8.8894$ (Eq 2)

Where:
u: the maximum wind velocity around human body near the train.
d: human-train distance.



Note: Figure 1 was created using the methodology listed in Section 2.1, through the use of Eq. 1 and Eq. 2.

Figure 1
Induced Airflow as a Function of Train Distance
for a Train Traveling at 200 mph

2.2 Check of Induced Wind Speed Methodology

A number of assumptions are made regarding the methodology described in Section 2.1 to estimate the induced wind from the California HST System. As an independent check of the estimates from this approach, the data from the high-quality measurements of the Intercity Connect HST recommended by Sterling and Baker (2010) were used. In Table 1 of of *A Study of the Slipstreams of High-Speed Passenger Trains and Freight Trains* (Sterling et al. 2008), distances at which induced velocities were measured are defined as, "Distance from train side or platform edge" in meters. From examining the data given in Figure 18 of that study, it was concluded that these data show that, for trackside measurements, the induced winds are between 5% and 10% of the speed of the train at a distance of 9.8 feet. Using this relationship, for an HST traveling at 220 mph, 5% and 10% of the train speed would be 11 mph (16.1 feet per second) and 22 mph (32.2 feet per second), respectively. These values bound the 16.37 feet per second (11.2 mph) calculated using Eq. 1 in Section 2.1 (shown in Table 1 below). The agreement between Eq. 1, which was derived from the *Assessment of Potential Aerodynamic Effects on Personnel and Equipment in Proximity to High-Speed Train Operations* (FRA 1999), and independent experimental measurements, is indicative of the validity of both approaches for estimating induced winds from the proposed California HST.

2.3 Induced Wind Speed and Elevation

While the wind speed generated by a train does vary relative to the elevation above the ground, Li et al. (2008) states,

> *The aerodynamic force acting on human body produced by train wind is related to many factors, such as train running speed, human-train distance, train head/tail shapes,*

> *smoothness of train surface, relative height between human and train, temperature and moisture of ambient air and so on. But the main factors are three: train running speed, human-train distance and train head/tail shape*

So distance from the train dictates the force and wind speed substantially more than the elevation does.

In the FRA paper, different trainsets were modeled to understand the impacts of high-speed use at existing stations in the Northeast Corridor (FRA 1999). One of the conclusions was that the "Induced airflow effects from a passing Acela trainset will be greater at 2.5 feet. above a platform than at 5.0 feet. above the platform, whether the platform is high-level or low-level." The paper also shows that, as the platform is elevated, wind speed and force are reduced at both 2.5 feet and 5.0 feet above the platform. This means that maximum wind speeds and forces modeled by the equations presented in this memo likely represent the highest wind speeds and forces created by the train, as the studies took the maximum force from the ground at a height of approximately 5.7 feet.

So, while the elevation relative to the ground does affect the induced wind speed from the train, the effect is small compared to the main factors (i.e., train speed, distance from train, and train head/tail shape), and this memo likely captures the maximum wind speed and forces produced by the train. For an elevated guideway, it is not anticipated that the wind speed and forces at-grade would be any greater than those calculated and presented in this memo.

2.4 Potential Impact of Induced Wind on Honeybees

Concern has been expressed that the wind gusts induced by the proposed HST might affect the bees that pollinate almond trees along the HST alignments. During an August 2010 phone call, Professors Sterling and Baker said they were not aware of any research done on the impact of HSTs on bees or pollination. (Sterling and Baker 2010). Right-of-way width for trains at-grade would be 100 feet and, according to design criteria, the nearest track would be at least 20 feet away from the edge of the HST right-of-way. Consequently, bounding the induced wind speeds at a distance of 20 feet or more was needed to evaluate the potential impact on bees pollinating almond trees.

The methods described in Section 2.0 are expanded upon in the following sections to estimate the wind gusts from a passing HST. These are compared to information about potential induced wind gusts and meteorological data for the Merced Regional Airport / Macready Field (KMCE), the Fresno Yosemite International Airport (KFAT), and the Bakersfield Meadows Field Airport (KBFL).

2.4.1 Meteorological Data

Meteorological data for Merced Regional Airport / Macready Field for the period of record of August 1998 to December 2008 (Western Regional Climate Center 2010a), Fresno Yosemite International Airport for the period of record of July 1996 to December 2008 (Western Regional Climate Center 2010b), and Bakersfield Meadows Field Airport for the period of record July 1996 to December 2008 (Western Regional Climate Center 2010c) were reviewed. The wind data for these three airports are very similar. Wind statistics are organized by month of the year:

- Merced Regional Airport / Macready Field:
  - The daily average wind speed ranges from 4.2 mph for November to 8.2 mph for June.
  - The daily average maximum 2-minute wind speed ranges from 12.1 mph for November to 16.7 mph in May.
  - The daily average peak gust, which is a maximum 5-second average, ranges from 15.0 mph in November to 21.3 mph in May.
  - The maximum daily average wind speed ranges from 10.9 mph for August to 22.1 mph for May.
  - The maximum 2-minute average wind speed range from 24 mph for September to 43 mph for December.
  - The maximum peak gust ranges from 29 mph for September to 51 mph for December.
- Fresno Yosemite International Airport:
  - The daily average wind speed ranges from 4.0 mph for December to 8.5 mph for June.
  - The daily average maximum 2-minute wind speed ranges from 11.5 mph for November to 17.7 mph in May.
  - The daily average peak gust, which is a maximum 5-second average, ranges from 14.2 mph for both November and December to 21.7 mph in May.
  - The maximum daily average wind speed ranges from 12.6 mph for July to 19.3 mph for March.
  - The maximum 2-minute average wind speed range from 25 mph for August to 38 mph for January.
  - The maximum peak gust ranges from 33 mph for both August and September to 46 mph for January.

