Appendix A

Construction Emissions

SUMMARY

Equipment, workers and dirt moving

Year	ROG	Nox	CO	SO2	PM10	PM2.5	CO2
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	4.13	54.90	35.92	0.10	12.36	2.68	4699.95
2014	25.89	339.25	230.25	0.65	57.68	16.43	30407.04
2015	18.88	233.44	177.11	0.45	45.33	11.79	23027.03
2016	4.43	55.40	39.38	0.10	12.85	2.74	5485.90
2017	1.79	22.57	13.99	0.04	7.24	1.11	1936.29
2018	1.53	18.56	13.37	0.03	6.00	0.94	1781.69
2019	6.30	78.31	55.70	0.17	18.87	3.78	7894.86
2020	2.87	35.11	25.15	0.08	18.23	1.63	3569.82
2021	0.67	7.40	5.83	0.01	10.93	0.39	709.10
2022	0.16	1.73	1.38	0.00	2.72	0.09	167.00
2023	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
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

Hauling

Equipment Description	Unmitigated Tons per Year (1)							
	ROG	NO_x	CO	SO2	PM10	PM2.5	CO_2	CH_4
HHDT 2013	7.76	145.28	34.21	0.21	6.67	5.65	21,438.44	0.36
HHDT 2014	9.30	170.05	42.56	0.28	8.12	6.81	28,675.89	0.43
HHDT 2015	3.81	68.09	18.16	0.13	3.39	2.82	13,184.39	0.17
HHDT 2016	2.33	40.71	11.59	0.09	2.12	1.74	9,059.63	0.11
HHDT 2017	2.08	35.40	10.77	0.09	1.92	1.56	9,059.63	0.10
HHDT 2018	1.86	30.82	10.01	0.09	1.64	1.41	9,059.63	0.09

MOW Hauling

Equipment Description	Unmitigated Tons per Year [1]							
	ROG	NO_x	CO	SO2	PM10	PM2.5	CO_2	CH_4
HHDT 2013	-	-	-	-	-	-	-	-
HHDT 2014	-	-	-	-	-	-	-	-
HHDT 2015	-	-	-	-	-	-	-	-
HHDT 2016	-	-	-	-	-	-	-	-
HHDT 2017	-	-	-	-	-	-	-	-
HHDT 2018	0.07	1.08	0.35	0.00	0.06	0.05	317.20	-
HDDT 2019								
HDDT 2020								
HDDT 2021	0.45	6.91	2.71	0.03	0.45	0.35	2,947.59	

Rail

Equipment Description	Unmitigated Tons per Year [1]							
	ROG	NO_x	CO	SO2	PM10	PM2.5	CO_2	CH_4
Rail from Bay Area, Sacramento 2014	2.75	60.85	12.00	0.04	1.62	1.57	4,605.25	
Rail from Bay Area, Sacramento 2015	2.75	60.85	12.00	0.04	1.62	1.57	4,605.25	
Rail from Bay Area, Sacramento 2016	2.75	60.85	12.00	0.04	1.62	1.57	4,605.25	
Rail from Bay Area, Sacramento 2017	1.92	42.60	8.40	0.03	1.14	1.10	3,223.87	
Rail from Bay Area, Sacramento 2018	0.01	0.28	0.06	0.00	0.01	0.01	21.13	
Rail from Bay Area, Sacramento 2021	1.37	30.23	5.96	0.02	0.81	0.78	2,288.22	

Year	ROG Tons	Nox Tons	CO Tons	SO2 Tons	PM10 Tons	PM2.5 Tons	CO2 Tons
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	14.64	261.03	82.14	0.35	20.65	9.90	30743.64
2014	37.93	570.15	284.80	0.97	67.43	24.82	63688.18
2015	25.45	362.38	207.27	0.62	50.34	16.19	40816.67
2016	9.51	156.95	62.97	0.23	16.59	6.06	19150.78
2017	5.80	100.57	33.16	0.16	10.30	3.78	14219.78
2018	3.47	50.75	23.79	0.12	7.71	2.41	11179.65
2019	6.30	78.31	55.70	0.17	18.87	3.78	7894.86
2020	2.87	35.11	25.15	0.08	18.23	1.63	3569.82
2021	2.48	44.54	14.50	0.06	12.19	1.52	5944.90
2022	0.16	1.73	1.38	0.00	2.72	0.09	167.00
2023	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
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

CO TOTALS

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
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	2.51	0.19	7.34	5.88	14.19	0.04	0.00	5.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	3.45	0.83	10.76	39.14	111.13	0.02	0.00	64.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2015	0.00	0.56	5.65	38.84	118.75	1.40	0.18	11.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2016	0.00	0.18	0.00	15.51	21.80	1.75	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2017	0.00	0.09	0.00	9.93	0.00	0.00	0.00	0.00	3.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.47	0.00	2.51	0.32	2.42	0.25	0.00	0.00	5.41
2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.91	0.00	4.23	2.41	0.00	1.60	4.84	0.49	0.93	12.99	14.30
2020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.93	0.00	4.23	4.14	0.00	0.00	0.00	0.00	0.28	1.30	4.27
2021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41	4.14	0.00	0.00	0.00	0.00	0.02	0.00	0.27
2022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.38	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
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
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
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
Maximum Yearly Value (tons/year)	**3.45**	**0.83**	**10.76**	**39.14**	**118.75**	**1.75**	**0.18**	**64.92**	**3.97**	**4.23**	**4.14**	**2.51**	**1.60**	**4.84**	**0.49**	**0.93**	**12.99**	**14.30**
Year	**2014**	**2014**	**2014**	**2014**	**2015**	**2016**	**2015**	**2014**	**2017**	**2019**	**2020**	**2018**	**2019**	**2019**	**2019**	**2019**	**2019**	**2019**

NOx TOTALS

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
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	4.21	0.06	13.64	9.61	15.97	0.05	0.00	11.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	5.61	0.26	19.97	63.55	123.13	0.02	0.00	126.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2015	0.00	0.17	10.74	63.08	131.49	4.40	0.01	23.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2016	0.00	0.06	0.00	25.52	24.32	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2017	0.00	0.03	0.00	16.38	0.00	0.00	0.00	0.00	6.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.20	0.00	3.34	0.43	2.99	0.29	0.00	0.00	8.31
2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.94	0.00	5.48	3.02	0.00	2.13	5.98	0.59	0.02	19.23	21.90
2020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.14	0.00	5.48	5.18	0.00	0.00	0.00	0.00	0.01	1.92	6.36
2021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.83	5.18	0.00	0.00	0.00	0.00	0.00	0.00	0.39
2022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.73	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
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
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
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
Maximum Yearly Value (tons/year)	**5.61**	**0.26**	**19.97**	**63.55**	**131.49**	**5.49**	**0.01**	**126.69**	**6.16**	**5.48**	**5.18**	**3.34**	**2.13**	**5.98**	**0.59**	**0.02**	**19.23**	**21.90**
Year	**2014**	**2014**	**2014**	**2014**	**2015**	**2016**	**2015**	**2014**	**2017**	**2019**	**2020**	**2018**	**2019**	**2019**	**2019**	**2019**	**2019**	**2019**

PM10 TOTALS

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
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.92	0.70	5.10	3.46	1.55	0.00	0.00	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	1.27	6.11	7.63	23.45	12.21	0.00	0.00	7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2015	0.00	3.07	4.23	23.43	13.08	0.17	0.05	1.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2016	0.00	0.54	0.00	9.64	2.42	0.22	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2017	0.00	0.26	0.00	6.20	0.00	0.00	0.00	0.00	0.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.77	0.00	0.30	0.03	0.24	0.03	0.00	0.00	0.63
2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.27	0.00	8.18	4.76	0.00	0.16	0.48	0.06	0.84	1.47	1.65
2020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.01	0.00	8.18	8.16	0.00	0.00	0.00	0.00	0.25	0.15	0.48
2021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.73	8.16	0.00	0.00	0.00	0.00	0.02	0.00	0.03
2022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.72	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
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
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
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
Maximum Yearly Value (tons/year)	**1.27**	**6.11**	**7.63**	**23.45**	**13.08**	**0.22**	**0.05**	**7.00**	**0.79**	**8.18**	**8.16**	**0.30**	**0.16**	**0.48**	**0.06**	**0.84**	**1.47**	**1.65**
Year	**2014**	**2014**	**2014**	**2014**	**2015**	**2016**	**2015**	**2014**	**2017**	**2019**	**2020**	**2018**	**2019**	**2019**	**2019**	**2019**	**2019**	**2019**

PM2.5 TOTALS

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
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.26	0.08	0.59	0.44	0.85	0.00	0.00	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.35	0.66	0.87	2.89	6.57	0.00	0.00	5.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2015	0.00	0.34	0.47	2.87	7.02	0.16	0.00	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2016	0.00	0.07	0.00	1.17	1.30	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2017	0.00	0.03	0.00	0.75	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.17	0.02	0.15	0.02	0.00	0.00	0.41
2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83	0.00	0.29	0.16	0.00	0.11	0.31	0.03	0.02	0.95	1.09
2020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.65	0.00	0.29	0.27	0.00	0.00	0.00	0.00	0.00	0.09	0.31
2021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.02
2022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	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
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
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
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
Maximum Yearly Value (tons/year)	**0.35**	**0.66**	**0.87**	**2.89**	**7.02**	**0.19**	**0.00**	**5.09**	**0.33**	**0.29**	**0.27**	**0.17**	**0.11**	**0.31**	**0.03**	**0.02**	**0.95**	**1.09**
Year	**2014**	**2014**	**2014**	**2014**	**2015**	**2016**	**2015**	**2014**	**2017**	**2019**	**2020**	**2018**	**2019**	**2019**	**2019**	**2019**	**2019**	**2019**

VOC TOTALS

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
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.34	0.02	0.92	0.71	1.37	0.00	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.46	0.10	1.36	4.77	10.73	0.00	0.00	8.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2015	0.00	0.07	0.74	4.75	11.48	0.26	0.01	1.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2016	0.00	0.02	0.00	1.95	2.12	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2017	0.00	0.01	0.00	1.25	0.00	0.00	0.00	0.00	0.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.00	0.28	0.03	0.25	0.02	0.00	0.00	0.65
2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54	0.00	0.50	0.27	0.00	0.17	0.51	0.05	0.02	1.52	1.72
2020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.24	0.00	0.50	0.47	0.00	0.00	0.00	0.00	0.01	0.15	0.50
2021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.03
2022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	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
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
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
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
Maximum Yearly Value (tons/year)	**0.46**	**0.10**	**1.36**	**4.77**	**11.48**	**0.33**	**0.01**	**8.46**	**0.53**	**0.50**	**0.47**	**0.28**	**0.17**	**0.51**	**0.05**	**0.02**	**1.52**	**1.72**
Year	**2014**	**2014**	**2014**	**2014**	**2015**	**2016**	**2015**	**2014**	**2017**	**2019**	**2020**	**2018**	**2019**	**2019**	**2019**	**2019**	**2019**	**2019**

CO2 TOTALS

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
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	316.37	62.36	1038.97	773.28	1695.75	4.61	0.00	808.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	442.83	280.50	1558.27	5257.74	13519.26	2.31	0.00	9346.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2015	0.00	187.07	865.55	5257.56	14492.12	451.51	34.58	1738.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2016	0.00	62.36	0.00	2164.61	2668.60	564.39	25.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2017	0.00	31.07	0.00	1391.51	0.00	0.00	0.00	0.00	513.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	292.30	0.00	337.78	52.76	354.18	37.71	0.00	0.00	706.95
2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2187.50	0.00	501.09	292.24	0.00	263.81	708.36	75.43	258.13	1734.91	1873.40
2020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1751.30	0.00	501.09	500.99	0.00	0.00	0.00	0.00	77.44	173.49	565.52
2021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	167.03	500.99	0.00	0.00	0.00	0.00	5.74	0.00	35.34
2022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	167.00	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
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
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
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
Maximum Yearly Value (tons/year)	**442.83**	**280.50**	**1558.27**	**5257.74**	**14492.12**	**564.39**	**34.58**	**9346.13**	**513.70**	**501.09**	**500.99**	**337.78**	**263.81**	**708.36**	**75.43**	**258.13**	**1734.91**	**1873.40**
Year	**2014**	**2014**	**2014**	**2014**	**2015**	**2016**	**2015**	**2014**	**2017**	**2019**	**2020**	**2018**	**2019**	**2019**	**2019**	**2019**	**2019**	**2019**

SO2 TOTALS

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
2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.01	0.00	0.02	0.02	0.03	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
2014	0.01	0.00	0.03	0.11	0.25	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2015	0.00	0.00	0.02	0.11	0.27	0.01	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2016	0.00	0.00	0.00	0.05	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2017	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01
2019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.03	0.04
2020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.01	0.01	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	0.01	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
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
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
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
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
Maximum Yearly Value (tons/year)	**0.01**	**0.00**	**0.03**	**0.11**	**0.27**	**0.01**	**0.00**	**0.25**	**0.01**	**0.01**	**0.01**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.03**	**0.04**
Year	**2014**	**2014**	**2014**	**2015**	**2015**	**2016**	**2015**	**2014**	**2017**	**2019**	**2020**	**2018**	**2019**	**2019**	**2019**	**2019**	**2019**	**2019**