- Bakersfield Meadows Field Airport (KBFL), CA:
  - The daily average wind speed ranges from 4.3 mph for November to 7.4 mph for June.
  - The daily average maximum 2-minute wind speed ranges from 12.4 mph for November to 17.3 mph in April.
  - The daily average peak gust, which is a maximum 5-second average, ranges from 14.7 mph for November to 21.4 mph in April.
  - The maximum daily average wind speed ranges from 9.4 mph for November to 22.3 mph for January.
  - The maximum 2-minute average wind speed range from 28 mph for July to 49 mph for February.
  - The maximum peak gust ranges from 33 mph for July to 57 mph for February.

2.4.2 Comparison with HST Induced Wind Gusts

Using the relationships from the German Intercity Connect HST data, induced winds from an HST traveling at 220 mph would be expected to range from 11 mph to 22 mph at 9.8 feet from the train. At 50 feet and 100 feet, the induced winds would be significantly less. As shown above in Table 1, at 20 feet the induced wind would be expected to be approximately 6 mph. A 1,400-foot-long train traveling at 220 mph would completely pass by an observer in less than 5 seconds; therefore a comparable wind statistic would be the daily average peak gust, where a peak gust is a maximum 5-second average wind speed. For Merced Regional Airport / Macready Field, Fresno Yosemite International Airport, and KBFL, the daily average peak gusts ranged from 15.0 mph to 21.3 mph, 14.2 mph to 21.7, and 14.7 to 21.4 mph, respectively. These ranges of speed are equivalent to the expected range of speeds of the induced winds at 9.8 feet from the train and two to three times greater than the 6 mph expected at 20 feet. Consequently, at 20 feet, 50 feet, and 100 feet from the train, the magnitude of the speeds of the induced winds would be expected to be less than and indistinguishable from naturally occurring wind gusts. Therefore, no impact on bee pollination from induced winds from the proposed HST would be expected to occur.

3.0 Wind-Generated Fugitive Dust Emissions from a Passing High-Speed Train

Wind erosion occurs when drag forces or shear stresses exerted by the wind exceed the retention forces acting on particles or debris at the surface. Once the minimum wind speed required to initiate particle motion (i.e., threshold friction velocity) has been reached, wind erosion occurs as a function of wind power or wind speed. The strong turbulent airflow along the sides of a moving train and the wake at the rear of the train may resuspend erodible debris and fine particulates from the surface of the surrounding impacted area, similar to particle resuspension from wind erosion. Attachment 1, *Wind-Generated Fugitive Dust Emissions from a Passing High-Speed Train* (URS 2010), provides more detail regarding methodology and findings.

3.1 Methodology

To estimate the fugitive dust emission from the particle resuspension, the AP-42 guidance Chapter 13.2.5 Industrial Wind Erosion (EPA 2006) was used to quantify the emission factor for wind-generated fugitive particulates emissions from a passing HST. This section presents the approach used to estimate the annual emissions of particulate matter smaller than or equal to 10 and 2.5 microns in diameter (PM_{10} and $PM_{2.5}$, respectively) from HST operation, based on the AP-42 guidance and project-specific data such as the impacted area.

Annual wind-generated fugitive dust/particulates emissions from a passing HST are a function of the impacted zone area and the wind erosion emission factor (per unit area). According to the AP-42 guidance, the wind erosion emission factor emission factor (in terms of mass per unit area) is a function of the disturbance frequency (where disturbance is defined as an action that results in the exposure of fresh surface material) in a year and erosion potential (which depends on friction velocity and threshold friction velocity).

3.1.1 Wind Erosion Emission Factor

Based on the AP-42 guidance, the emission factor for wind-generated dust emissions from the surface material of the impacted zone should be calculated as follows:

Emission factor (g/m2): $$k\sum_{i=1}^{N} P_i \qquad \text{(Eq. 3)}$$

Where:

k = particle size multiplier
N = number of disturbances per year
P_i = erosion potential corresponding to the observed (or probable) fastest mile of wind for the ith period between disturbances (grams/feet^2).

3.1.2 Particulate Emission Factor

As described in Eq. 3, the emission factor is a function of the disturbance frequency and erosion potential. The disturbance frequencies for various HST alignments were provided by the project engineers and are discussed in the *California High-Speed Train Project Merced to Fresno Section Air Quality Technical Report* (Authority and FRA 2012).

The erosion potential is the finite availability of erodible material (mass/area) on a surface. The AP-42 equations 1 and 3 for erosion potential were substituted into the Eq. 3 listed above, and the following emission factor (grams/feet^2) as a function of induced wind was derived:

$$k\sum_{i=1}^{N}\left[58\left(0.038955\text{u} - 0.19\right)^2 + 25\left(0.038955\text{u} - 0.19\right)\right]_i \qquad \text{(Eq.4)}$$

Where:

k = particle size multiplier (0.5 for PM_{10} and 0.075 for $PM_{2.5}$).
u = induced wind speed at a certain height above the surface (mph)

3.1.2 Induced Wind Speed

As shown in Eq. 4, the emission factor can be expressed as a function of induced wind speed along the side of the train body. The induced wind profile could be estimated using Eq.1 from Section 2.1 of this memo.

3.1.3 Impacted Zone Area

The impacted zone area for the HST is defined as the surface area within both shoulders of the train track or within the right-of-way, at which the maximum friction velocity on the surface material is higher than the threshold friction velocity (i.e., the minimum wind speed required to initiate particle motion). The length of the impacted zone area is equal to the length of the at-grade track, and was obtained from the *California High-Speed Train Project Merced to Fresno Section Air Quality Technical Report* (Authority and FRA 2012)

3.2 Fugitive Dust Calculation

By integrating the emission factor function in Eq. 4 across the induced wind speed values within the impacted zone boundary area and multiplying the emission factor by the number of disturbance (N) and the particle size multiplier (k), the annual fugitive dust emissions from HST activity can be estimated.

Dust emissions generated by the wake at the rear of the train were not added to this calculation to avoid double counting. The erodible dust is already suspended in the air when the rear end of the train passes through, so additional turbulence or the rear wake will not contribute to more raised dust in the air.

The emission factor profiles over the distance from the train body are presented in Figure 2, and the emission factor over the impacted zone area is summarized in Table 2.

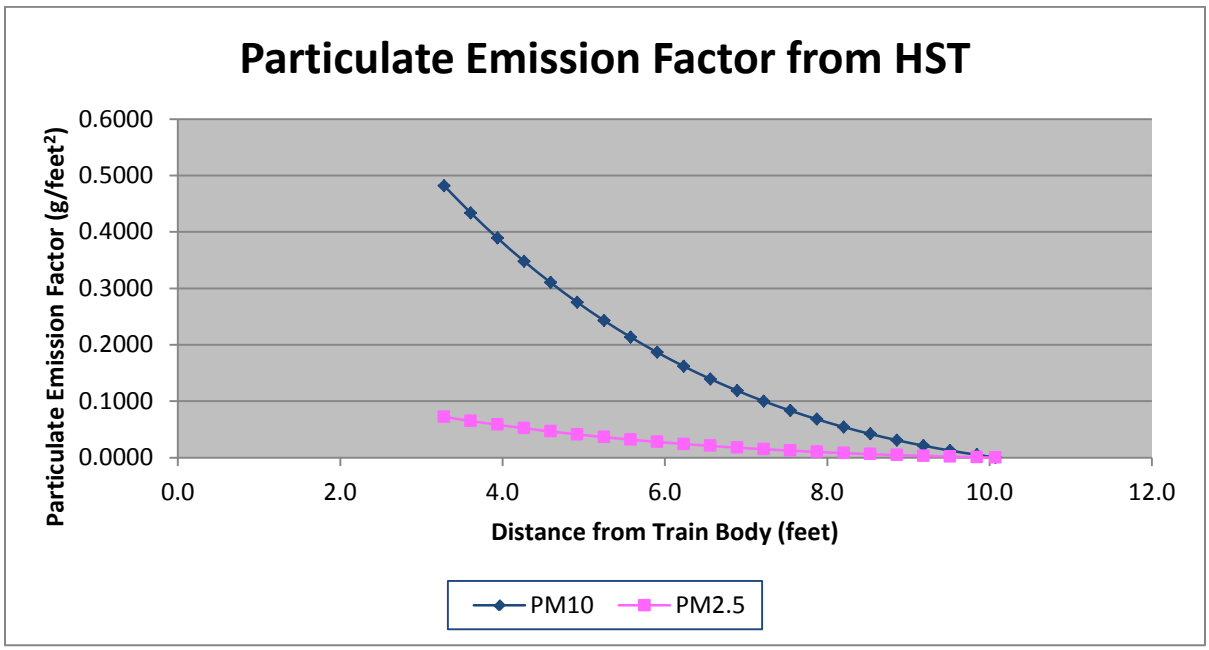


Figure 2
Particulate Emission Factor from Passing Train

Table 2
Emission Factor from Passing Train

Distance from Train-Body (feet)	Emission Factor (g/feet^2)	
	PM_{10}	$PM_{2.5}$
3.3	0.48	0.07
3.6	0.43	0.07
3.9	0.39	0.06
4.3	0.35	0.05
4.6	0.31	0.05
4.9	0.28	0.04
5.2	0.24	0.04
5.6	0.21	0.03
5.9	0.19	0.03
6.2	0.16	0.02
6.6	0.14	0.02
6.9	0.12	0.02
7.2	0.10	0.02
7.5	0.08	0.01
7.9	0.07	0.01
8.2	0.05	0.01
8.5	0.04	0.01
8.9	0.03	0.00
9.2	0.02	0.00
9.5	0.01	0.00
9.8	0.01	0.00
10.1	0.00	0.00