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
Mobilization - Site 1												
Off-Highway Trucks-0175	175	Diesel	3	0.44	0.35	**8**	3	8	6/1/2013	8/2/2013	3	45
Off-Highway Trucks-0250	210	Diesel	1	0.44	0.35	**8**	3	3	6/1/2013	8/2/2013	3	45
Off-Highway Trucks-0500	500	Diesel	10	0.44	0.30	**8**	2	24	6/1/2013	8/2/2013	3	45
Off-Highway Trucks-0500	300	Diesel	4	0.44	0.35	**8**	3	11	6/1/2013	8/2/2013	3	45
Off-Highway Trucks-0250	210	Diesel	4	0.44	0.35	**8**	3	11	6/1/2013	8/2/2013	3	45
Other General Industrial Equipment-0050	10	Diesel	5	0.34	1.00	**8**	8	40	6/1/2013	8/2/2013	3	45
Off-Highway Trucks-0250	200	Diesel	4	0.44	0.25	**8**	2	8	6/1/2013	8/2/2013	3	45
Off-Highway Trucks-0500	330	Diesel	4	0.44	0.25	**8**	2	8	6/1/2013	8/2/2013	3	45
Tractors/Loaders/Backhoes-0120	87	Diesel	2	0.37	0.25	**8**	2	4	6/1/2013	8/2/2013	3	45
Excavators-0500	300	Diesel	1	0.38	0.20	**8**	2	2	6/1/2013	8/2/2013	3	45
Construction Equipment Total			***38***									
Mobilization - Site 1 (Continued)												
Crawler Tractors-0175	125	Diesel	2	0.43	0.20	**8**	2	3	6/1/2013	8/2/2013	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013	3	45
Construction Equipment Total			***2***									
Mobilization - Site 2												
Off-Highway Trucks-0175	175	Diesel	3	0.44	0.35	**8**	3	8	11/1/2013	1/3/2014	3	45
Off-Highway Trucks-0250	210	Diesel	1	0.44	0.35	**8**	3	3	11/1/2013	1/3/2014	3	45
Off-Highway Trucks-0500	500	Diesel	10	0.44	0.30	**8**	2	24	11/1/2013	1/3/2014	3	45
Off-Highway Trucks-0500	300	Diesel	4	0.44	0.35	**8**	3	11	11/1/2013	1/3/2014	3	45
Off-Highway Trucks-0250	210	Diesel	4	0.44	0.35	**8**	3	11	11/1/2013	1/3/2014	3	45
Other General Industrial Equipment-0050	10	Diesel	5	0.34	1.00	**8**	8	40	11/1/2013	1/3/2014	3	45
Off-Highway Trucks-0250	200	Diesel	4	0.44	0.25	**8**	2	8	11/1/2013	1/3/2014	3	45
Off-Highway Trucks-0500	330	Diesel	4	0.44	0.25	**8**	2	8	11/1/2013	1/3/2014	3	45
Tractors/Loaders/Backhoes-0120	87	Diesel	2	0.37	0.25	**8**	2	4	11/1/2013	1/3/2014	3	45
Excavators-0500	300	Diesel	1	0.38	0.20	**8**	2	2	11/1/2013	1/3/2014	3	45
Construction Equipment Total			***38***									
Mobilization - Site 2 (Continued)												
Crawler Tractors-0175	125	Diesel	2	0.43	0.20	**8**	2	3	11/1/2013	1/3/2014	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/1/2013	1/3/2014	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/1/2013	1/3/2014	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/1/2013	1/3/2014	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/1/2013	1/3/2014	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/1/2013	1/3/2014	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/1/2013	1/3/2014	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/1/2013	1/3/2014	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/1/2013	1/3/2014	3	45
Construction Equipment Total			***2***									
Mobilization - Site 3												
Off-Highway Trucks-0175	175	Diesel	3	0.44	0.35	**8**	3	8	1/1/2014	3/5/2014	3	45
Off-Highway Trucks-0250	210	Diesel	1	0.44	0.35	**8**	3	3	1/1/2014	3/5/2014	3	45
Off-Highway Trucks-0500	500	Diesel	10	0.44	0.30	**8**	2	24	1/1/2014	3/5/2014	3	45
Off-Highway Trucks-0500	300	Diesel	4	0.44	0.35	**8**	3	11	1/1/2014	3/5/2014	3	45
Off-Highway Trucks-0250	210	Diesel	4	0.44	0.35	**8**	3	11	1/1/2014	3/5/2014	3	45
Other General Industrial Equipment-0050	10	Diesel	5	0.34	1.00	**8**	8	40	1/1/2014	3/5/2014	3	45
Off-Highway Trucks-0250	200	Diesel	4	0.44	0.25	**8**	2	8	1/1/2014	3/5/2014	3	45
Off-Highway Trucks-0500	330	Diesel	4	0.44	0.25	**8**	2	8	1/1/2014	3/5/2014	3	45
Tractors/Loaders/Backhoes-0120	87	Diesel	2	0.37	0.25	**8**	2	4	1/1/2014	3/5/2014	3	45
Excavators-0500	300	Diesel	1	0.38	0.20	**8**	2	2	1/1/2014	3/5/2014	3	45
Construction Equipment Total			***38***									
Mobilization - Site 3 (Continued)												
Crawler Tractors-0175	125	Diesel	2	0.43	0.20	**8**	2	3	1/1/2014	3/5/2014	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	1/1/2014	3/5/2014	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	1/1/2014	3/5/2014	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	1/1/2014	3/5/2014	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	1/1/2014	3/5/2014	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	1/1/2014	3/5/2014	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	1/1/2014	3/5/2014	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	1/1/2014	3/5/2014	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	1/1/2014	3/5/2014	3	45
Construction Equipment Total			***2***									
Mobilization - Site 4												
Off-Highway Trucks-0175	175	Diesel	3	0.44	0.35	**8**	3	8	5/1/2014	7/3/2014	3	45
Off-Highway Trucks-0250	210	Diesel	1	0.44	0.35	**8**	3	3	5/1/2014	7/3/2014	3	45
Off-Highway Trucks-0500	500	Diesel	10	0.44	0.30	**8**	2	24	5/1/2014	7/3/2014	3	45
Off-Highway Trucks-0500	300	Diesel	4	0.44	0.35	**8**	3	11	5/1/2014	7/3/2014	3	45
Off-Highway Trucks-0250	210	Diesel	4	0.44	0.35	**8**	3	11	5/1/2014	7/3/2014	3	45
Other General Industrial Equipment-0050	10	Diesel	5	0.34	1.00	**8**	8	40	5/1/2014	7/3/2014	3	45
Off-Highway Trucks-0250	200	Diesel	4	0.44	0.25	**8**	2	8	5/1/2014	7/3/2014	3	45
Off-Highway Trucks-0500	330	Diesel	4	0.44	0.25	**8**	2	8	5/1/2014	7/3/2014	3	45
Tractors/Loaders/Backhoes-0120	87	Diesel	2	0.37	0.25	**8**	2	4	5/1/2014	7/3/2014	3	45
Excavators-0500	300	Diesel	1	0.38	0.20	**8**	2	2	5/1/2014	7/3/2014	3	45
Construction Equipment Total			***38***									
Mobilization - Site 4 (Continued)												
Crawler Tractors-0175	125	Diesel	2	0.43	0.20	**8**	2	3	5/1/2014	7/3/2014	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	5/1/2014	7/3/2014	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	5/1/2014	7/3/2014	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	5/1/2014	7/3/2014	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	5/1/2014	7/3/2014	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	5/1/2014	7/3/2014	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	5/1/2014	7/3/2014	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	5/1/2014	7/3/2014	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	5/1/2014	7/3/2014	3	45
Construction Equipment Total			***2***									

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration	
						Months of Activity	Days of Activity
Mobilization - Site 1							
Demolition - enter area / volume to be demolished	Square Feet to demolish	0		Jun-13	Aug-13	3	45
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Jun-13	Aug-13	3	45
Trucks - Delivery	Number of Vehicles	0	40	Jun-13	Aug-13	3	45
Dust * (emission factor is in lbs/mile)	Number of Vehicles	30	1	Jun-13	Aug-13	3	45
Truck Loading	Number of Vehicles	0	40	Jun-13	Aug-13	3	45
Truck Loading-Dust	ton of mat. removed	0		Jun-13	Aug-13	3	45
Worker Trips	Number of Vehicles	48	40	Jun-13	Aug-13	3	45
Mobilization - Site 1 (Continued)							
Demolition - enter area / volume to be demolished	Square Feet to demolish	0		Jun-13	Aug-13	3	45
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Jun-13	Aug-13	3	45
Trucks - Delivery	Number of Vehicles	0	40	Jun-13	Aug-13	3	45
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Jun-13	Aug-13	3	45
Truck Loading	Number of Vehicles	0	40	Jun-13	Aug-13	3	45
Truck Loading	lb/ton of mat. removed	0		Jun-13	Aug-13	3	45
Worker Trips	Number of Vehicles	3	40	Jun-13	Aug-13	3	45
Mobilization - Site 2							
Demolition - enter area / volume to be demolished	Square Feet to demolish	0		Nov-13	Jan-14	3	45
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Nov-13	Jan-14	3	45
Trucks - Delivery	Number of Vehicles	0	40	Nov-13	Jan-14	3	45
Dust * (emission factor is in lbs/mile)	Number of Vehicles	30	1	Nov-13	Jan-14	3	45
Truck Loading	Number of Vehicles	0	40	Nov-13	Jan-14	3	45
Truck Loading	lb/ton of mat. removed	0		Nov-13	Jan-14	3	45
Worker Trips	Number of Vehicles	48	40	Nov-13	Jan-14	3	45
Mobilization - Site 2 (Continued)							
Demolition - enter area / volume to be demolished	Square Feet to demolish	0		Nov-13	Jan-14	3	45
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Nov-13	Jan-14	3	45
Trucks - Delivery	Number of Vehicles	0	40	Nov-13	Jan-14	3	45
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Nov-13	Jan-14	3	45
Truck Loading	Number of Vehicles	0	40	Nov-13	Jan-14	3	45
Truck Loading	lb/ton of mat. removed	0		Nov-13	Jan-14	3	45
Worker Trips	Number of Vehicles	3	40	Nov-13	Jan-14	3	45
Mobilization - Site 3							
Demolition - enter area / volume to be demolished	Square Feet to demolish	0		Jan-14	Mar-14	3	45
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Jan-14	Mar-14	3	45
Trucks - Delivery	Number of Vehicles	0	40	Jan-14	Mar-14	3	45
Dust * (emission factor is in lbs/mile)	Number of Vehicles	30	1	Jan-14	Mar-14	3	45
Truck Loading	Number of Vehicles	0	40	Jan-14	Mar-14	3	45
Truck Loading	lb/ton of mat. removed	0		Jan-14	Mar-14	3	45
Worker Trips	Number of Vehicles	48	40	Jan-14	Mar-14	3	45
Mobilization - Site 3 (Continued)							
Demolition - enter area / volume to be demolished	Square Feet to demolish	0		Jan-14	Mar-14	3	45
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Jan-14	Mar-14	3	45
Trucks - Delivery	Number of Vehicles	0	40	Jan-14	Mar-14	3	45
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Jan-14	Mar-14	3	45
Truck Loading	Number of Vehicles	0	40	Jan-14	Mar-14	3	45
Truck Loading	lb/ton of mat. removed	0		Jan-14	Mar-14	3	45
Worker Trips	Number of Vehicles	3	40	Jan-14	Mar-14	3	45
Mobilization - Site 4							
Demolition - enter area / volume to be demolished	Square Feet to demolish	0		May-14	Jul-14	3	45
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	May-14	Jul-14	3	45
Trucks - Delivery	Number of Vehicles	0	40	May-14	Jul-14	3	45
Dust * (emission factor is in lbs/mile)	Number of Vehicles	30	1	May-14	Jul-14	3	45
Truck Loading	Number of Vehicles	0	40	May-14	Jul-14	3	45
Truck Loading	lb/ton of mat. removed	0		May-14	Jul-14	3	45
Worker Trips	Number of Vehicles	48	40	May-14	Jul-14	3	45
Mobilization - Site 4 (Continued)							
Demolition - enter area / volume to be demolished	Square Feet to demolish	0		May-14	Jul-14	3	45
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	May-14	Jul-14	3	45
Trucks - Delivery	Number of Vehicles	0	40	May-14	Jul-14	3	45
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	May-14	Jul-14	3	45
Truck Loading	Number of Vehicles	0	40	May-14	Jul-14	3	45
Truck Loading	lb/ton of mat. removed	0		May-14	Jul-14	3	45
Worker Trips	Number of Vehicles	3	40	May-14	Jul-14	3	45

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
Demolition - 2013												
Other General Industrial Equipment-0050	10	Diesel	1	0.34	1.00	**8**	8	8	7/1/2013	7/16/2013	1	11
Rough Terrain Forklifts-0500	357	Diesel	1	0.40	0.13	**8**	1	1	7/1/2013	7/16/2013	1	11
Tractors/Loaders/Backhoes-0120	108	Diesel	2	0.37	0.75	**8**	6	12	7/1/2013	7/16/2013	1	11
None-0	300	Diesel	0	0.00	0.35	**8**	3	0	7/1/2013	9/2/2013	3	45
None-0	210	Diesel	0	0.00	0.35	**8**	3	0	7/1/2013	9/2/2013	3	45
None-0	10	Diesel	0	0.00	1.00	**8**	8	0	7/1/2013	9/2/2013	3	45
None-0	200	Diesel	0	0.00	0.25	**8**	2	0	7/1/2013	9/2/2013	3	45
None-0	330	Diesel	0	0.00	0.25	**8**	2	0	7/1/2013	9/2/2013	3	45
None-0	87	Diesel	0	0.00	0.25	**8**	2	0	7/1/2013	9/2/2013	3	45
None-0	300	Diesel	0	0.00	0.20	**8**	2	0	7/1/2013	9/2/2013	3	45
Construction Equipment Total			***4***									
Demolition - 2014												
Other General Industrial Equipment-0050	10	Diesel	1	0.34	1.00	**8**	8	8	7/1/2014	9/8/2014	3	49
Rough Terrain Forklifts-0500	357	Diesel	1	0.40	0.13	**8**	1	1	7/1/2014	9/8/2014	3	49
Tractors/Loaders/Backhoes-0120	108	Diesel	2	0.37	0.75	**8**	6	12	7/1/2014	9/8/2014	3	49
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	7/1/2014	9/2/2014	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	7/1/2014	9/2/2014	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	7/1/2014	9/2/2014	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	7/1/2014	9/2/2014	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	7/1/2014	9/2/2014	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	7/1/2014	9/2/2014	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	7/1/2014	9/2/2014	3	45
Construction Equipment Total			***4***									
Demolition - 2015												
Other General Industrial Equipment-0050	10	Diesel	1	0.34	1.00	**8**	8	8	7/1/2015	8/17/2015	2	33
Rough Terrain Forklifts-0500	357	Diesel	1	0.40	0.13	**8**	1	1	7/1/2015	8/17/2015	2	33
Tractors/Loaders/Backhoes-0120	108	Diesel	2	0.37	0.75	**8**	6	12	7/1/2015	8/17/2015	2	33
None-0	0	Diesel	0	0.00	0.35	**10**	4	0	7/1/2015	9/2/2015	3	45
None-0	0	Diesel	0	0.00	0.35	**10**	4	0	7/1/2015	9/2/2015	3	45
None-0	0	Diesel	0	0.00	1.00	**10**	10	0	7/1/2015	9/2/2015	3	45
None-0	0	Diesel	0	0.00	0.25	**10**	3	0	7/1/2015	9/2/2015	3	45
None-0	0	Diesel	0	0.00	0.25	**10**	3	0	7/1/2015	9/2/2015	3	45
None-0	0	Diesel	0	0.00	0.25	**10**	3	0	7/1/2015	9/2/2015	3	45
None-0	0	Diesel	0	0.00	0.20	**10**	2	0	7/1/2015	9/2/2015	3	45
Construction Equipment Total			***4***									
Demolition - 2016												
Other General Industrial Equipment-0050	10	Diesel	1	0.34	1.00	**8**	8	8	7/1/2016	7/18/2016	1	11
Rough Terrain Forklifts-0500	357	Diesel	1	0.40	0.13	**8**	1	1	7/1/2016	7/18/2016	1	11
Tractors/Loaders/Backhoes-0120	108	Diesel	2	0.37	0.75	**8**	6	12	7/1/2016	7/18/2016	1	11
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	7/1/2016	9/2/2016	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	7/1/2016	9/2/2016	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	7/1/2016	9/2/2016	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	7/1/2016	9/2/2016	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	7/1/2016	9/2/2016	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	7/1/2016	9/2/2016	3	45
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	7/1/2016	9/2/2016	3	45
Construction Equipment Total			***4***									
Demolition - 2017												
Other General Industrial Equipment-0050	10	Diesel	1	0.34	1.00	**8**	8	8	7/1/2017	7/7/2017	1	5
Rough Terrain Forklifts-0500	357	Diesel	1	0.40	0.13	**8**	1	1	7/1/2017	7/7/2017	1	5
Tractors/Loaders/Backhoes-0120	108	Diesel	2	0.37	0.75	**8**	6	12	7/1/2017	7/7/2017	1	5
None-0	0	Diesel	0	0.00	0.35	**10**	4	0	7/1/2017	9/1/2017	3	45
None-0	0	Diesel	0	0.00	0.35	**10**	4	0	7/1/2017	9/1/2017	3	45
None-0	0	Diesel	0	0.00	1.00	**10**	10	0	7/1/2017	9/1/2017	3	45
None-0	0	Diesel	0	0.00	0.25	**10**	3	0	7/1/2017	9/1/2017	3	45
None-0	0	Diesel	0	0.00	0.25	**10**	3	0	7/1/2017	9/1/2017	3	45
None-0	0	Diesel	0	0.00	0.25	**10**	3	0	7/1/2017	9/1/2017	3	45
None-0	0	Diesel	0	0.00	0.20	**10**	2	0	7/1/2017	9/1/2017	3	45