The emission factor for wind-generated particulate emissions from a passing HST moving at 220 mph was calculated using the following steps:

- Using Eq. 1 and Eq. 4, integrate the emission factor over the distance of 3.3 feet to 10.1 feet from the train body.
- Multiply by particle size multiplier, k (0.5 for PM10 and 0.075 for PM 2.5)
- Multiply by the length of at-grade track length (impacted zone length).
- Multiply by 2 (to account for the left and right shoulders).
- Multiply by the number of disturbances per year, N

The trapezoidal rule for numerical integration is used to estimate the results for the particulate emission factor for a passing HST moving at 220 mph. For at-grade track lengths that range from 50 miles (264,000 feet) to 120 miles (633,600 feet), the PM_{10} fugitive dust ranges from 15.9 tons per year to 38.2 tons per year, and the $PM_{2.5}$ fugitive dust ranges from 2.4 tons per year to 5.7 tons per year. These emissions represent the total fugitive dust that will be suspended within the HST impacted zone area along the entire length of the alignment. As can be seen from Figure 2 and Table 2, the amount of fugitive dust suspended beyond 10.1 feet will be insignificant. Therefore, even though the train travels at speeds of 220 mph, it will not suspend herbicides, fungicides, or other harmful residues in the soil outside the HST-impacted zone area. The detailed results of these calculations can be found for various alignments in the *California High-Speed Train Project Merced to Fresno Section Air Quality Technical Report* (Authority and FRA 2012).

4.0 Incomplete and Unavailable Information

As noted earlier, an exact, analytical equation describing the induced wind from passing HSTs is unavailable because the technical means of obtaining it do not exist. Consequently, generally accepted scientific methods were used to extrapolate data from existing HST studies to approximate the induced winds expected from the California HST. The level of uncertainty in these estimates is sufficiently small that it is inconsequential to the evaluation of potential impacts from induced wind from the proposed California HST.

5.0 References

Baker, Chris, 2010. “The Flow Around High Speed Trains.” *Journal of Wind Engineering and Industrial Aerodynamics*. Volume 98, pages 277 – 299.

Baker, C.J., Dalley, S.J., Johnson, T., Quinn, A., and Wright, N.G. 2001. “The Slipstream and Wake of a High-Speed Train.” *Proc. IMechE, Part F: Journal of Rail and Rapid Transit*. 2001, Volume 215, pages 83 – 99.

California High-Speed Rail Authority and USDOT Federal Railroad Administration (Authority and FRA). 2012. *Air Quality Technical Report.* Sacramento and Washington, DC: California High-Speed Rail Authority and USDOT Federal Railroad Administration. 2012.

Federal Railroad Administration (FRA). 1999. *Assessment of Potential Aerodynamic Effects on Personnel and Equipment in Proximity to High-Speed Train Operations: Safety of High-Speed Ground Transportation Systems*. DOT-NVTSC-FRA-98-3. Washington, DC. December 1999.

Li, Renxian, Zhao, Jing and Zhang, Shu. 2008. *A Study of the Influence of Aerodynamic Forces on a Human Body near a High-Speed Train, Aerodynamics of Heavy Vehicles, Trucks, Buses, and Trains.*

Luft, Arnold. 2010. Email correspondence between Thomas Baily (URS) with Arnold Luft (ARUP), regarding disturbances of right-of-way, dated July 6, 2010.

Sterling, M., C.J. Baker, S.C. Jordan, and T. Johnson. 2008. "A Study of the Slipstreams of High-Speed Passenger Trains and Freight Trains," Proc. *IMechE, Part F: Journal of Rail and Rapid Transit*. 2008, Volume 222, pages 177 – 193.

Jordan, S.C., M. Sterling, and C.J. Baker. 2010. "Modelling the Response of a Standing Person to the Slipstream Generated by a Passenger Train," *Proc. IMechE, Part F: Journal of Rail and Rapid Transit*. 2010, Volume 223, pages 567 – 579.

Schetz, Joseph A. 2001. "Aerodynamics of High-Speed Trains." *Annual Review of Fluid Mechanics.* Volume 33, pages 371 – 414.

Sterling, M. and C.J. Baker. 2010. Telephone call from Mark Bennett, CH2M HILL, to Mark Sterling and Chris Baker about induced winds from HSTs. August 23, 2010.

United States Environmental Protection Agency (EPA). 2006. AP 42, Fifth Edition, Volume I. Chapter 13.2.5. Industrial Wind Erosion. November 2006..

URS. 2010. *Wind-Generated Fugitive Dust Emissions from a Passing High-Speed Train.* Prepared by Prasetyo Jo, Nathalia. July 12, 2010.

Watson, J.G, 1996. *Effectiveness Demonstration of Fugitive Dust Control Methods for Public Unpaved Roads and Unpaved Shoulders on Paved Roads.* DRI Document No. 685-5200. IF2: August 2, 1996.

Western Regional Climate Center. 2010a. Climatologically summary for the "MERCED MUNI/MACREADY FLD APT (KMCE)," for the period of record August 1998 to December 2008. http://www.wrcc.dri.edu/summary/mce.ca.html. Accessed 9/1/2010.

Western Regional Climate Center. 2010b. Climatologically summary for the "FRESNO YOSEMITE INTERNATIONAL AIRPORT (KFAT)," for the period of record July 1996 to December 2008. http://www.wrcc.dri.edu/summary/fat.ca.html . Accessed 9/1/2010.

Western Regional Climate Center. 2010c. Climatologically summary for the "BAKERSFIELD MEADOWS FIELD AIRPORT (KBFL)," for the period of record July 1996 to December 2008. http://www.wrcc.dri.edu/summary/BFL.CA.HTML. Accessed 9/1/2010.

ATTACHMENT 1

Fugitive Dust Memo

URS/HMM/Arup Joint Venture
1333 Broadway St. Suite 800
Oakland, CA 94612
Tel: 510 893 3600
Fax: 510 874 3268

MEMORANDUM

To: **PMT**
From: Nathalia Prasetyo Jo (URS)
Date: July 12, 2010
Subject: **Wind-Generated Fugitive Dust Emissions from a Passing High-Speed Train**

Wind erosion occurs when drag forces or shear stresses exerted by the wind exceed the retention forces acting on particles or debris at the surface. Once the minimum wind speed required to initiate particle motion (threshold friction velocity) has been reached, wind erosion occurs as a function of wind power or wind speed.
Trains traveling at high velocity, such as the High-Speed Train, drag the surrounding air along the side of its body, which induces sideways turbulent fluctuations and rear wake. The strong turbulent airflow along the sides of a moving train and the wake at the rear of the train may resuspend erodible debris and fine particulates from the surface of the surrounding impacted area, similar to particle resuspension from wind erosion.

Methodology

To estimate the fugitive dust emission from the particle resuspension, the AP42 guidance Chapter 13.2.5 Wind Erosion was used to quantify the emission factor for wind-generated fugitive particulates emissions from a passing High-Speed Train. This memo presents the approach used to estimate the annual PM_{10} and $PM_{2.5}$ emissions from the High-Speed Train operation based on the AP42 guidance and current project description (at 15%design).
Annual wind-generated fugitive dust/particulates emissions from a passing High-Speed Train are a function of the impacted zone area and the wind erosion emission factor (per unit area). According to the AP42 guidance, the wind erosion emission factor emission factor (in terms of mass per unit area) is a function of the disturbance frequency (where disturbance is defined as an action that results in the exposure of fresh surface material) in a year and erosion potential (which depends on friction velocity and threshold friction velocity).
The influencing factors such as the impacted zone area, wind erosion emission factor, disturbance frequency, erosion potential and induced wind speed profile are discussed in detail in the following subsections.

Impacted Zone Area

The impacted zone area for the High-Speed Train scenario is defined as the surface area within both shoulders of the train track or within the right of way, at which the maximum friction velocity on the surface material is higher than the threshold friction velocity (the minimum wind speed required to initiate particle motion).
The length of the impacted zone area is equal to the length of the at-grade track. Along the Fresno to Bakersfield alignment, the length of the at-grade track is approximately 43.56 miles

(total track length subtracted by the elevated track section length)[1].
The width of the impacted zone is twice the distance from the beginning of the right of way area to the point where the corresponding maximum surface friction velocity generated by the induced turbulence is equal to the threshold friction velocity (assumed 0.19 m/s, based on the lowest value available for disturbed desert soil[2]). In this memo, the width of the impacted zone is referred to in terms of distance from the train body. The doubling of width was to account for the right of way area on the left and right side of the train track.
The boundary for the impacted zone is assumed to start at beginning of the right of way area (approximately one meter from the train body) and end at the distance where the corresponding friction velocity is equal to the threshold friction velocity. The surface area from the train body to the beginning of the right of way area was assumed to consist of non-erodible material because that area is within the embankment and rock ballast area.
To quantify the fugitive dust emissions generated by a High-Speed train passing at the speed of 220 mph, the emission factor needs to account for the induced wind speed profile and the distance within the impacted zone. Further discussion on the determination of the impacted zone boundary is presented in the induced wind speed section.

Wind Erosion Emission Factor
Based on the AP42 guidance, the emission factor for wind-generated dust emissions from the surface material of the impacted zone should be calculated as follows:

Emission factor (g/m2): $k\sum_{i=1}^{N} P_i$ (Eq.1)

Where:
k = particle size multiplier
N = number of disturbances per year
Pi = erosion potential corresponding to the observed (or probable) fastest mile of wind for the ith period between disturbances, g/m^2

As described in Eq.1, the emission factor is a function of the disturbance frequency and erosion potential. The approach and assumptions used to determine the disturbance frequency and erosion potential for the High-Speed Train operation scenario are presented as follows:

Disturbance Frequency
The disturbance is defined as an action that results in the exposure of fresh surface material. The number of disturbances per year during normal High-Speed Train operation is equal to the frequency of right of way access in a year (for maintenance or other purposes). The wind generated emission factor is dependent on the disturbance frequency because each time that the right of way surface area is disturbed, its erosion potential is restored.

1 The length of at-grade track was estimated based on the Fresno to Bakersfield HST Alignments Preliminary Draft Map, URS, 2010.
2 Watson, J.G, "Effectiveness Demonstration of Fugitive Dust Control Methods for Public Unpaved Roads and Unpaved Shoulders on Paved Roads", DRI Document No. 685-5200. IF2: August 2, 1996.