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration	
						Months of Activity	Days of Activity
Demolition - 2013							
Demolition - enter area / volume to be demolished	Square Feet to demolish	704,665		Jul-13	Jul-13	1	11
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	12	Aggregate	Jul-13	Jul-13	1	11
Trucks - Delivery	Number of Daily Vehicles	0	15	Jul-13	Jul-13	1	11
Dust * (emission factor is in lbs/mile)	Total Number of Vehicles	2,173	1	Jul-13	Jul-13	1	11
Truck Loading	Total Number of Vehicles	2,173	15	Jul-13	Jul-13	1	11
Truck Loading-Demoliton Dust	square footage demolished	704,665		Jul-13	Jul-13	1	11
Worker Trips	Number of Daily Vehicles	5	40	Jul-13	Jul-13	1	11
Demolition - 2014							
Demolition - enter area / volume to be demolished	Square Feet to demolish	3,170,994		Jul-14	Sep-14	3	49
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	12	Aggregate	Jul-14	Sep-14	3	49
Trucks - Delivery	Number of Daily Vehicles	0	15	Jul-14	Sep-14	3	49
Dust * (emission factor is in lbs/mile)	Total Number of Vehicles	9,777	1	Jul-14	Sep-14	3	49
Truck Loading	Total Number of Vehicles	9,777	15	Jul-14	Sep-14	3	49
Truck Loading-Demoliton Dust	square footage demolished	3,170,994		Jul-14	Sep-14	3	49
Worker Trips	Number of Daily Vehicles	5	40	Jul-14	Sep-14	3	49
Demolition - 2015							
Demolition - enter area / volume to be demolished	Square Feet to demolish	2,113,996		Jul-15	Jul-16	13	33
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	12	Aggregate	Jul-15	Aug-15	2	33
Trucks - Delivery	Number of Daily Vehicles	0	15	Jul-15	Aug-15	2	33
Dust * (emission factor is in lbs/mile)	Total Number of Vehicles	6,518	1	Jul-15	Aug-15	2	33
Truck Loading	Total Number of Vehicles	6,518	15	Jul-15	Aug-15	2	33
Truck Loading	lb/ton of mat. removed	2,113,996		Jul-15	Aug-15	2	33
Worker Trips	Number of Daily Vehicles	5	40	Jul-15	Aug-15	2	33
Demolition - 2016							
Demolition - enter area / volume to be demolished	Square Feet to demolish	704,665		Jul-16	Jul-16	1	11
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	12	Aggregate	Jul-16	Jul-16	1	11
Trucks - Delivery	Number of Daily Vehicles	0	15	Jul-16	Jul-16	1	11
Dust * (emission factor is in lbs/mile)	Total Number of Vehicles	2,173	1	Jul-16	Jul-16	1	11
Truck Loading	Total Number of Vehicles	2,173	15	Jul-16	Jul-16	1	11
Truck Loading	lb/ton of mat. removed	704,665		Jul-16	Jul-16	1	11
Worker Trips	Number of Daily Vehicles	5	40	Jul-16	Jul-16	1	11
Demolition - 2017							
Demolition - enter area / volume to be demolished	Square Feet to demolish	352,333		Jul-17	Jul-17	1	5
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	12	Aggregate	Jul-17	Jul-17	1	5
Trucks - Delivery	Number of Daily Vehicles	0	15	Jul-17	Jul-17	1	5
Dust * (emission factor is in lbs/mile)	Total Number of Vehicles	1,086	1	Jul-17	Jul-17	1	5
Truck Loading	Total Number of Vehicles	1,086	15	Jul-17	Jul-17	1	5
Truck Loading	lb/ton of mat. removed	352,333		Jul-17	Jul-17	1	5
Worker Trips	Number of Daily Vehicles	5	40	Jul-17	Jul-17	1	5

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
Land Clearing - Site 1										
Tractors/Loaders/Backhoes-0120	87	Diesel	2	0.37	0.60	**10**	6	12	7/1/2013	11/4/2013
Tractors/Loaders/Backhoes-0120	97	Diesel	2	0.37	0.65	**10**	7	13	7/1/2013	11/4/2013
Crawler Tractors-0500	310-410	Diesel	4	0.43	0.65	**10**	7	26	7/1/2013	11/4/2013
Excavators-0500	300-450	Diesel	4	0.38	0.45	**10**	5	18	7/1/2013	11/4/2013
Rubber Tired Loaders-0175	197	Diesel	2	0.36	0.50	**10**	5	10	7/1/2013	11/4/2013
Rubber Tired Dozers-0500	262	Diesel	2	0.40	0.50	**10**	5	10	7/1/2013	11/4/2013
Off-Highway Trucks-0175	175	Diesel	4	0.44	0.35	**10**	4	14	7/1/2013	11/4/2013
Off-Highway Trucks-0250	210	Diesel	2	0.44	0.35	**10**	4	7	7/1/2013	11/4/2013
Off-Highway Trucks-0250	210	Diesel	2	0.44	0.60	**10**	6	12	7/1/2013	11/4/2013
Off-Highway Trucks-0500	300	Diesel	4	0.44	0.65	**10**	7	26	7/1/2013	11/4/2013
Construction Equipment Total			***28***							
Land Clearing - Site 1 (Continued)										
Scrapers-0500	335	Diesel	3	0.48	0.85	**10**	9	26	7/1/2013	11/4/2013
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013
Construction Equipment Total			***3***							
Land Clearing - Site 2										
Tractors/Loaders/Backhoes-0120	87	Diesel	2	0.37	0.60	**10**	6	12	12/1/2013	4/4/2014
Tractors/Loaders/Backhoes-0120	97	Diesel	2	0.37	0.65	**10**	7	13	12/1/2013	4/4/2014
Crawler Tractors-0500	310-410	Diesel	4	0.43	0.65	**10**	7	26	12/1/2013	4/4/2014
Excavators-0500	300-450	Diesel	4	0.38	0.45	**10**	5	18	12/1/2013	4/4/2014
Rubber Tired Loaders-0175	197	Diesel	2	0.36	0.50	**10**	5	10	12/1/2013	4/4/2014
Rubber Tired Dozers-0500	262	Diesel	2	0.40	0.50	**10**	5	10	12/1/2013	4/4/2014
Off-Highway Trucks-0175	175	Diesel	4	0.44	0.35	**10**	4	14	12/1/2013	4/4/2014
Off-Highway Trucks-0250	210	Diesel	2	0.44	0.35	**10**	4	7	12/1/2013	4/4/2014
Off-Highway Trucks-0250	210	Diesel	2	0.44	0.60	**10**	6	12	12/1/2013	4/4/2014
Off-Highway Trucks-0500	300	Diesel	4	0.44	0.65	**10**	7	26	12/1/2013	4/4/2014
Construction Equipment Total			***28***							
Land Clearing - Site 2 (Continued)										
Scrapers-0500	335	Diesel	3	0.48	0.85	**10**	9	26	12/1/2013	4/4/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/1/2013	1/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/1/2013	1/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/1/2013	1/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/1/2013	1/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/1/2013	1/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/1/2013	1/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/1/2013	1/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/1/2013	1/3/2014
Construction Equipment Total			***3***							
Land Clearing - Site 3										
Tractors/Loaders/Backhoes-0120	87	Diesel	2	0.37	0.60	**10**	6	12	2/1/2014	6/6/2014
Tractors/Loaders/Backhoes-0120	97	Diesel	2	0.37	0.65	**10**	7	13	2/1/2014	6/6/2014
Crawler Tractors-0500	310-410	Diesel	4	0.43	0.65	**10**	7	26	2/1/2014	6/6/2014
Excavators-0500	300-450	Diesel	4	0.38	0.45	**10**	5	18	2/1/2014	6/6/2014
Rubber Tired Loaders-0175	197	Diesel	2	0.36	0.50	**10**	5	10	2/1/2014	6/6/2014
Rubber Tired Dozers-0500	262	Diesel	2	0.40	0.50	**10**	5	10	2/1/2014	6/6/2014
Off-Highway Trucks-0175	175	Diesel	4	0.44	0.35	**10**	4	14	2/1/2014	6/6/2014
Off-Highway Trucks-0250	210	Diesel	2	0.44	0.35	**10**	4	7	2/1/2014	6/6/2014
Off-Highway Trucks-0250	210	Diesel	2	0.44	0.60	**10**	6	12	2/1/2014	6/6/2014
Off-Highway Trucks-0500	300	Diesel	4	0.44	0.65	**10**	7	26	2/1/2014	6/6/2014
Construction Equipment Total			***28***							
Land Clearing - Site 3 (Continued)										
Scrapers-0500	335	Diesel	3	0.48	0.85	**10**	9	26	2/1/2014	6/6/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	1/1/2014	3/5/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	1/1/2014	3/5/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	1/1/2014	3/5/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	1/1/2014	3/5/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	1/1/2014	3/5/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	1/1/2014	3/5/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	1/1/2014	3/5/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	1/1/2014	3/5/2014
Construction Equipment Total			***3***							
Land Clearing - Site 4										
Tractors/Loaders/Backhoes-0120	87	Diesel	2	0.37	0.60	**10**	6	12	8/1/2015	12/4/2015
Tractors/Loaders/Backhoes-0120	97	Diesel	2	0.37	0.65	**10**	7	13	8/1/2015	12/4/2015
Crawler Tractors-0500	310-410	Diesel	4	0.43	0.65	**10**	7	26	8/1/2015	12/4/2015
Excavators-0500	300-450	Diesel	4	0.38	0.45	**10**	5	18	8/1/2015	12/4/2015
Rubber Tired Loaders-0175	197	Diesel	2	0.36	0.50	**10**	5	10	8/1/2015	12/4/2015
Rubber Tired Dozers-0500	262	Diesel	2	0.40	0.50	**10**	5	10	8/1/2015	12/4/2015
Off-Highway Trucks-0175	175	Diesel	4	0.44	0.35	**10**	4	14	8/1/2015	12/4/2015
Off-Highway Trucks-0250	210	Diesel	2	0.44	0.35	**10**	4	7	8/1/2015	12/4/2015
Off-Highway Trucks-0250	210	Diesel	2	0.44	0.60	**10**	6	12	8/1/2015	12/4/2015
Off-Highway Trucks-0500	300	Diesel	4	0.44	0.65	**10**	7	26	8/1/2015	12/4/2015
Construction Equipment Total			***28***							
Land Clearing - Site 4 (Continued)										
Scrapers-0500	335	Diesel	3	0.48	0.85	**10**	9	26	8/1/2015	12/4/2015
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	5/1/2014	7/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	5/1/2014	7/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	5/1/2014	7/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	5/1/2014	7/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	5/1/2014	7/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	5/1/2014	7/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	5/1/2014	7/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	5/1/2014	7/3/2014
Construction Equipment Total			***3***							

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration	
						Months of Activity	Days of Activity
Land Clearing - Site 1							
Land Clearing - enter area / volume to be demolished	Square Feet to demolish	0		Jul-13	Nov-13	5	90
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	26	Dirt	Jul-13	Nov-13	5	90
Trucks - Delivery	Number of Vehicles	0	15	Jul-13	Nov-13	5	90
Dust * (emission factor is in lbs/mile)	Number of Vehicles	12	1	Jul-13	Nov-13	5	90
Truck Loading	Number of Vehicles	0	15	Jul-13	Nov-13	5	90
Truck Loading-Dust	ton of mat. removed	0		Jul-13	Nov-13	5	90
Worker Trips	Number of Vehicles	35	40	Jul-13	Nov-13	5	90
Land Clearing - Site 1 (Continued)							
Land Clearing - enter area / volume to be demolished	Square Feet to demolish	0		Jul-13	Nov-13	5	90
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Jul-13	Nov-13	5	90
Trucks - Delivery	Number of Vehicles	0	15	Jul-13	Nov-13	5	90
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Jul-13	Nov-13	5	90
Truck Loading	Number of Vehicles	0	15	Jul-13	Nov-13	5	90
Truck Loading	lb/ton of mat. removed	0		Jul-13	Nov-13	5	90
Worker Trips	Number of Vehicles	4	40	Jul-13	Nov-13	5	90
Land Clearing - Site 2							
Land Clearing - enter area / volume to be demolished	Square Feet to demolish	0		Dec-13	Apr-14	5	90
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	26	Dirt	Dec-13	Apr-14	5	90
Trucks - Delivery	Number of Vehicles	0	15	Dec-13	Apr-14	5	90
Dust * (emission factor is in lbs/mile)	Number of Vehicles	12	1	Dec-13	Apr-14	5	90
Truck Loading	Number of Vehicles	0	15	Dec-13	Apr-14	5	90
Truck Loading	lb/ton of mat. removed	0		Dec-13	Apr-14	5	90
Worker Trips	Number of Vehicles	35	40	Dec-13	Apr-14	5	90
Land Clearing - Site 2 (Continued)							
Land Clearing - enter area / volume to be demolished	Square Feet to demolish	0		Dec-13	Apr-14	5	90
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Dec-13	Apr-14	5	90
Trucks - Delivery	Number of Vehicles	0	15	Dec-13	Apr-14	5	90
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Dec-13	Apr-14	5	90
Truck Loading	Number of Vehicles	0	15	Dec-13	Apr-14	5	90
Truck Loading	lb/ton of mat. removed	0		Dec-13	Apr-14	5	90
Worker Trips	Number of Vehicles	4	40	Dec-13	Apr-14	5	90
Land Clearing - Site 3							
Land Clearing - enter area / volume to be demolished	Square Feet to demolish	0		Feb-14	Jun-14	5	90
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	26	Dirt	Feb-14	Jun-14	5	90
Trucks - Delivery	Number of Vehicles	0	15	Feb-14	Jun-14	5	90
Dust * (emission factor is in lbs/mile)	Number of Vehicles	12	1	Feb-14	Jun-14	5	90
Truck Loading	Number of Vehicles	0	15	Feb-14	Jun-14	5	90
Truck Loading	lb/ton of mat. removed	0		Feb-14	Jun-14	5	90
Worker Trips	Number of Vehicles	35	40	Feb-14	Jun-14	5	90
Land Clearing - Site 3 (Continued)							
Land Clearing - enter area / volume to be demolished	Square Feet to demolish	0		Feb-14	Jun-14	5	90
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Feb-14	Jun-14	5	90
Trucks - Delivery	Number of Vehicles	0	15	Feb-14	Jun-14	5	90
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Feb-14	Jun-14	5	90
Truck Loading	Number of Vehicles	0	15	Feb-14	Jun-14	5	90
Truck Loading	lb/ton of mat. removed	0		Feb-14	Jun-14	5	90
Worker Trips	Number of Vehicles	4	40	Feb-14	Jun-14	5	90
Land Clearing - Site 4							
Land Clearing - enter area / volume to be demolished	Square Feet to demolish	0		Aug-15	Dec-15	5	90
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	26	Dirt	Aug-15	Dec-15	5	90
Trucks - Delivery	Number of Vehicles	0	15	Aug-15	Dec-15	5	90
Dust * (emission factor is in lbs/mile)	Number of Vehicles	12	1	Aug-15	Dec-15	5	90
Truck Loading	Number of Vehicles	0	15	Aug-15	Dec-15	5	90
Truck Loading	lb/ton of mat. removed	0		Aug-15	Dec-15	5	90
Worker Trips	Number of Vehicles	35	40	Aug-15	Dec-15	5	90
Land Clearing - Site 4 (Continued)							
Land Clearing - enter area / volume to be demolished	Square Feet to demolish	0		Aug-15	Dec-15	5	90
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Aug-15	Dec-15	5	90
Trucks - Delivery	Number of Vehicles	0	15	Aug-15	Dec-15	5	90
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Aug-15	Dec-15	5	90
Truck Loading	Number of Vehicles	0	15	Aug-15	Dec-15	5	90
Truck Loading	lb/ton of mat. removed	0		Aug-15	Dec-15	5	90
Worker Trips	Number of Vehicles	4	40	Aug-15	Dec-15	5	90