The right of way surface area is currently expected to be disturbed twice monthly for visual inspection based on the operational and maintenance schedule of the High-Speed Train. Therefore, the erosion potential is assumed to be restored twice a month, which translates to 24 disturbances/year or N=24[3].

Erosion Potential

The erosion potential (P_i) is the finite availability of erodible material (mass/area) on a surface. For the wind erosion emission factor calculation, Pi is defined as the erosion potential corresponding to the observed fastest mile of wind[4] for the ith period between disturbances, and can be calculated as follows:

$$P = 58\,(u^* - u^*_t)^2 + 25\,(u^* - u^*_t) \qquad \text{(Eq.2)}$$

$$P = 0 \text{ for } u^* < u^*_t \qquad \text{(Eq.3)}$$

Where:

u^* = friction velocity (m/s)

u^*_t = threshold friction velocity (m/s). Assumed 0.19 m/s, based on the lowest value available for disturbed desert soil.

Since there was no documentation for the friction velocity from High-Speed Train operation, induced wind velocity was used to estimate the friction velocity on the right of way surface based on the correlation given by Eq.4.

$$u_z = \frac{u^*}{0.4}\ln\left(\frac{z}{z_0}\right) \qquad (z > z_0) \qquad \text{(Eq.4)}$$

Where:

u_z = induced wind speed, m/s

u^* = friction velocity, m/s

z = height above test surface, cm

z_0 = roughness height, cm

0.4 = von Karman's constant, dimensionless

By substituting the friction velocity (u^*) from Eq.4 into Eq.2 and the erosion potential (Pi) from Eq. 2 into Eq. 1, the emission factor in Eq.1 can be expressed as a function of induced wind speed as shown in Eq. 5

$$\text{Emission factor (g/m}^2\text{):}\ k\sum_{i=1}^{N}\left[58\left(\frac{0.4\,u_z}{\ln\left(\frac{z}{z_0}\right)} - u_t^*\right)^2 + 25\left(\frac{0.4\,u_z}{\ln\left(\frac{z}{z_0}\right)} - u_t^*\right)\right]_i \qquad \text{(Eq.5)}$$

3 Email correspondence between Thomas Baily (URS) with Arnold Luft (ARUP) dated July 6, 2010.

4 Fastest mile is the fastest one minute observed wind speed taken from a multiple register that contains a time record of the passing of each mile of wind

Where:
k = particle size multiplier (0.5 for PM_{10} and 0.075 for $PM_{2.5}$).
u_z = induced wind speed at a certain height above the surface (m/s). Note that emissions are only calculated in area with $u^* > u^*_t$. Because, when $u^* < u^*_t$, the erosion potential (P) is equal to zero.
u^*_t = threshold friction velocity. Assumed 0.19 m/s, based on the lowest value available for disturbed desert soil.
z = height above the surface (288 cm), based on 1/2 of the train height (1.88 m) and the average embankment height (3ft ~1 meter) with respect to the right of way5.
z_0 = surface roughness height (cm), assume 0.01 cm for the at grade right of way
0.4 = von Karman's constant, dimensionless

By substituting the assumptions above and other known parameters into Eq. 5, the equation can be simplified to.

Emission factor (g/m^2): $k\sum_{i=1}^{N}\left[58\left(0.038955u_z - 0.19\right)^2 + 25\left(0.038955u_z - 0.19\right)\right]_i$ (Eq.6)

Where:
k = particle size multiplier (0.5 for PM_{10} and 0.075 for $PM_{2.5}$).
u_z = induced wind speed at a certain height above the surface (m/s). Note that emissions are only calculated in area with $u_z > 4.88$ m/s (a substitute for $u^* > u^*_t$). Because, when $u^* < u^*_t$, the erosion potential (P) is equal to zero.

As shown in Eq. 6, the emission factor can be expressed as a function of induced wind speed along the side of the train body. By integrating the emission factor function in Eq.6 across the induced wind speed values within the impacted zone boundary (u_z) area, and multiplying the emission factor by the number of disturbance (24 times per year) and the particle size multiplier (k), the annual fugitive dust emissions from the High-Speed Train activity can be estimated. Dust emissions generated by the wake at the rear of the train were not added to this calculation to avoid double counting. The erodible dust is already suspended in the air when the rear end of the train passes through and therefore additional turbulence or the rear wake will not contribute to more raised dust in the air.

Induced Wind Speed Profile

The width of the impacted zone is twice the distance from the beginning of the right of way to the point where the corresponding maximum surface friction velocity generated by the induced turbulence is equal to the threshold friction velocity. To determine the distance where the corresponding maximum surface friction velocity generated by the induced turbulence is equal to the threshold friction velocity, a wind speed profile analysis is required.
A study on the potential aerodynamic forces created by a passing High-Speed Train on nearby objects (such as humans standing in the proximity of the train) are influenced by train speed, distance from the train, and the geometry of the train[6]. Li, et. al. analyzed the maximum wind velocity around a human body for a specific train speed as a function of human-train distance

5 Track related measurements are based on Technical Memorandum, Typical Cross Sections for 15% Design TM 1.1.21 Appendix A: Two Track At-Grade Drawing and Project Description Summary (June 28, 2010)
6 Li, Renxian, et.al, "A Study of the Influence of Aerodynamic Forces on a Human Body near a High-Speed Train, Aerodynamics of Heavy Vehicles", Trucks, Buses, and Trains, 2008.

based on different train shape models:

$$u = (1.2319)^{0.072v-4} \times (0.4575d^2 - 3.5496d + 9.1545) \qquad \text{(Eq.7)}$$

Where:
u: the maximum wind velocity around human body near the train (m/s).
d: human-train distance (m).
v: train running speed (m/s).