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
Earth Moving - Site 1										
Tractors/Loaders/Backhoes-0120	97	Diesel	1	0.37	0.85	**10**	9	9	8/1/2013	7/30/2015
Crawler Tractors-0500	410	Diesel	1	0.43	0.85	**10**	9	9	8/1/2013	7/30/2015
Excavators-0500	450	Diesel	1	0.38	0.85	**10**	9	9	8/1/2013	7/30/2015
Rubber Tired Loaders-0500	349	Diesel	1	0.36	0.85	**10**	9	9	8/1/2013	7/30/2015
Graders-0250	158	Diesel	1	0.41	0.85	**10**	9	9	8/1/2013	7/30/2015
Graders-0500	260	Diesel	1	0.41	0.85	**10**	9	9	8/1/2013	7/30/2015
Rollers-0175	156-174	Diesel	2	0.38	0.30	**10**	3	6	8/1/2013	7/30/2015
Other General Industrial Equipment-0050	15	Diesel	4	0.34	0.45	**10**	5	18	8/1/2013	7/30/2015
Scrapers-0500	335-400	Diesel	2	0.48	0.85	**10**	9	17	8/1/2013	7/30/2015
Off-Highway Trucks-0175	175	Diesel	3	0.44	0.35	**10**	4	11	8/1/2013	7/30/2015
Construction Equipment Total			***17***							
Earth Moving - Site 1 (Continued)										
Off-Highway Trucks-0250	210	Diesel	3	0.44	0.35	**10**	4	11	8/1/2013	7/30/2015
Off-Highway Trucks-0175	150	Diesel	2	0.44	0.55	**10**	6	11	8/1/2013	7/30/2015
Off-Highway Trucks-0500	300	Diesel	2	0.44	0.70	**10**	7	14	8/1/2013	7/30/2015
Off-Highway Trucks-0250	210	Diesel	2	0.44	0.60	**10**	6	12	8/1/2013	7/30/2015
Other General Industrial Equipment-0050	10	Diesel	6	0.34	0.50	**10**	5	30	8/1/2013	7/30/2015
None-0	0	Diesel	0	0.00	0.25	**8**	2	0	11/1/2013	10/30/2015
None-0	0	Diesel	0	0.00	0.25	**8**	2	0	11/1/2013	10/30/2015
None-0	0	Diesel	0	0.00	0.25	**8**	2	0	11/1/2013	10/30/2015
None-0	0	Diesel	0	0.00	0.25	**8**	2	0	11/1/2013	10/30/2015
None-0	0	Diesel	0	0.00	0.25	**8**	2	0	11/1/2013	10/30/2015
Construction Equipment Total			***15***							
Earth Moving - Site 2										
Tractors/Loaders/Backhoes-0120	97	Diesel	1	0.37	0.85	**10**	9	9	1/1/2014	12/30/2015
Crawler Tractors-0500	410	Diesel	1	0.43	0.85	**10**	9	9	1/1/2014	12/30/2015
Excavators-0500	450	Diesel	1	0.38	0.85	**10**	9	9	1/1/2014	12/30/2015
Rubber Tired Loaders-0500	349	Diesel	1	0.36	0.85	**10**	9	9	1/1/2014	12/30/2015
Graders-0250	158	Diesel	1	0.41	0.85	**10**	9	9	1/1/2014	12/30/2015
Graders-0500	260	Diesel	1	0.41	0.85	**10**	9	9	1/1/2014	12/30/2015
Rollers-0175	156-174	Diesel	2	0.38	0.30	**10**	3	6	1/1/2014	12/30/2015
Other General Industrial Equipment-0050	15	Diesel	4	0.34	0.45	**10**	5	18	1/1/2014	12/30/2015
Scrapers-0500	335-400	Diesel	2	0.48	0.85	**10**	9	17	1/1/2014	12/30/2015
Off-Highway Trucks-0175	175	Diesel	3	0.44	0.35	**10**	4	11	1/1/2014	12/30/2015
Construction Equipment Total			***17***							
Earth Moving - Site 2 (Continued)										
Off-Highway Trucks-0250	210	Diesel	3	0.44	0.35	**10**	4	11	1/1/2014	12/30/2015
Off-Highway Trucks-0175	150	Diesel	2	0.44	0.55	**10**	6	11	1/1/2014	12/30/2015
Off-Highway Trucks-0500	300	Diesel	2	0.44	0.70	**10**	7	14	1/1/2014	12/30/2015
Off-Highway Trucks-0250	210	Diesel	2	0.44	0.60	**10**	6	12	1/1/2014	12/30/2015
Other General Industrial Equipment-0050	10	Diesel	6	0.34	0.50	**10**	5	30	1/1/2014	12/30/2015
None-0	0	Diesel	0	0.00	0.25	**8**	2	0	1/1/2014	12/30/2015
None-0	0	Diesel	0	0.00	0.25	**8**	2	0	1/1/2014	12/30/2015
None-0	0	Diesel	0	0.00	0.25	**8**	2	0	1/1/2014	12/30/2015
None-0	0	Diesel	0	0.00	0.25	**8**	2	0	1/1/2014	12/30/2015
None-0	0	Diesel	0	0.00	0.25	**8**	2	0	1/1/2014	12/30/2015
Construction Equipment Total			***15***							
Earth Moving - Site 3										
Tractors/Loaders/Backhoes-0120	97	Diesel	1	0.37	0.85	**10**	9	9	3/1/2014	2/26/2016
Crawler Tractors-0500	410	Diesel	1	0.43	0.85	**10**	9	9	3/1/2014	2/26/2016
Excavators-0500	450	Diesel	1	0.38	0.85	**10**	9	9	3/1/2014	2/26/2016
Rubber Tired Loaders-0500	349	Diesel	1	0.36	0.85	**10**	9	9	3/1/2014	2/26/2016
Graders-0250	158	Diesel	1	0.41	0.85	**10**	9	9	3/1/2014	2/26/2016
Graders-0500	260	Diesel	1	0.41	0.85	**10**	9	9	3/1/2014	2/26/2016
Rollers-0175	156-174	Diesel	2	0.38	0.30	**10**	3	6	3/1/2014	2/26/2016
Other General Industrial Equipment-0050	15	Diesel	4	0.34	0.45	**10**	5	18	3/1/2014	2/26/2016
Scrapers-0500	335-400	Diesel	2	0.48	0.85	**10**	9	17	3/1/2014	2/26/2016
Off-Highway Trucks-0175	175	Diesel	3	0.44	0.35	**10**	4	11	3/1/2014	2/26/2016
Construction Equipment Total			***17***							
Earth Moving - Site 3 (Continued)										
Off-Highway Trucks-0250	210	Diesel	3	0.44	0.35	**10**	4	11	3/1/2014	2/26/2016
Off-Highway Trucks-0175	150	Diesel	2	0.44	0.55	**10**	6	11	3/1/2014	2/26/2016
Off-Highway Trucks-0500	300	Diesel	2	0.44	0.70	**10**	7	14	3/1/2014	2/26/2016
Off-Highway Trucks-0250	210	Diesel	2	0.44	0.60	**10**	6	12	3/1/2014	2/26/2016
Other General Industrial Equipment-0050	10	Diesel	6	0.34	0.50	**10**	5	30	3/1/2014	2/26/2016
None-0	0	Diesel	0	0.00	0.25	**8**	2	0	11/1/2013	10/30/2015
None-0	0	Diesel	0	0.00	0.25	**8**	2	0	11/1/2013	10/30/2015
None-0	0	Diesel	0	0.00	0.25	**8**	2	0	11/1/2013	10/30/2015
None-0	0	Diesel	0	0.00	0.25	**8**	2	0	11/1/2013	10/30/2015
None-0	0	Diesel	0	0.00	0.25	**8**	2	0	11/1/2013	10/30/2015
Construction Equipment Total			***15***							
Earth Moving - Site 4										
Tractors/Loaders/Backhoes-0120	97	Diesel	1	0.37	0.85	**10**	9	9	10/1/2015	9/28/2017
Crawler Tractors-0500	410	Diesel	1	0.43	0.85	**10**	9	9	10/1/2015	9/28/2017
Excavators-0500	450	Diesel	1	0.38	0.85	**10**	9	9	10/1/2015	9/28/2017
Rubber Tired Loaders-0500	349	Diesel	1	0.36	0.85	**10**	9	9	10/1/2015	9/28/2017
Graders-0250	158	Diesel	1	0.41	0.85	**10**	9	9	10/1/2015	9/28/2017
Graders-0500	260	Diesel	1	0.41	0.85	**10**	9	9	10/1/2015	9/28/2017
Rollers-0175	156-174	Diesel	2	0.38	0.30	**10**	3	6	10/1/2015	9/28/2017
Other General Industrial Equipment-0050	15	Diesel	4	0.34	0.45	**10**	5	18	10/1/2015	9/28/2017
Scrapers-0500	335-400	Diesel	2	0.48	0.85	**10**	9	17	10/1/2015	9/28/2017
Off-Highway Trucks-0175	175	Diesel	3	0.44	0.35	**10**	4	11	10/1/2015	9/28/2017
Construction Equipment Total			***17***							
Earth Moving - Site 4 (Continued)										
Off-Highway Trucks-0250	210	Diesel	3	0.44	0.35	**10**	4	11	10/1/2015	9/28/2017
Off-Highway Trucks-0175	150	Diesel	2	0.44	0.55	**10**	6	11	10/1/2015	9/28/2017
Off-Highway Trucks-0500	300	Diesel	2	0.44	0.70	**10**	7	14	10/1/2015	9/28/2017
Off-Highway Trucks-0250	210	Diesel	2	0.44	0.60	**10**	6	12	10/1/2015	9/28/2017
Other General Industrial Equipment-0050	10	Diesel	6	0.34	0.50	**10**	5	30	10/1/2015	9/28/2017
None-0	0	Diesel	0	0.00	0.25	**8**	2	0	3/1/2014	2/26/2016
None-0	0	Diesel	0	0.00	0.25	**8**	2	0	3/1/2014	2/26/2016
None-0	0	Diesel	0	0.00	0.25	**8**	2	0	3/1/2014	2/26/2016
None-0	0	Diesel	0	0.00	0.25	**8**	2	0	3/1/2014	2/26/2016
None-0	0	Diesel	0	0.00	0.25	**8**	2	0	3/1/2014	2/26/2016
Construction Equipment Total			***15***							

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration	
						Months of Activity	Days of Activity
Earth Moving - Site 1							
Earth Moving - enter area / volume to be demolished	Square Feet to demolish	0		Aug-13	Jul-15	24	520
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	17	Dirt	Aug-13	Jul-15	24	520
Trucks - Delivery	Number of Vehicles	0	15	Aug-13	Jul-15	24	520
Dust * (emission factor is in lbs/mile)	Number of Vehicles	3	1	Aug-13	Jul-15	24	520
Truck Loading	Number of Vehicles	0	15	Aug-13	Jul-15	24	520
Truck Loading-Dust	ton of mat. removed	0		Aug-13	Jul-15	24	520
Worker Trips	Number of Vehicles	21	40	Aug-13	Jul-15	24	520
Earth Moving - Site 1 (Continued)							
Earth Moving - enter area / volume to be demolished	Square Feet to demolish	0		Aug-13	Jul-15	24	520
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Aug-13	Jul-15	24	520
Trucks - Delivery	Number of Vehicles	0	15	Aug-13	Jul-15	24	520
Dust * (emission factor is in lbs/mile)	Number of Vehicles	9	1	Aug-13	Jul-15	24	520
Truck Loading	Number of Vehicles	0	15	Aug-13	Jul-15	24	520
Truck Loading	lb/ton of mat. removed	0		Aug-13	Jul-15	24	520
Worker Trips	Number of Vehicles	19	40	Aug-13	Jul-15	24	520
Earth Moving - Site 2							
Earth Moving - enter area / volume to be demolished	Square Feet to demolish	0		Jan-14	Dec-15	24	520
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	17	Dirt	Jan-14	Dec-15	24	520
Trucks - Delivery	Number of Vehicles	0	15	Jan-14	Dec-15	24	520
Dust * (emission factor is in lbs/mile)	Number of Vehicles	3	1	Jan-14	Dec-15	24	520
Truck Loading	Number of Vehicles	0	15	Jan-14	Dec-15	24	520
Truck Loading	lb/ton of mat. removed	0		Jan-14	Dec-15	24	520
Worker Trips	Number of Vehicles	21	40	Jan-14	Dec-15	24	520
Earth Moving - Site 2 (Continued)							
Earth Moving - enter area / volume to be demolished	Square Feet to demolish	0		Jan-14	Dec-15	24	520
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Jan-14	Dec-15	24	520
Trucks - Delivery	Number of Vehicles	0	15	Jan-14	Dec-15	24	520
Dust * (emission factor is in lbs/mile)	Number of Vehicles	9	1	Jan-14	Dec-15	24	520
Truck Loading	Number of Vehicles	0	15	Jan-14	Dec-15	24	520
Truck Loading	lb/ton of mat. removed	0		Jan-14	Dec-15	24	520
Worker Trips	Number of Vehicles	19	40	Jan-14	Dec-15	24	520
Earth Moving - Site 3							
Earth Moving - enter area / volume to be demolished	Square Feet to demolish	0		Mar-14	Feb-16	24	520
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	17	Dirt	Mar-14	Feb-16	24	520
Trucks - Delivery	Number of Vehicles	0	15	Mar-14	Feb-16	24	520
Dust * (emission factor is in lbs/mile)	Number of Vehicles	3	1	Mar-14	Feb-16	24	520
Truck Loading	Number of Vehicles	0	15	Mar-14	Feb-16	24	520
Truck Loading	lb/ton of mat. removed	0		Mar-14	Feb-16	24	520
Worker Trips	Number of Vehicles	21	40	Mar-14	Feb-16	24	520
Earth Moving - Site 3 (Continued)							
Earth Moving - enter area / volume to be demolished	Square Feet to demolish	0		Mar-14	Feb-16	24	520
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Mar-14	Feb-16	24	520
Trucks - Delivery	Number of Vehicles	0	15	Mar-14	Feb-16	24	520
Dust * (emission factor is in lbs/mile)	Number of Vehicles	9	1	Mar-14	Feb-16	24	520
Truck Loading	Number of Vehicles	0	15	Mar-14	Feb-16	24	520
Truck Loading	lb/ton of mat. removed	0		Mar-14	Feb-16	24	520
Worker Trips	Number of Vehicles	19	40	Mar-14	Feb-16	24	520
Earth Moving - Site 4							
Earth Moving - enter area / volume to be demolished	Square Feet to demolish	0		Oct-15	Sep-17	24	520
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	17	Dirt	Oct-15	Sep-17	24	520
Trucks - Delivery	Number of Vehicles	0	15	Oct-15	Sep-17	24	520
Dust * (emission factor is in lbs/mile)	Number of Vehicles	3	1	Oct-15	Sep-17	24	520
Truck Loading	Number of Vehicles	0	15	Oct-15	Sep-17	24	520
Truck Loading	lb/ton of mat. removed	0		Oct-15	Sep-17	24	520
Worker Trips	Number of Vehicles	21	40	Oct-15	Sep-17	24	520
Earth Moving - Site 4 (Continued)							
Earth Moving - enter area / volume to be demolished	Square Feet to demolish	0		Oct-15	Sep-17	24	520
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Oct-15	Sep-17	24	520
Trucks - Delivery	Number of Vehicles	0	15	Oct-15	Sep-17	24	520
Dust * (emission factor is in lbs/mile)	Number of Vehicles	9	1	Oct-15	Sep-17	24	520
Truck Loading	Number of Vehicles	0	15	Oct-15	Sep-17	24	520
Truck Loading	lb/ton of mat. removed	0		Oct-15	Sep-17	24	520
Worker Trips	Number of Vehicles	19	40	Oct-15	Sep-17	24	520

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
Road Crossings - Site 1										
Other General Industrial Equipment-0050	50	Diesel	8	0.34	0.25	**8**	2	16	8/1/2013	7/30/2015
Other General Industrial Equipment-0500	450	Diesel	4	0.34	0.25	**8**	2	8	8/1/2013	7/30/2015
Pavers-0250	180	Diesel	4	0.42	0.15	**8**	1	5	8/1/2013	7/30/2015
Other General Industrial Equipment-0120	60	Diesel	4	0.34	0.15	**8**	1	5	8/1/2013	7/30/2015
Sweepers/Scrubbers-0050	25	Diesel	4	0.46	0.20	**8**	2	6	8/1/2013	7/30/2015
Other General Industrial Equipment-0050	20	Diesel	4	0.34	0.30	**8**	2	10	8/1/2013	7/30/2015
Other Construction Equipment-0120	120	Diesel	2	0.42	0.15	**8**	1	2	8/1/2013	7/30/2015
Off-Highway Trucks-0250	200-250	Diesel	6	0.44	0.30	**8**	2	14	8/1/2013	7/30/2015
Tractors/Loaders/Backhoes-0120	87	Diesel	4	0.37	0.40	**8**	3	13	8/1/2013	7/30/2015
Pavers-0050	30	Diesel	4	0.42	0.15	**8**	1	5	8/1/2013	7/30/2015
Construction Equipment Total			***44***							
Road Crossings - Site 1 (Continued)										
Other Construction Equipment-0050	15	Diesel	4	0.42	0.35	**8**	3	11	8/1/2013	7/30/2015
Other General Industrial Equipment-0050	13	Diesel	4	0.34	0.10	**8**	1	3	8/1/2013	7/30/2015
Other Construction Equipment-0120	100	Diesel	4	0.42	0.20	**8**	2	6	8/1/2013	7/30/2015
Cranes-0500	420	Diesel	4	0.29	0.15	**8**	1	5	8/1/2013	7/30/2015
Cranes-0500	330	Diesel	4	0.29	0.25	**8**	2	8	8/1/2013	7/30/2015
Cranes-0500	420-470	Diesel	4	0.29	0.20	**8**	2	6	8/1/2013	7/30/2015
Cranes-0175	140	Diesel	2	0.29	0.20	**8**	2	3	8/1/2013	7/30/2015
Cranes-0120	75	Diesel	2	0.29	0.15	**8**	1	2	8/1/2013	7/30/2015
Crawler Tractors-0175	125	Diesel	1	0.43	0.35	**8**	3	3	8/1/2013	7/30/2015
Crawler Tractors-0500	310-410	Diesel	3	0.43	0.35	**8**	3	8	8/1/2013	7/30/2015
Construction Equipment Total			***32***							
Road Crossings - Site 1 (Continued)										
Excavators-0500	300	Diesel	2	0.38	0.30	**8**	2	5	8/1/2013	7/30/2015
Excavators-0500	450	Diesel	2	0.38	0.40	**8**	3	6	8/1/2013	7/30/2015
Rubber Tired Loaders-0175	149	Diesel	4	0.36	0.35	**8**	3	11	8/1/2013	7/30/2015
Rubber Tired Loaders-0250	197	Diesel	4	0.36	0.40	**8**	3	13	8/1/2013	7/30/2015
Other Construction Equipment-0050	15	Diesel	2	0.42	0.40	**8**	3	6	8/1/2013	7/30/2015
Other Construction Equipment-0050	28	Diesel	2	0.42	0.20	**8**	2	3	8/1/2013	7/30/2015
Graders-0175	158	Diesel	2	0.41	0.20	**8**	2	3	8/1/2013	7/30/2015
Other Construction Equipment-0120	92	Diesel	2	0.42	0.25	**8**	2	4	8/1/2013	7/30/2015
Other Construction Equipment-0250	245	Diesel	2	0.42	0.25	**8**	2	4	8/1/2013	7/30/2015
Other Construction Equipment-0500	335	Diesel	2	0.42	0.25	**8**	2	4	8/1/2013	7/30/2015
Construction Equipment Total			***24***							
Road Crossings - Site 1 (Continued)										
Other General Industrial Equipment-0050	4	Diesel	10	0.34	0.15	**8**	1	12	8/1/2013	7/30/2015
Rollers-0120	83	Diesel	5	0.38	0.25	**8**	2	10	8/1/2013	7/30/2015
Rollers-0175	156-174	Diesel	8	0.38	0.25	**8**	2	16	8/1/2013	7/30/2015
Other General Industrial Equipment-0050	15	Diesel	4	0.34	0.40	**8**	3	13	8/1/2013	7/30/2015
Off-Highway Trucks-0175	175	Diesel	4	0.44	0.35	**8**	3	11	8/1/2013	7/30/2015
Off-Highway Trucks-0250	210	Diesel	4	0.44	0.25	**8**	2	8	8/1/2013	7/30/2015
Off-Highway Trucks-0175	150	Diesel	4	0.44	0.55	**8**	4	18	8/1/2013	7/30/2015
Off-Highway Tractors-0500	300	Diesel	4	0.44	0.70	**8**	6	22	8/1/2013	7/30/2015
Off-Highway Trucks-0250	210	Diesel	4	0.44	0.65	**8**	5	21	8/1/2013	7/30/2015
Other General Industrial Equipment-0050	45	Diesel	6	0.34	0.25	**8**	2	12	8/1/2013	7/30/2015
Construction Equipment Total			***53***							
Road Crossings - Site 1 (Continued)										
Other General Industrial Equipment-0050	20	Diesel	10	0.34	0.75	**8**	6	60	8/1/2013	7/30/2015
Other General Industrial Equipment-0175	134	Diesel	5	0.34	0.65	**8**	5	26	8/1/2013	7/30/2015
Other General Industrial Equipment-0050	10	Diesel	4	0.34	0.15	**8**	1	5	8/1/2013	7/30/2015
Off-Highway Trucks-0500	500	Diesel	4	0.44	0.15	**8**	1	5	8/1/2013	7/30/2015
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	1/1/2014	4/1/2015
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	1/1/2014	4/1/2015
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	1/1/2014	4/1/2015
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	1/1/2014	4/1/2015
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	1/1/2014	4/1/2015
Construction Equipment Total			***23***							
Road Crossings - Site 2										
Other General Industrial Equipment-0050	50	Diesel	8	0.34	0.25	**8**	2	16	1/1/2014	12/30/2015
Other General Industrial Equipment-0500	450	Diesel	4	0.34	0.25	**8**	2	8	1/1/2014	12/30/2015
Pavers-0250	180	Diesel	4	0.42	0.15	**8**	1	5	1/1/2014	12/30/2015
Other General Industrial Equipment-0120	60	Diesel	4	0.34	0.15	**8**	1	5	1/1/2014	12/30/2015
Sweepers/Scrubbers-0050	25	Diesel	4	0.46	0.20	**8**	2	6	1/1/2014	12/30/2015
Other General Industrial Equipment-0050	20	Diesel	4	0.34	0.30	**8**	2	10	1/1/2014	12/30/2015
Other Construction Equipment-0120	120	Diesel	2	0.42	0.15	**8**	1	2	1/1/2014	12/30/2015
Off-Highway Trucks-0250	200-250	Diesel	6	0.44	0.30	**8**	2	14	1/1/2014	12/30/2015
Tractors/Loaders/Backhoes-0120	87	Diesel	4	0.37	0.40	**8**	3	13	1/1/2014	12/30/2015
Pavers-0050	30	Diesel	4	0.42	0.15	**8**	1	5	1/1/2014	12/30/2015
Construction Equipment Total			***44***							
Road Crossings - Site 2 (Continued)										
Other Construction Equipment-0050	15	Diesel	4	0.42	0.35	**8**	3	11	1/1/2014	12/30/2015
Other General Industrial Equipment-0050	13	Diesel	4	0.34	0.10	**8**	1	3	1/1/2014	12/30/2015
Other Construction Equipment-0120	100	Diesel	4	0.42	0.20	**8**	2	6	1/1/2014	12/30/2015
Cranes-0500	420	Diesel	4	0.29	0.15	**8**	1	5	1/1/2014	12/30/2015
Cranes-0500	330	Diesel	4	0.29	0.25	**8**	2	8	1/1/2014	12/30/2015
Cranes-0500	420-470	Diesel	4	0.29	0.20	**8**	2	6	1/1/2014	12/30/2015
Cranes-0175	140	Diesel	2	0.29	0.20	**8**	2	3	1/1/2014	12/30/2015
Cranes-0120	75	Diesel	2	0.29	0.15	**8**	1	2	1/1/2014	12/30/2015
Crawler Tractors-0175	125	Diesel	1	0.43	0.35	**8**	3	3	1/1/2014	12/30/2015
Crawler Tractors-0500	310-410	Diesel	3	0.43	0.35	**8**	3	8	1/1/2014	12/30/2015
Construction Equipment Total			***32***							

Road Crossings - Site 2 (Continued)										
Excavators-0500	300	Diesel	2	0.38	0.30	**8**	2	5	1/1/2014	12/30/2015
Excavators-0500	450	Diesel	2	0.38	0.40	**8**	3	6	1/1/2014	12/30/2015
Rubber Tired Loaders-0175	149	Diesel	4	0.36	0.35	**8**	3	11	1/1/2014	12/30/2015
Rubber Tired Loaders-0250	197	Diesel	4	0.36	0.40	**8**	3	13	1/1/2014	12/30/2015
Other Construction Equipment-0050	15	Diesel	2	0.42	0.40	**8**	3	6	1/1/2014	12/30/2015
Other Construction Equipment-0050	28	Diesel	2	0.42	0.20	**8**	2	3	1/1/2014	12/30/2015
Graders-0175	158	Diesel	2	0.41	0.20	**8**	2	3	1/1/2014	12/30/2015
Other Construction Equipment-0120	92	Diesel	2	0.42	0.25	**8**	2	4	1/1/2014	12/30/2015
Other Construction Equipment-0250	245	Diesel	2	0.42	0.25	**8**	2	4	1/1/2014	12/30/2015
Other Construction Equipment-0500	335	Diesel	2	0.42	0.25	**8**	2	4	1/1/2014	12/30/2015
Construction Equipment Total			***24***							
Road Crossings - Site 2 (Continued)										
Other General Industrial Equipment-0050	4	Diesel	10	0.34	0.15	**8**	1	12	1/1/2014	12/30/2015
Rollers-0120	83	Diesel	5	0.38	0.25	**8**	2	10	1/1/2014	12/30/2015
Rollers-0175	156-174	Diesel	8	0.38	0.25	**8**	2	16	1/1/2014	12/30/2015
Other General Industrial Equipment-0050	15	Diesel	4	0.34	0.40	**8**	3	13	1/1/2014	12/30/2015
Off-Highway Trucks-0175	175	Diesel	4	0.44	0.35	**8**	3	11	1/1/2014	12/30/2015
Off-Highway Trucks-0250	210	Diesel	4	0.44	0.25	**8**	2	8	1/1/2014	12/30/2015
Off-Highway Trucks-0175	150	Diesel	4	0.44	0.55	**8**	4	18	1/1/2014	12/30/2015
Off-Highway Tractors-0500	300	Diesel	4	0.44	0.70	**8**	6	22	1/1/2014	12/30/2015
Off-Highway Trucks-0250	210	Diesel	4	0.44	0.65	**8**	5	21	1/1/2014	12/30/2015
Other General Industrial Equipment-0050	45	Diesel	6	0.34	0.25	**8**	2	12	1/1/2014	12/30/2015
Construction Equipment Total			***53***							
Road Crossings - Site 2 (Continued)										
Other General Industrial Equipment-0050	20	Diesel	10	0.34	0.75	**8**	6	60	1/1/2014	12/30/2015
Other General Industrial Equipment-0175	134	Diesel	5	0.34	0.65	**8**	5	26	1/1/2014	12/30/2015
Other General Industrial Equipment-0050	10	Diesel	4	0.34	0.15	**8**	1	5	1/1/2014	12/30/2015
Off-Highway Trucks-0500	500	Diesel	4	0.44	0.15	**8**	1	5	1/1/2014	12/30/2015
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	7/1/2014	9/29/2015
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	7/1/2014	9/29/2015
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	7/1/2014	9/29/2015
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	7/1/2014	9/29/2015
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	7/1/2014	9/29/2015
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	7/1/2014	9/29/2015
Construction Equipment Total			***23***							
Road Crossings - Site 3										
Other General Industrial Equipment-0050	50	Diesel	8	0.34	0.25	**8**	2	16	3/1/2014	2/26/2016
Other General Industrial Equipment-0500	450	Diesel	4	0.34	0.25	**8**	2	8	3/1/2014	2/26/2016
Pavers-0250	180	Diesel	4	0.42	0.15	**8**	1	5	3/1/2014	2/26/2016
Other General Industrial Equipment-0120	60	Diesel	4	0.34	0.15	**8**	1	5	3/1/2014	2/26/2016
Sweepers/Scrubbers-0050	25	Diesel	4	0.46	0.20	**8**	2	6	3/1/2014	2/26/2016
Other General Industrial Equipment-0050	20	Diesel	4	0.34	0.30	**8**	2	10	3/1/2014	2/26/2016
Other Construction Equipment-0120	120	Diesel	2	0.42	0.15	**8**	1	2	3/1/2014	2/26/2016
Off-Highway Trucks-0250	200-250	Diesel	6	0.44	0.30	**8**	2	14	3/1/2014	2/26/2016
Tractors/Loaders/Backhoes-0120	87	Diesel	4	0.37	0.40	**8**	3	13	3/1/2014	2/26/2016
Pavers-0050	30	Diesel	4	0.42	0.15	**8**	1	5	3/1/2014	2/26/2016
Construction Equipment Total			***44***							
Road Crossings - Site 3 (Continued)										
Other Construction Equipment-0050	15	Diesel	4	0.42	0.35	**8**	3	11	3/1/2014	2/26/2016
Other General Industrial Equipment-0050	13	Diesel	4	0.34	0.10	**8**	1	3	3/1/2014	2/26/2016
Other Construction Equipment-0120	100	Diesel	4	0.42	0.20	**8**	2	6	3/1/2014	2/26/2016
Cranes-0500	420	Diesel	4	0.29	0.15	**8**	1	5	3/1/2014	2/26/2016
Cranes-0500	330	Diesel	4	0.29	0.25	**8**	2	8	3/1/2014	2/26/2016
Cranes-0500	420-470	Diesel	4	0.29	0.20	**8**	2	6	3/1/2014	2/26/2016
Cranes-0175	140	Diesel	2	0.29	0.20	**8**	2	3	3/1/2014	2/26/2016
Cranes-0120	75	Diesel	2	0.29	0.15	**8**	1	2	3/1/2014	2/26/2016
Crawler Tractors-0175	125	Diesel	1	0.43	0.35	**8**	3	3	3/1/2014	2/26/2016
Crawler Tractors-0500	310-410	Diesel	3	0.43	0.35	**8**	3	8	3/1/2014	2/26/2016
Construction Equipment Total			***32***							
Road Crossings - Site 3 (Continued)										
Excavators-0500	300	Diesel	2	0.38	0.30	**8**	2	5	3/1/2014	2/26/2016
Excavators-0500	450	Diesel	2	0.38	0.40	**8**	3	6	3/1/2014	2/26/2016
Rubber Tired Loaders-0175	149	Diesel	4	0.36	0.35	**8**	3	11	3/1/2014	2/26/2016
Rubber Tired Loaders-0250	197	Diesel	4	0.36	0.40	**8**	3	13	3/1/2014	2/26/2016
Other Construction Equipment-0050	15	Diesel	2	0.42	0.40	**8**	3	6	3/1/2014	2/26/2016
Other Construction Equipment-0050	28	Diesel	2	0.42	0.20	**8**	2	3	3/1/2014	2/26/2016
Graders-0175	158	Diesel	2	0.41	0.20	**8**	2	3	3/1/2014	2/26/2016
Other Construction Equipment-0120	92	Diesel	2	0.42	0.25	**8**	2	4	3/1/2014	2/26/2016
Other Construction Equipment-0250	245	Diesel	2	0.42	0.25	**8**	2	4	3/1/2014	2/26/2016
Other Construction Equipment-0500	335	Diesel	2	0.42	0.25	**8**	2	4	3/1/2014	2/26/2016
Construction Equipment Total			***24***							
Road Crossings - Site 3 (Continued)										
Other General Industrial Equipment-0050	4	Diesel	10	0.34	0.15	**8**	1	12	3/1/2014	2/26/2016
Rollers-0120	83	Diesel	5	0.38	0.25	**8**	2	10	3/1/2014	2/26/2016
Rollers-0175	156-174	Diesel	8	0.38	0.25	**8**	2	16	3/1/2014	2/26/2016
Other General Industrial Equipment-0050	15	Diesel	4	0.34	0.40	**8**	3	13	3/1/2014	2/26/2016
Off-Highway Trucks-0175	175	Diesel	4	0.44	0.35	**8**	3	11	3/1/2014	2/26/2016
Off-Highway Trucks-0250	210	Diesel	4	0.44	0.25	**8**	2	8	3/1/2014	2/26/2016
Off-Highway Trucks-0175	150	Diesel	4	0.44	0.55	**8**	4	18	3/1/2014	2/26/2016
Off-Highway Tractors-0500	300	Diesel	4	0.44	0.70	**8**	6	22	3/1/2014	2/26/2016
Off-Highway Trucks-0250	210	Diesel	4	0.44	0.65	**8**	5	21	3/1/2014	2/26/2016
Other General Industrial Equipment-0050	45	Diesel	6	0.34	0.25	**8**	2	12	3/1/2014	2/26/2016
Construction Equipment Total			***53***							