The range of train speeds specified for Eq. 7 are between 55.56 m/s and 97.22 m/s (between 124 mph and 217 mph) with a human-train distance between 1.0 m and 3.5 m. This raises questions about the validity of this equation to estimate aerodynamic forces from a High Speed train traveling at a speed of 220 mph.
An induced wind speed profile comparison was graphed to determine the relative accuracy of using Eq 7 to estimated aerodynamic forces for train speeds of 220 mp compared to 217 mph (the upper bound of the train speed range for Eq 7). Figure 1 shows that Eq. 7 presents a similar trend when a train speed of 220 mph is used as compared to a train speed of 217 mph. Therefore Eq. 7 can be used to determine the induced wind speed profile as a function of distance from train body for train passing at 220 mph.

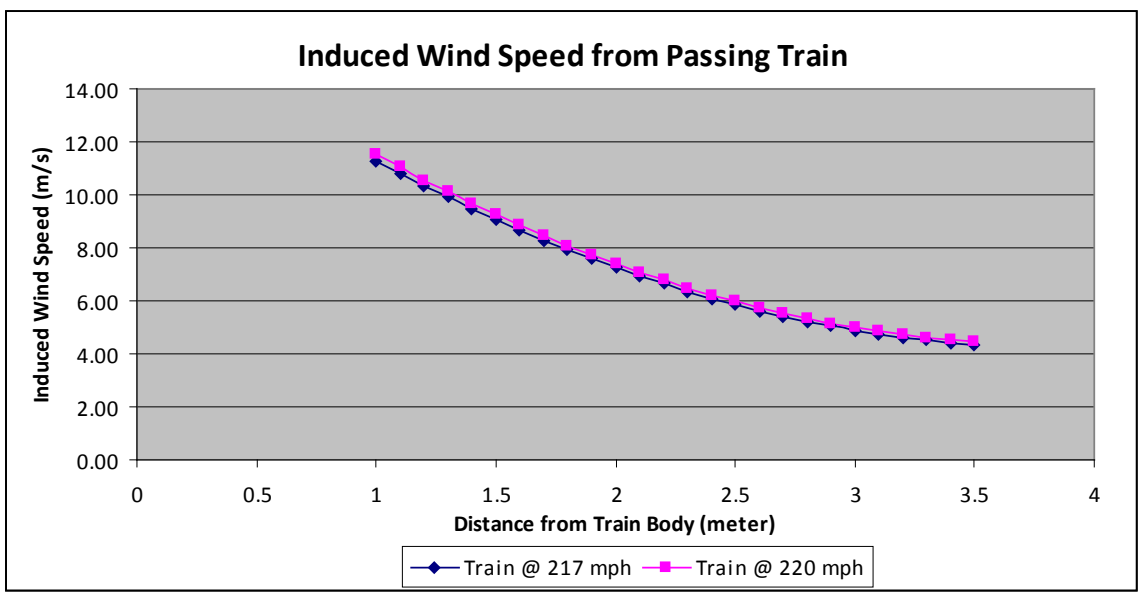


Figure 1. Wind Speed Profile Comparison from Train at 220 mph and 217 mph

Emission Calculation

The emission factor profiles over the distance from the train body are presented in Figure 2 and the emission factor over the impacted zone area is summarized in Table 1.