Road Crossings - Site 3 (Continued)										
Other General Industrial Equipment-0050	20	Diesel	10	0.34	0.75	**8**	6	60	3/1/2014	2/26/2016
Other General Industrial Equipment-0175	134	Diesel	5	0.34	0.65	**8**	5	26	3/1/2014	2/26/2016
Other General Industrial Equipment-0050	10	Diesel	4	0.34	0.15	**8**	1	5	3/1/2014	2/26/2016
Off-Highway Trucks-0500	500	Diesel	4	0.44	0.15	**8**	1	5	3/1/2014	2/26/2016
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	4/1/2016	6/30/2017
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	4/1/2016	6/30/2017
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	4/1/2016	6/30/2017
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	4/1/2016	6/30/2017
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	4/1/2016	6/30/2017
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	4/1/2016	6/30/2017
Construction Equipment Total			***23***							
Road Crossings - Site 4										
Other General Industrial Equipment-0050	50	Diesel	8	0.34	0.25	**8**	2	16	7/1/2014	6/28/2016
Other General Industrial Equipment-0500	450	Diesel	4	0.34	0.25	**8**	2	8	7/1/2014	6/28/2016
Pavers-0250	180	Diesel	4	0.42	0.15	**8**	1	5	7/1/2014	6/28/2016
Other General Industrial Equipment-0120	60	Diesel	4	0.34	0.15	**8**	1	5	7/1/2014	6/28/2016
Sweepers/Scrubbers-0050	25	Diesel	4	0.46	0.20	**8**	2	6	7/1/2014	6/28/2016
Other General Industrial Equipment-0050	20	Diesel	4	0.34	0.30	**8**	2	10	7/1/2014	6/28/2016
Other Construction Equipment-0120	120	Diesel	2	0.42	0.15	**8**	1	2	7/1/2014	6/28/2016
Off-Highway Trucks-0250	200-250	Diesel	6	0.44	0.30	**8**	2	14	7/1/2014	6/28/2016
Tractors/Loaders/Backhoes-0120	87	Diesel	4	0.37	0.40	**8**	3	13	7/1/2014	6/28/2016
Pavers-0050	30	Diesel	4	0.42	0.15	**8**	1	5	7/1/2014	6/28/2016
Construction Equipment Total			***44***							
Road Crossings - Site 4 (Continued)										
Other Construction Equipment-0050	15	Diesel	4	0.42	0.35	**8**	3	11	7/1/2014	6/28/2016
Other General Industrial Equipment-0050	13	Diesel	4	0.34	0.10	**8**	1	3	7/1/2014	6/28/2016
Other Construction Equipment-0120	100	Diesel	4	0.42	0.20	**8**	2	6	7/1/2014	6/28/2016
Cranes-0500	420	Diesel	4	0.29	0.15	**8**	1	5	7/1/2014	6/28/2016
Cranes-0500	330	Diesel	4	0.29	0.25	**8**	2	8	7/1/2014	6/28/2016
Cranes-0500	420-470	Diesel	4	0.29	0.20	**8**	2	6	7/1/2014	6/28/2016
Cranes-0175	140	Diesel	2	0.29	0.20	**8**	2	3	7/1/2014	6/28/2016
Cranes-0120	75	Diesel	2	0.29	0.15	**8**	1	2	7/1/2014	6/28/2016
Crawler Tractors-0175	125	Diesel	1	0.43	0.35	**8**	3	3	7/1/2014	6/28/2016
Crawler Tractors-0500	310-410	Diesel	3	0.43	0.35	**8**	3	8	7/1/2014	6/28/2016
Construction Equipment Total			***32***							
Road Crossings - Site 4 (Continued)										
Excavators-0500	300	Diesel	2	0.38	0.30	**8**	2	5	7/1/2014	6/28/2016
Excavators-0500	450	Diesel	2	0.38	0.40	**8**	3	6	7/1/2014	6/28/2016
Rubber Tired Loaders-0175	149	Diesel	4	0.36	0.35	**8**	3	11	7/1/2014	6/28/2016
Rubber Tired Loaders-0250	197	Diesel	4	0.36	0.40	**8**	3	13	7/1/2014	6/28/2016
Other Construction Equipment-0050	15	Diesel	2	0.42	0.40	**8**	3	6	7/1/2014	6/28/2016
Other Construction Equipment-0050	28	Diesel	2	0.42	0.20	**8**	2	3	7/1/2014	6/28/2016
Graders-0175	158	Diesel	2	0.41	0.20	**8**	2	3	7/1/2014	6/28/2016
Other Construction Equipment-0120	92	Diesel	2	0.42	0.25	**8**	2	4	7/1/2014	6/28/2016
Other Construction Equipment-0250	245	Diesel	2	0.42	0.25	**8**	2	4	7/1/2014	6/28/2016
Other Construction Equipment-0500	335	Diesel	2	0.42	0.25	**8**	2	4	7/1/2014	6/28/2016
Construction Equipment Total			***24***							
Road Crossings - Site 4 (Continued)										
Other General Industrial Equipment-0050	4	Diesel	10	0.34	0.15	**8**	1	12	7/1/2014	6/28/2016
Rollers-0120	83	Diesel	5	0.38	0.25	**8**	2	10	7/1/2014	6/28/2016
Rollers-0175	156-174	Diesel	8	0.38	0.25	**8**	2	16	7/1/2014	6/28/2016
Other General Industrial Equipment-0050	15	Diesel	4	0.34	0.40	**8**	3	13	7/1/2014	6/28/2016
Off-Highway Trucks-0175	175	Diesel	4	0.44	0.35	**8**	3	11	7/1/2014	6/28/2016
Off-Highway Trucks-0250	210	Diesel	4	0.44	0.25	**8**	2	10	7/1/2014	6/28/2016
Off-Highway Trucks-0175	150	Diesel	4	0.44	0.55	**8**	4	18	7/1/2014	6/28/2016
Off-Highway Tractors-0500	300	Diesel	4	0.44	0.70	**8**	6	22	7/1/2014	6/28/2016
Off-Highway Trucks-0250	210	Diesel	4	0.44	0.65	**8**	5	21	7/1/2014	6/28/2016
Other General Industrial Equipment-0050	45	Diesel	6	0.34	0.25	**8**	2	12	7/1/2014	6/28/2016
Construction Equipment Total			***53***							
Road Crossings - Site 4 (Continued)										
Other General Industrial Equipment-0050	20	Diesel	10	0.34	0.75	**8**	6	60	7/1/2014	6/28/2016
Other General Industrial Equipment-0175	134	Diesel	5	0.34	0.65	**8**	5	26	7/1/2014	6/28/2016
Other General Industrial Equipment-0050	10	Diesel	4	0.34	0.15	**8**	1	5	7/1/2014	6/28/2016
Off-Highway Trucks-0500	500	Diesel	4	0.44	0.15	**8**	1	5	7/1/2014	6/28/2016
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	4/1/2016	6/30/2017
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	4/1/2016	6/30/2017
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	4/1/2016	6/30/2017
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	4/1/2016	6/30/2017
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	4/1/2016	6/30/2017
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	4/1/2016	6/30/2017
Construction Equipment Total			***23***							

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration	
						Months of Activity	Days of Activity
Road Crossings - Site 1							
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Aug-13	Jul-15	24	520
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	13	Aggregate	Aug-13	Jul-15	24	520
Trucks - Delivery	Number of Vehicles	0	15	Aug-13	Jul-15	24	520
Dust * (emission factor is in lbs/mile)	Number of Vehicles	6	1	Aug-13	Jul-15	24	520
Truck Loading	Number of Vehicles	0	15	Aug-13	Jul-15	24	520
Truck Loading-Dust	ton of mat. removed	0		Aug-13	Jul-15	24	520
Worker Trips	Number of Vehicles	55	40	Aug-13	Jul-15	24	520
Road Crossings - Site 1 (Continued)							
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Aug-13	Jul-15	24	520
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	11	Aggregate	Aug-13	Jul-15	24	520
Trucks - Delivery	Number of Vehicles	0	15	Aug-13	Jul-15	24	520
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Aug-13	Jul-15	24	520
Truck Loading	Number of Vehicles	0	15	Aug-13	Jul-15	24	520
Truck Loading	lb/ton of mat. removed	0		Aug-13	Jul-15	24	520
Worker Trips	Number of Vehicles	40	40	Aug-13	Jul-15	24	520
Road Crossings - Site 1 (Continued)							
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Aug-13	Jul-15	24	520
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Aug-13	Jul-15	24	520
Trucks - Delivery	Number of Vehicles	0	15	Aug-13	Jul-15	24	520
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Aug-13	Jul-15	24	520
Truck Loading	Number of Vehicles	0	15	Aug-13	Jul-15	24	520
Truck Loading	lb/ton of mat. removed	0		Aug-13	Jul-15	24	520
Worker Trips	Number of Vehicles	30	40	Aug-13	Jul-15	24	520
Road Crossings - Site 1 (Continued)							
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Aug-13	Jul-15	24	520
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Aug-13	Jul-15	24	520
Trucks - Delivery	Number of Vehicles	0	15	Aug-13	Jul-15	24	520
Dust * (emission factor is in lbs/mile)	Number of Vehicles	20	1	Aug-13	Jul-15	24	520
Truck Loading	Number of Vehicles	0	15	Aug-13	Jul-15	24	520
Truck Loading	lb/ton of mat. removed	0		Aug-13	Jul-15	24	520
Worker Trips	Number of Vehicles	66	40	Aug-13	Jul-15	24	520
Road Crossings - Site 1 (Continued)							
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Aug-13	Jul-15	24	520
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Aug-13	Jul-15	24	520
Trucks - Delivery	Number of Vehicles	0	15	Aug-13	Jul-15	24	520
Dust * (emission factor is in lbs/mile)	Number of Vehicles	4	1	Aug-13	Jul-15	24	520
Truck Loading	Number of Vehicles	0	15	Aug-13	Jul-15	24	520
Truck Loading	lb/ton of mat. removed	0		Aug-13	Jul-15	24	520
Worker Trips	Number of Vehicles	29	40	Aug-13	Jul-15	24	520
Road Crossings - Site 2	***! MUST BE UPDATED IF EQUIPMENT CHANGES FROM SITE TO SITE***						
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Jan-14	Dec-15	24	520
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	13	Aggregate	Jan-14	Dec-15	24	520
Trucks - Delivery	Number of Vehicles	0	15	Jan-14	Dec-15	24	520
Dust * (emission factor is in lbs/mile)	Number of Vehicles	6	1	Jan-14	Dec-15	24	520
Truck Loading	Number of Vehicles	0	15	Jan-14	Dec-15	24	520
Truck Loading	lb/ton of mat. removed	0		Jan-14	Dec-15	24	520
Worker Trips	Number of Vehicles	55	40	Jan-14	Dec-15	24	520
Road Crossings - Site 2 (Continued)	***! MUST BE UPDATED IF EQUIPMENT CHANGES FROM SITE TO SITE***						
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Jan-14	Dec-15	24	520
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	11	Aggregate	Jan-14	Dec-15	24	520
Trucks - Delivery	Number of Vehicles	0	15	Jan-14	Dec-15	24	520
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Jan-14	Dec-15	24	520
Truck Loading	Number of Vehicles	0	15	Jan-14	Dec-15	24	520
Truck Loading	lb/ton of mat. removed	0		Jan-14	Dec-15	24	520
Worker Trips	Number of Vehicles	40	40	Jan-14	Dec-15	24	520
Road Crossings - Site 2 (Continued)	***! MUST BE UPDATED IF EQUIPMENT CHANGES FROM SITE TO SITE***						
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Jan-14	Dec-15	24	520
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Jan-14	Dec-15	24	520
Trucks - Delivery	Number of Vehicles	0	15	Jan-14	Dec-15	24	520
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Jan-14	Dec-15	24	520
Truck Loading	Number of Vehicles	0	15	Jan-14	Dec-15	24	520
Truck Loading	lb/ton of mat. removed	0		Jan-14	Dec-15	24	520
Worker Trips	Number of Vehicles	30	40	Jan-14	Dec-15	24	520
Road Crossings - Site 2 (Continued)	***! MUST BE UPDATED IF EQUIPMENT CHANGES FROM SITE TO SITE***						
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Jan-14	Dec-15	24	520
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Jan-14	Dec-15	24	520
Trucks - Delivery	Number of Vehicles	0	15	Jan-14	Dec-15	24	520
Dust * (emission factor is in lbs/mile)	Number of Vehicles	20	1	Jan-14	Dec-15	24	520
Truck Loading	Number of Vehicles	0	15	Jan-14	Dec-15	24	520
Truck Loading	lb/ton of mat. removed	0		Jan-14	Dec-15	24	520
Worker Trips	Number of Vehicles	66	40	Jan-14	Dec-15	24	520
Road Crossings - Site 2 (Continued)	***! MUST BE UPDATED IF EQUIPMENT CHANGES FROM SITE TO SITE***						
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Jan-14	Dec-15	24	520
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Jan-14	Dec-15	24	520
Trucks - Delivery	Number of Vehicles	0	15	Jan-14	Dec-15	24	520
Dust * (emission factor is in lbs/mile)	Number of Vehicles	4	1	Jan-14	Dec-15	24	520
Truck Loading	Number of Vehicles	0	15	Jan-14	Dec-15	24	520
Truck Loading	lb/ton of mat. removed	0		Jan-14	Dec-15	24	520
Worker Trips	Number of Vehicles	29	40	Jan-14	Dec-15	24	520

Road Crossings - Site 3	***! MUST BE UPDATED IF EQUIPMENT CHANGES FROM SITE TO SITE***						
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Mar-14	Feb-16	24	520
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	13	Aggregate	Mar-14	Feb-16	24	520
Trucks - Delivery	Number of Vehicles	0	15	Mar-14	Feb-16	24	520
Dust * (emission factor is in lbs/mile)	Number of Vehicles	6	1	Mar-14	Feb-16	24	520
Truck Loading	Number of Vehicles	0	15	Mar-14	Feb-16	24	520
Truck Loading	lb/ton of mat. removed	0		Mar-14	Feb-16	24	520
Worker Trips	Number of Vehicles	55	40	Mar-14	Feb-16	24	520
Road Crossings - Site 3 (Continued)	***! MUST BE UPDATED IF EQUIPMENT CHANGES FROM SITE TO SITE***						
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Mar-14	Feb-16	24	520
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	11	Aggregate	Mar-14	Feb-16	24	520
Trucks - Delivery	Number of Vehicles	0	15	Mar-14	Feb-16	24	520
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Mar-14	Feb-16	24	520
Truck Loading	Number of Vehicles	0	15	Mar-14	Feb-16	24	520
Truck Loading	lb/ton of mat. removed	0		Mar-14	Feb-16	24	520
Worker Trips	Number of Vehicles	40	40	Mar-14	Feb-16	24	520
Road Crossings - Site 3 (Continued)	***! MUST BE UPDATED IF EQUIPMENT CHANGES FROM SITE TO SITE***						
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Mar-14	Feb-16	24	520
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Mar-14	Feb-16	24	520
Trucks - Delivery	Number of Vehicles	0	15	Mar-14	Feb-16	24	520
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Mar-14	Feb-16	24	520
Truck Loading	Number of Vehicles	0	15	Mar-14	Feb-16	24	520
Truck Loading	lb/ton of mat. removed	0		Mar-14	Feb-16	24	520
Worker Trips	Number of Vehicles	30	40	Mar-14	Feb-16	24	520
Road Crossings - Site 3 (Continued)	***! MUST BE UPDATED IF EQUIPMENT CHANGES FROM SITE TO SITE***						
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Mar-14	Feb-16	24	520
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Mar-14	Feb-16	24	520
Trucks - Delivery	Number of Vehicles	0	15	Mar-14	Feb-16	24	520
Dust * (emission factor is in lbs/mile)	Number of Vehicles	20	1	Mar-14	Feb-16	24	520
Truck Loading	Number of Vehicles	0	15	Mar-14	Feb-16	24	520
Truck Loading	lb/ton of mat. removed	0		Mar-14	Feb-16	24	520
Worker Trips	Number of Vehicles	66	40	Mar-14	Feb-16	24	520
Road Crossings - Site 3 (Continued)	***! MUST BE UPDATED IF EQUIPMENT CHANGES FROM SITE TO SITE***						
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Mar-14	Feb-16	24	520
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Mar-14	Feb-16	24	520
Trucks - Delivery	Number of Vehicles	0	15	Mar-14	Feb-16	24	520
Dust * (emission factor is in lbs/mile)	Number of Vehicles	4	1	Mar-14	Feb-16	24	520
Truck Loading	Number of Vehicles	0	15	Mar-14	Feb-16	24	520
Truck Loading	lb/ton of mat. removed	0		Mar-14	Feb-16	24	520
Worker Trips	Number of Vehicles	29	40	Mar-14	Feb-16	24	520
Road Crossings - Site 4	***! MUST BE UPDATED IF EQUIPMENT CHANGES FROM SITE TO SITE***						
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Jul-14	Jun-16	24	520
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	13	Aggregate	Jul-14	Jun-16	24	520
Trucks - Delivery	Number of Vehicles	0	15	Jul-14	Jun-16	24	520
Dust * (emission factor is in lbs/mile)	Number of Vehicles	6	1	Jul-14	Jun-16	24	520
Truck Loading	Number of Vehicles	0	15	Jul-14	Jun-16	24	520
Truck Loading	lb/ton of mat. removed	0		Jul-14	Jun-16	24	520
Worker Trips	Number of Vehicles	55	40	Jul-14	Jun-16	24	520
Road Crossings - Site 4 (Continued)	***! MUST BE UPDATED IF EQUIPMENT CHANGES FROM SITE TO SITE***						
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Jul-14	Jun-16	24	520
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	11	Aggregate	Jul-14	Jun-16	24	520
Trucks - Delivery	Number of Vehicles	0	15	Jul-14	Jun-16	24	520
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Jul-14	Jun-16	24	520
Truck Loading	Number of Vehicles	0	15	Jul-14	Jun-16	24	520
Truck Loading	lb/ton of mat. removed	0		Jul-14	Jun-16	24	520
Worker Trips	Number of Vehicles	40	40	Jul-14	Jun-16	24	520
Road Crossings - Site 4 (Continued)	***! MUST BE UPDATED IF EQUIPMENT CHANGES FROM SITE TO SITE*** ***! MUST BE UPDATED IF THE LAST TWO SECTIONS FOR SITE 4***						
Road Crossings - enter area / volume to be demolished	Square Feet to demolish	0		Jul-14	Jun-16	24	520
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Jul-14	Jun-16	24	520
Trucks - Delivery	Number of Vehicles	0	15	Jul-14	Jun-16	24	520
Dust * (emission factor is in lbs/mile)	Number of Vehicles	24	1	Jul-14	Jun-16	24	520
Truck Loading	Number of Vehicles	0	15	Jul-14	Jun-16	24	520
Truck Loading	lb/ton of mat. removed	0		Jul-14	Jun-16	24	520
Worker Trips	Number of Vehicles	95	40	Jul-14	Jun-16	24	520

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
Lay Track at Grade												
Other Construction Equipment-9999	3,000	Diesel	1	0.42	0.85	**8**	7	7	9/1/2015	5/10/2016	9	180
Other Construction Equipment-0500	350	Diesel	1	0.42	0.85	**8**	7	7	9/1/2015	5/10/2016	9	180
Other Construction Equipment-0175	125	Diesel	1	0.42	0.85	**8**	7	7	9/1/2015	5/10/2016	9	180
Other Construction Equipment-0500	300	Diesel	1	0.42	0.85	**8**	7	7	9/1/2015	5/10/2016	9	180
Off-Highway Trucks-0500	479	Diesel	1	0.44	0.85	**8**	7	7	9/1/2015	5/10/2016	9	180
Off-Highway Trucks-0250	189	Diesel	1	0.44	0.85	**8**	7	7	9/1/2015	5/10/2016	9	180
Other General Industrial Equipment-0050	45	Diesel	1	0.34	0.85	**8**	7	7	9/1/2015	5/10/2016	9	180
Other Construction Equipment-0500	500	Diesel	1	0.42	0.85	**8**	7	7	9/1/2015	5/10/2016	9	180
Other Construction Equipment-0500	400	Diesel	1	0.42	0.85	**8**	7	7	9/1/2015	5/10/2016	9	180
Surfacing Equipment-0500	400	Diesel	1	0.30	0.85	**8**	7	7	9/1/2015	5/10/2016	9	180
Construction Equipment Total			***10***									

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration Months of Activity	Construction Activity Duration Days of Activity
Lay Track at Grade							
Track at Grade - enter area / volume to be demolished	Square Feet to demolish	0		Sep-15	May-16	9	180
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Sep-15	May-16	9	180
Trucks - Delivery	Number of Vehicles	0	15	Sep-15	May-16	9	180
Dust * (emission factor is in lbs/mile)	Number of Vehicles	1	1	Sep-15	May-16	9	180
Truck Loading	Number of Vehicles	0	15	Sep-15	May-16	9	180
Truck Loading-Dust	ton of mat. removed	0		Sep-15	May-16	9	180
Worker Trips	Number of Vehicles	13	40	Sep-15	May-16	9	180

TRACK ELEVATED

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
Lay Track Elevated + Retained Fill										
Aerial Lifts-0120	60	Diesel	1	100.00	0.35	**8**	3	3	9/1/2015	3/15/2016
Other Construction Equipment-9999	3,000	Diesel	1	0.42	0.85	**8**	7	7	9/1/2015	3/15/2016
Other Construction Equipment-0500	350	Diesel	1	0.42	0.85	**8**	7	7	9/1/2015	3/15/2016
Other Construction Equipment-0175	125	Diesel	1	0.42	0.85	**8**	7	7	9/1/2015	3/15/2016
Other Construction Equipment-0500	300	Diesel	1	0.42	0.85	**8**	7	7	9/1/2015	3/15/2016
Off-Highway Trucks-0500	479	Diesel	1	0.44	0.85	**8**	7	7	9/1/2015	3/15/2016
Off-Highway Trucks-0250	189	Diesel	1	0.44	0.85	**8**	7	7	9/1/2015	3/15/2016
Other General Industrial Equipment-0050	45	Diesel	1	0.34	0.85	**8**	7	7	9/1/2015	3/15/2016
Other Construction Equipment-0500	500	Diesel	1	0.42	0.85	**8**	7	7	9/1/2015	3/15/2016
Other Construction Equipment-0500	400	Diesel	1	0.42	0.85	**8**	7	7	9/1/2015	3/15/2016
Construction Equipment Total			***10***							
Lay Track Elevated + Retained Fill (Continued)										
Surfacing Equipment-0500	400	Diesel	1	0.30	0.85	**8**	7	7	9/1/2015	3/15/2016
Other General Industrial Equipment-0050	10	Diesel	1	0.34	0.50	**8**	4	4	9/1/2015	3/15/2016
Other General Industrial Equipment-0050	10	Diesel	1	0.34	0.50	**8**	4	4	9/1/2015	3/15/2016
Cranes-0500	399	Diesel	1	0.29	0.50	**8**	4	4	9/1/2015	3/15/2016
Crawler Tractors-0175	147	Diesel	1	0.43	0.35	**8**	3	3	9/1/2015	3/15/2016
Other Construction Equipment-0050	16	Diesel	1	0.42	0.45	**8**	4	4	9/1/2015	3/15/2016
Rough Terrain Forklifts-0175	145	Diesel	1	0.40	0.30	**8**	2	2	9/1/2015	3/15/2016
Other General Industrial Equipment-0750	549	Diesel	1	0.34	0.75	**8**	6	6	9/1/2015	3/15/2016
Off-Highway Trucks-0500	479	Diesel	1	0.44	0.25	**8**	2	2	9/1/2015	3/15/2016
Other General Industrial Equipment-0050	45	Diesel	1	0.34	0.65	**8**	5	5	9/1/2015	3/15/2016
Construction Equipment Total			***10***							
Lay Track Elevated + Retained Fill (Continued)										
Other Construction Equipment-0500	500	Diesel	1	0.42	0.85	**8**	7	7	9/1/2015	3/15/2016
Other Construction Equipment-0500	400	Diesel	1	0.42	0.85	**8**	7	7	9/1/2015	3/15/2016
Surfacing Equipment-0500	400	Diesel	1	0.30	0.85	**8**	7	7	9/1/2015	3/15/2016
Other Construction Equipment-0750	600	Diesel	1	0.42	0.50	**8**	4	4	11/1/2013	1/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/1/2013	1/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/1/2013	1/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/1/2013	1/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/1/2013	1/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/1/2013	1/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/1/2013	1/3/2014
Construction Equipment Total			***4***							

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration	
						Months of Activity	Days of Activity
Lay Track Elevated + Retained Fill							
Track Elevated - enter area / volume to be demolished	Square Feet to demolish	0		Sep-15	Mar-16	7	140
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Sep-15	Mar-16	7	140
Trucks - Delivery	Number of Vehicles	0	15	Sep-15	Mar-16	7	140
Dust * (emission factor is in lbs/mile)	Number of Vehicles	1	1	Sep-15	Mar-16	7	140
Truck Loading	Number of Vehicles	0	15	Sep-15	Mar-16	7	140
Truck Loading-Dust	ton of mat. removed	0		Sep-15	Mar-16	7	140
Worker Trips	Number of Vehicles	13	40	Sep-15	Mar-16	7	140
Lay Track Elevated + Retained Fill (Continued)							
Track Elevated - enter area / volume to be demolished	Square Feet to demolish	0		Sep-15	Mar-16	7	140
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Sep-15	Mar-16	7	140
Trucks - Delivery	Number of Vehicles	0	15	Sep-15	Mar-16	7	140
Dust * (emission factor is in lbs/mile)	Number of Vehicles	1	1	Sep-15	Mar-16	7	140
Truck Loading	Number of Vehicles	0	15	Sep-15	Mar-16	7	140
Truck Loading	lb/ton of mat. removed	0		Sep-15	Mar-16	7	140
Worker Trips	Number of Vehicles	13	40	Sep-15	Mar-16	7	140
Lay Track Elevated + Retained Fill (Continued)							
Track Elevated - enter area / volume to be demolished	Square Feet to demolish	0		Sep-15	Oct-15	2	140
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	3	Aggregate	Sep-15	Mar-16	7	140
Trucks - Delivery	Number of Vehicles	0	15	Sep-15	Mar-16	7	140
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Sep-15	Mar-16	7	140
Truck Loading	Number of Vehicles	0	15	Sep-15	Mar-16	7	140
Truck Loading	lb/ton of mat. removed	0		Sep-15	Mar-16	7	140
Worker Trips	Number of Vehicles	5	40	Sep-15	Mar-16	7	140

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
Elevated Structures - Site 1										
Aerial Lifts-0120	60	Diesel	4	100.00	0.15	**8**	1	5	10/1/2013	9/30/2014
Other General Industrial Equipment-0120	106	Diesel	5	0.34	0.20	**8**	2	8	10/1/2013	9/30/2014
Bore/Drill Rigs-0500	291	Diesel	11	0.50	0.90	**8**	7	76	10/1/2013	9/30/2014
Excavators-0500	300	Diesel	5	0.38	0.85	**8**	7	36	10/1/2013	9/30/2014
Cranes-0500	420	Diesel	5	0.29	0.65	**8**	5	27	10/1/2013	9/30/2014
Off-Highway Trucks-0250	210	Diesel	9	0.44	0.65	**8**	5	47	10/1/2013	9/30/2014
Cranes-0500	420	Diesel	4	0.29	0.65	**8**	5	20	10/1/2013	9/30/2014
Other General Industrial Equipment-0050	10	Diesel	5	0.34	0.45	**8**	4	19	10/1/2013	9/30/2014
Other General Industrial Equipment-0050	10	Diesel	5	0.34	0.15	**8**	1	6	10/1/2013	9/30/2014
Crawler Tractors-0500	310	Diesel	2	0.43	0.65	**8**	5	8	10/1/2013	4/1/2014
Construction Equipment Total			***55***							
Elevated Structures - Site 1 (Continued)										
Rubber Tired Loaders-0500	262	Diesel	2	0.36	0.65	**8**	5	10	10/1/2013	4/1/2014
Graders-0175	158	Diesel	2	0.41	0.65	**8**	5	10	10/1/2013	4/1/2014
Paving Equipment-0175	156-174	Diesel	4	0.36	0.65	**8**	5	21	10/1/2013	4/1/2014
Off-Highway Trucks-0250	210	Diesel	3	0.44	0.65	**8**	5	16	10/1/2013	4/1/2014
Other General Industrial Equipment-0050	45	Diesel	5	0.34	0.65	**8**	5	26	10/1/2013	9/30/2014
Other Construction Equipment-0750	600	Diesel	5	0.42	0.20	**8**	2	8	10/1/2013	9/30/2014
None-0	0	Diesel	0	0.00	1.00	**1**	1	0	10/1/2013	11/26/2013
None-0	0	Diesel	0	0.00	1.00	**1**	1	0	10/1/2013	11/26/2013
None-0	0	Diesel	0	0.00	1.00	**1**	1	0	10/1/2013	11/26/2013
None-0	0	Diesel	0	0.00	1.00	**1**	1	0	10/1/2013	11/26/2013
Construction Equipment Total			***21***							
Elevated Structures - Site 2										
Aerial Lifts-0120	60	Diesel	4	100.00	0.15	**8**	1	5	1/1/2014	12/31/2014
Other General Industrial Equipment-0120	106	Diesel	5	0.34	0.20	**8**	2	8	1/1/2014	12/31/2014
Bore/Drill Rigs-0500	291	Diesel	11	0.50	0.90	**8**	7	76	1/1/2014	12/31/2014
Excavators-0500	300	Diesel	5	0.38	0.85	**8**	7	36	1/1/2014	12/31/2014
Cranes-0500	420	Diesel	5	0.29	0.65	**8**	5	27	1/1/2014	12/31/2014
Off-Highway Trucks-0250	210	Diesel	9	0.44	0.65	**8**	5	47	1/1/2014	12/31/2014
Cranes-0500	420	Diesel	4	0.29	0.65	**8**	5	20	1/1/2014	12/31/2014
Other General Industrial Equipment-0050	10	Diesel	5	0.34	0.45	**8**	4	19	1/1/2014	12/31/2014
Other General Industrial Equipment-0050	10	Diesel	5	0.34	0.15	**8**	1	6	1/1/2014	12/31/2014
Crawler Tractors-0500	310	Diesel	2	0.43	0.65	**8**	5	8	1/1/2014	7/2/2014
Construction Equipment Total			***55***							
Elevated Structures - Site 2 (Continued)										
Rubber Tired Loaders-0500	262	Diesel	2	0.36	0.65	**8**	5	10	1/1/2014	7/2/2014
Graders-0175	158	Diesel	2	0.41	0.65	**8**	5	10	1/1/2014	7/2/2014
Paving Equipment-0175	156-174	Diesel	4	0.36	0.65	**8**	5	21	1/1/2014	7/2/2014
Off-Highway Trucks-0250	210	Diesel	3	0.44	0.65	**8**	5	16	1/1/2014	7/2/2014
Other General Industrial Equipment-0050	45	Diesel	5	0.34	0.65	**8**	5	26	1/1/2014	12/31/2014
Other Construction Equipment-0750	600	Diesel	5	0.42	0.20	**8**	2	8	1/1/2014	12/31/2014
None-0	0	Diesel	0	0.00	1.00	**1**	1	0	1/1/2014	2/26/2014
None-0	0	Diesel	0	0.00	1.00	**1**	1	0	1/1/2014	2/26/2014
None-0	0	Diesel	0	0.00	1.00	**1**	1	0	1/1/2014	2/26/2014
None-0	0	Diesel	0	0.00	1.00	**1**	1	0	1/1/2014	2/26/2014
Construction Equipment Total			***21***							
Elevated Structures - Site 3										
Aerial Lifts-0120	60	Diesel	4	100.00	0.15	**8**	1	5	3/1/2014	2/27/2015
Other General Industrial Equipment-0120	106	Diesel	5	0.34	0.20	**8**	2	8	3/1/2014	2/27/2015
Bore/Drill Rigs-0500	291	Diesel	11	0.50	0.90	**8**	7	76	3/1/2014	2/27/2015
Excavators-0500	300	Diesel	5	0.38	0.85	**8**	7	36	3/1/2014	2/27/2015
Cranes-0500	420	Diesel	5	0.29	0.65	**8**	5	27	3/1/2014	2/27/2015
Off-Highway Trucks-0250	210	Diesel	9	0.44	0.65	**8**	5	47	3/1/2014	2/27/2015
Cranes-0500	420	Diesel	4	0.29	0.65	**8**	5	20	3/1/2014	2/27/2015
Other General Industrial Equipment-0050	10	Diesel	5	0.34	0.45	**8**	4	19	3/1/2014	2/27/2015
Other General Industrial Equipment-0050	10	Diesel	5	0.34	0.15	**8**	1	6	3/1/2014	2/27/2015
Crawler Tractors-0500	310	Diesel	2	0.43	0.65	**8**	5	8	3/1/2014	8/29/2014
Construction Equipment Total			***55***							
Elevated Structures - Site 3 (Continued)										
Rubber Tired Loaders-0500	262	Diesel	2	0.36	0.65	**8**	5	10	3/1/2014	8/29/2014
Graders-0175	158	Diesel	2	0.41	0.65	**8**	5	10	3/1/2014	8/29/2014
Paving Equipment-0175	156-174	Diesel	4	0.36	0.65	**8**	5	21	3/1/2014	8/29/2014
Off-Highway Trucks-0250	210	Diesel	3	0.44	0.65	**8**	5	16	3/1/2014	8/29/2014
Other General Industrial Equipment-0050	45	Diesel	5	0.34	0.65	**8**	5	26	3/1/2014	2/27/2015
Other Construction Equipment-0750	600	Diesel	5	0.42	0.20	**8**	2	8	3/1/2014	2/27/2015
None-0	0	Diesel	0	0.00	1.00	**1**	1	0	3/1/2014	4/25/2014
None-0	0	Diesel	0	0.00	1.00	**1**	1	0	3/1/2014	4/25/2014
None-0	0	Diesel	0	0.00	1.00	**1**	1	0	3/1/2014	4/25/2014
None-0	0	Diesel	0	0.00	1.00	**1**	1	0	3/1/2014	4/25/2014
Construction Equipment Total			***21***							