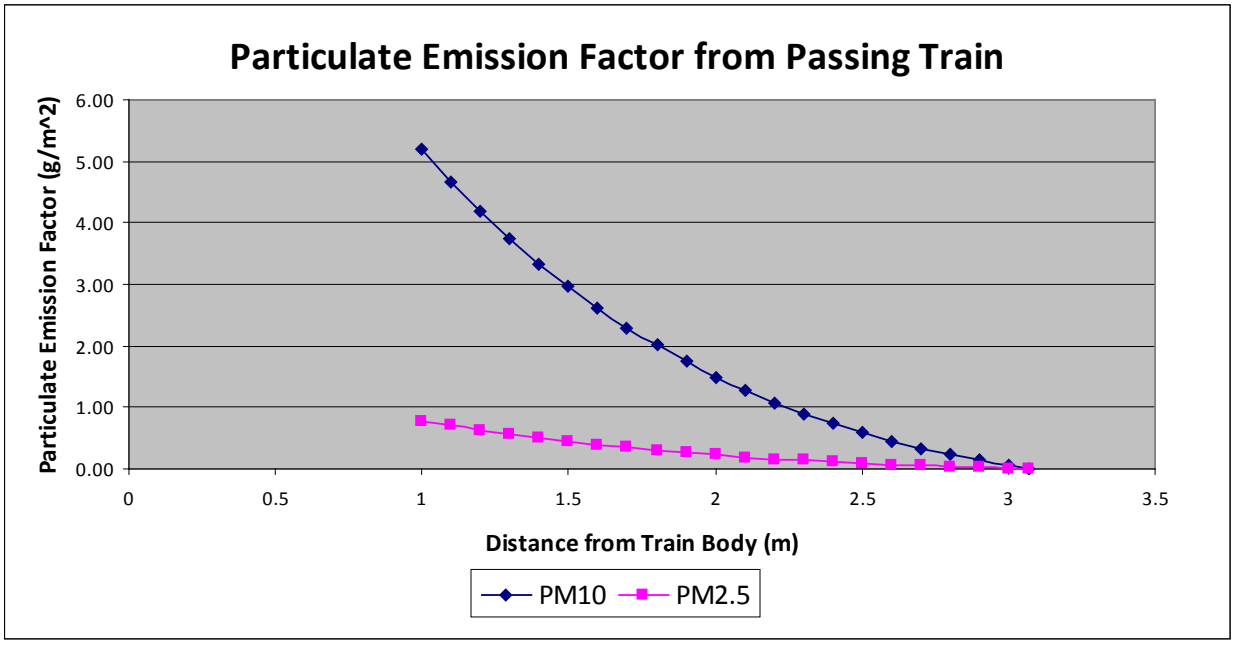


Figure 2. Particulate Emission Factor from Passing Train

Table 1. Emission Factor from Passing Train

Distance from Train-Body	Wind Speed (220 mph Train)	Friction Velocity	Erosion Potential	Emission Factor (g/m^2)	
(m)	u (m/s)	u*(m/s)	P (g/m^2)	PM_{10}	$PM_{2.5}$
1	11.53	0.45	10.37	5.18	0.78
1.1	11.03	0.43	9.33	4.67	0.70
1.2	10.56	0.41	8.38	4.19	0.63
1.3	10.10	0.39	7.49	3.75	0.56
1.4	9.66	0.38	6.68	3.34	0.50
1.5	9.24	0.36	5.92	2.96	0.44
1.6	8.83	0.34	5.23	2.62	0.39
1.7	8.45	0.33	4.60	2.30	0.34
1.8	8.08	0.31	4.02	2.01	0.30
1.9	7.72	0.30	3.48	1.74	0.26
2	7.39	0.29	3.00	1.50	0.22
2.1	7.07	0.28	2.56	1.28	0.19
2.2	6.77	0.26	2.16	1.08	0.16
2.3	6.48	0.25	1.79	0.90	0.13
2.4	6.22	0.24	1.46	0.73	0.11
2.5	5.97	0.23	1.17	0.58	0.09
2.6	5.74	0.22	0.90	0.45	0.07
2.7	5.53	0.22	0.67	0.33	0.05
2.8	5.33	0.21	0.46	0.23	0.03
2.9	5.15	0.20	0.27	0.14	0.02
3	4.99	0.19	0.11	0.05	0.01
3.07	4.88	0.19	0.01	0.00	0.00

As shown in Table 1, the corresponding friction velocity at the distance of 3.07 meters from the train body is equal to the threshold friction velocity of 0.19 m/s. Therefore, emission factor for wind-generated dust emissions should be calculated from the beginning of the right of way (1 meter from the train body) to the distance of 3.07 meters from the train body.

The emission factor for wind-generated particulate emissions from a passing High-Speed Train moving at 220 mph was calculated with the following steps:

- Using Eq. 6 and Eq. 7, integrate the emission factor over the distance of 1 meter to 3.07 meter from the train body.
- Multiply by particle size multiplier, k (0.5 for PM_{10} and 0.075 for $PM_{2.5}$)
- Multiply by 43.56 miles of at grade track length (impacted zone length).
- Multiply by two (to account for the left and right shoulders).
- Multiply by 24 disturbances per year (twice monthly).

Using the trapezoidal rule for numerical integration, the results for emission factor for wind-generated particulate emissions from a passing High-Speed train moving at 220 mph are 26.53 lb PM_{10} /miles of at grade track and 3.98 lb $PM_{2.5}$/ miles of at grade track. Multiplied by the

impacted zone length and disturbance frequency, the annual PM_{10} and $PM_{2.5}$ emissions from the High-Speed Train operation for the Fresno-Bakersfield section are 28.97 ton of PM_{10} /year and 4.3 ton of $PM_{2.5}$ /year.

Reference

H. Lee, "Assessment of Potential Aerodynamic Effects on Personnel and Equipment in Proximity to High-Speed Trains Operations", DOT/FRA/ORD-99/11, December 1999.

U.S. Environmental Protection Agency (USEPA), “Compilation of Air Pollutant Emission Factors Chapter 13.2.5”, AP-42, 5th ed., Washington, D. C., 2006.

Li, Renxian, et.al, “A Study of the Influence of Aerodynamic Forces on a Human Body near a High-Speed Train, Aerodynamics of Heavy Vehicles”, Trucks, Buses, and Trains, 2008.

Watson, J.G, “Effectiveness Demonstration of Fugitive Dust Control Methods for Public Unpaved Roads and Unpaved Shoulders on Paved Roads”, DRI Document No. 685-5200. IF2: August 2, 1996.