Elevated Structures - Site 4										
Aerial Lifts-0120	60	Diesel	4	100.00	0.15	**8**	1	5	7/1/2014	6/30/2015
Other General Industrial Equipment-0120	106	Diesel	5	0.34	0.20	**8**	2	8	7/1/2014	6/30/2015
Bore/Drill Rigs-0500	291	Diesel	11	0.50	0.90	**8**	7	76	7/1/2014	6/30/2015
Excavators-0500	300	Diesel	5	0.38	0.85	**8**	7	36	7/1/2014	6/30/2015
Cranes-0500	420	Diesel	5	0.29	0.65	**8**	5	27	7/1/2014	6/30/2015
Off-Highway Trucks-0250	210	Diesel	9	0.44	0.65	**8**	5	47	7/1/2014	6/30/2015
Cranes-0500	420	Diesel	4	0.29	0.65	**8**	5	20	7/1/2014	6/30/2015
Other General Industrial Equipment-0050	10	Diesel	5	0.34	0.45	**8**	4	19	7/1/2014	6/30/2015
Other General Industrial Equipment-0050	10	Diesel	5	0.34	0.15	**8**	1	6	7/1/2014	6/30/2015
Crawler Tractors-0500	310	Diesel	2	0.43	0.65	**8**	5	8	7/1/2014	12/30/2014
Construction Equipment Total			***55***							
Elevated Structures - Site 4 (Continued)										
Rubber Tired Loaders-0500	262	Diesel	2	0.36	0.65	**8**	5	10	7/1/2014	12/30/2014
Graders-0175	158	Diesel	2	0.41	0.65	**8**	5	10	7/1/2014	12/30/2014
Paving Equipment-0175	156-174	Diesel	4	0.36	0.65	**8**	5	21	7/1/2014	12/30/2014
Off-Highway Trucks-0250	210	Diesel	3	0.44	0.65	**8**	5	16	7/1/2014	12/30/2014
Other General Industrial Equipment-0050	45	Diesel	5	0.34	0.65	**8**	5	26	7/1/2014	6/30/2015
Other Construction Equipment-0750	600	Diesel	5	0.42	0.20	**8**	2	8	7/1/2014	6/30/2015
None-0	0	Diesel	0	0.00	1.00	**1**	1	0	7/1/2014	8/26/2014
None-0	0	Diesel	0	0.00	1.00	**1**	1	0	7/1/2014	8/26/2014
None-0	0	Diesel	0	0.00	1.00	**1**	1	0	7/1/2014	8/26/2014
None-0	0	Diesel	0	0.00	1.00	**1**	1	0	7/1/2014	8/26/2014
Construction Equipment Total			***21***							
Bakersfield										
Aerial Lifts-0120	60	Diesel	5	100.00	0.15	**8**	1	6	7/1/2019	6/29/2020
Other General Industrial Equipment-0120	106	Diesel	7	0.34	0.20	**8**	2	11	7/1/2019	6/29/2020
Bore/Drill Rigs-0500	291	Diesel	14	0.50	0.90	**8**	7	101	7/1/2019	6/29/2020
Excavators-0500	300	Diesel	7	0.38	0.85	**8**	7	48	7/1/2019	6/29/2020
Cranes-0500	420	Diesel	7	0.29	0.65	**8**	5	36	7/1/2019	6/29/2020
Off-Highway Trucks-0250	210	Diesel	12	0.44	0.65	**8**	5	62	7/1/2019	6/29/2020
Cranes-0500	420	Diesel	5	0.29	0.65	**8**	5	26	7/1/2019	6/29/2020
Other General Industrial Equipment-0050	10	Diesel	7	0.34	0.45	**8**	4	25	7/1/2019	6/29/2020
Other General Industrial Equipment-0050	10	Diesel	7	0.34	0.15	**8**	1	8	7/1/2019	6/29/2020
Crawler Tractors-0500	310	Diesel	2	0.43	0.65	**8**	5	10	7/1/2019	12/30/2019
Construction Equipment Total			***73***							
Bakersfield (Continued)										
Rubber Tired Loaders-0500	262	Diesel	2	0.36	0.65	**8**	5	10	7/1/2019	12/30/2019
Graders-0175	158	Diesel	2	0.41	0.65	**8**	5	10	7/1/2019	12/30/2019
Paving Equipment-0175	156-174	Diesel	4	0.36	0.65	**8**	5	21	7/1/2019	12/30/2019
Off-Highway Trucks-0250	210	Diesel	4	0.44	0.65	**8**	5	21	7/1/2019	12/30/2019
Other General Industrial Equipment-0050	45	Diesel	7	0.34	0.65	**8**	5	36	7/1/2019	6/29/2020
Other Construction Equipment-0750	600	Diesel	7	0.42	0.20	**8**	2	11	7/1/2019	6/29/2020
None-0	0	Diesel	0	0.00	1.00	**1**	1	0	7/1/2019	8/26/2019
None-0	0	Diesel	0	0.00	1.00	**1**	1	0	7/1/2019	8/26/2019
None-0	0	Diesel	0	0.00	1.00	**1**	1	0	7/1/2019	8/26/2019
None-0	0	Diesel	0	0.00	1.00	**1**	1	0	7/1/2019	8/26/2019
Construction Equipment Total			***26***							

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration	
						Months of Activity	Days of Activity
Elevated Structures - Site 1							
Elevated Structures - enter area / volume to be demolishe	Square Feet to demolish	0		Oct-13	Sep-14	12	260
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	8	Aggregate	Oct-13	Sep-14	12	260
Trucks - Delivery	Number of Vehicles	0	15	Oct-13	Sep-14	12	260
Dust * (emission factor is in lbs/mile)	Number of Vehicles	9	1	Oct-13	Sep-14	12	260
Truck Loading	Number of Vehicles	0	15	Oct-13	Sep-14	12	260
Truck Loading-Dust	ton of mat. removed	0		Oct-13	Sep-14	12	260
Worker Trips	Number of Vehicles	68	40	Oct-13	Sep-14	12	260
Elevated Structures - Site 1 (Continued)							
Elevated Structures - enter area / volume to be demolishe	Square Feet to demolish	0		Oct-13	Apr-14	7	130
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Oct-13	Apr-14	7	130
Trucks - Delivery	Number of Vehicles	0	15	Oct-13	Apr-14	7	130
Dust * (emission factor is in lbs/mile)	Number of Vehicles	3	1	Oct-13	Apr-14	7	130
Truck Loading	Number of Vehicles	0	15	Oct-13	Apr-14	7	130
Truck Loading	lb/ton of mat. removed	0		Oct-13	Apr-14	7	130
Worker Trips	Number of Vehicles	26	40	Oct-13	Apr-14	7	130
Elevated Structures - Site 2							
Elevated Structures - enter area / volume to be demolishe	Square Feet to demolish	0		Jan-14	Jul-14	7	260
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	8	Aggregate	Jan-14	Dec-14	12	260
Trucks - Delivery	Number of Vehicles	0	15	Jan-14	Dec-14	12	260
Dust * (emission factor is in lbs/mile)	Number of Vehicles	9	1	Jan-14	Dec-14	12	260
Truck Loading	Number of Vehicles	0	15	Jan-14	Dec-14	12	260
Truck Loading	lb/ton of mat. removed	0		Jan-14	Dec-14	12	260
Worker Trips	Number of Vehicles	68	40	Jan-14	Dec-14	12	260
Elevated Structures - Site 2 (Continued)							
Elevated Structures - enter area / volume to be demolishe	Square Feet to demolish	0		Jan-14	Jul-14	7	130
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Jan-14	Jul-14	7	130
Trucks - Delivery	Number of Vehicles	0	15	Jan-14	Jul-14	7	130
Dust * (emission factor is in lbs/mile)	Number of Vehicles	3	1	Jan-14	Jul-14	7	130
Truck Loading	Number of Vehicles	0	15	Jan-14	Jul-14	7	130
Truck Loading	lb/ton of mat. removed	0		Jan-14	Jul-14	7	130
Worker Trips	Number of Vehicles	26	40	Jan-14	Jul-14	7	130
Elevated Structures - Site 3							
Elevated Structures - enter area / volume to be demolishe	Square Feet to demolish	0		Mar-14	Feb-15	12	260
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	8	Aggregate	Mar-14	Feb-15	12	260
Trucks - Delivery	Number of Vehicles	0	15	Mar-14	Feb-15	12	260
Dust * (emission factor is in lbs/mile)	Number of Vehicles	9	1	Mar-14	Feb-15	12	260
Truck Loading	Number of Vehicles	0	15	Mar-14	Feb-15	12	260
Truck Loading	lb/ton of mat. removed	0		Mar-14	Feb-15	12	260
Worker Trips	Number of Vehicles	68	40	Mar-14	Feb-15	12	260
Elevated Structures - Site 3 (Continued)							
Elevated Structures - enter area / volume to be demolishe	Square Feet to demolish	0		Mar-14	Aug-14	6	130
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Mar-14	Aug-14	6	130
Trucks - Delivery	Number of Vehicles	0	15	Mar-14	Aug-14	6	130
Dust * (emission factor is in lbs/mile)	Number of Vehicles	3	1	Mar-14	Aug-14	6	130
Truck Loading	Number of Vehicles	0	15	Mar-14	Aug-14	6	130
Truck Loading	lb/ton of mat. removed	0		Mar-14	Aug-14	6	130
Worker Trips	Number of Vehicles	26	40	Mar-14	Aug-14	6	130
Elevated Structures - Site 4							
Elevated Structures - enter area / volume to be demolishe	Square Feet to demolish	0		Jul-14	Jun-15	12	260
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	8	Aggregate	Jul-14	Jun-15	12	260
Trucks - Delivery	Number of Vehicles	0	15	Jul-14	Jun-15	12	260
Dust * (emission factor is in lbs/mile)	Number of Vehicles	9	1	Jul-14	Jun-15	12	260
Truck Loading	Number of Vehicles	0	15	Jul-14	Jun-15	12	260
Truck Loading	lb/ton of mat. removed	0		Jul-14	Jun-15	12	260
Worker Trips	Number of Vehicles	68	40	Jul-14	Jun-15	12	260
Elevated Structures - Site 4 (Continued)							
Elevated Structures - enter area / volume to be demolishe	Square Feet to demolish	0		Jul-14	Dec-14	6	130
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Jul-14	Dec-14	6	130
Trucks - Delivery	Number of Vehicles	0	15	Jul-14	Dec-14	6	130
Dust * (emission factor is in lbs/mile)	Number of Vehicles	3	1	Jul-14	Dec-14	6	130
Truck Loading	Number of Vehicles	0	15	Jul-14	Dec-14	6	130
Truck Loading	lb/ton of mat. removed	0		Jul-14	Dec-14	6	130
Worker Trips	Number of Vehicles	26	40	Jul-14	Dec-14	6	130
Bakersfield							
Elevated Structures - enter area / volume to be demolishe	Square Feet to demolish	0		Jul-19	Jun-20	12	260
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	10	Aggregate	Jul-19	Jun-20	12	260
Trucks - Delivery	Number of Vehicles	0	15	Jul-19	Jun-20	12	260
Dust * (emission factor is in lbs/mile)	Number of Vehicles	12	1	Jul-19	Jun-20	12	260
Truck Loading	Number of Vehicles	0	15	Jul-19	Jun-20	12	260
Truck Loading	lb/ton of mat. removed	0		Jul-19	Jun-20	12	260
Worker Trips	Number of Vehicles	91	40	Jul-19	Jun-20	12	260
Bakersfield (Continued)							
Elevated Structures - enter area / volume to be demolishe	Square Feet to demolish	0		Jul-19	Dec-19	6	130
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Jul-19	Dec-19	6	130
Trucks - Delivery	Number of Vehicles	0	15	Jul-19	Dec-19	6	130
Dust * (emission factor is in lbs/mile)	Number of Vehicles	4	1	Jul-19	Dec-19	6	130
Truck Loading	Number of Vehicles	0	15	Jul-19	Dec-19	6	130
Truck Loading	lb/ton of mat. removed	0		Jul-19	Dec-19	6	130
Worker Trips	Number of Vehicles	33	40	Jul-19	Dec-19	6	130

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
Demobilization - Site 1										
Off-Highway Trucks-0175	175	Diesel	3	0.44	0.35	**10**	4	11	8/1/2017	9/12/2017
Off-Highway Trucks-0250	210	Diesel	1	0.44	0.35	**10**	4	4	8/1/2017	9/12/2017
Off-Highway Trucks-0500	300-500	Diesel	10	0.44	0.30	**10**	3	30	8/1/2017	9/12/2017
Off-Highway Trucks-0500	300	Diesel	4	0.44	0.35	**10**	4	14	8/1/2017	9/12/2017
Off-Highway Trucks-0250	210	Diesel	2	0.44	0.35	**10**	4	7	8/1/2017	9/12/2017
Other General Industrial Equipment-0050	10	Diesel	5	0.34	1.00	**10**	10	50	8/1/2017	9/12/2017
Off-Highway Trucks-0250	200	Diesel	4	0.44	0.25	**10**	3	10	8/1/2017	9/12/2017
Off-Highway Trucks-0500	330	Diesel	2	0.44	0.25	**10**	3	5	8/1/2017	9/12/2017
Tractors/Loaders/Backhoes-0120	87	Diesel	2	0.37	0.25	**10**	3	5	8/1/2017	9/12/2017
Excavators-0500	300	Diesel	1	0.38	0.20	**10**	2	2	8/1/2017	9/12/2017
Construction Equipment Total			***34***							
Demobilization - Site 1 (Continued)										
Crawler Tractors-0175	125	Diesel	2	0.43	0.20	**10**	2	4	8/1/2017	9/12/2017
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013
Construction Equipment Total			***2***							
Demobilization - Site 2										
Off-Highway Trucks-0175	175	Diesel	3	0.44	0.35	**10**	4	11	8/1/2017	9/12/2017
Off-Highway Trucks-0250	210	Diesel	1	0.44	0.35	**10**	4	4	8/1/2017	9/12/2017
Off-Highway Trucks-0500	300-500	Diesel	10	0.44	0.30	**10**	3	30	8/1/2017	9/12/2017
Off-Highway Trucks-0500	300	Diesel	4	0.44	0.35	**10**	4	14	8/1/2017	9/12/2017
Off-Highway Trucks-0250	210	Diesel	2	0.44	0.35	**10**	4	7	8/1/2017	9/12/2017
Other General Industrial Equipment-0050	10	Diesel	5	0.34	1.00	**10**	10	50	8/1/2017	9/12/2017
Off-Highway Trucks-0250	200	Diesel	4	0.44	0.25	**10**	3	10	8/1/2017	9/12/2017
Off-Highway Trucks-0500	330	Diesel	2	0.44	0.25	**10**	3	5	8/1/2017	9/12/2017
Tractors/Loaders/Backhoes-0120	87	Diesel	2	0.37	0.25	**10**	3	5	8/1/2017	9/12/2017
Excavators-0500	300	Diesel	1	0.38	0.20	**10**	2	2	8/1/2017	9/12/2017
Construction Equipment Total			***34***							
Demobilization - Site 2 (Continued)										
Crawler Tractors-0175	125	Diesel	2	0.43	0.20	**10**	2	4	8/1/2017	9/12/2017
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/1/2013	1/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/1/2013	1/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/1/2013	1/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/1/2013	1/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/1/2013	1/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/1/2013	1/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/1/2013	1/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/1/2013	1/3/2014
Construction Equipment Total			***2***							
Demobilization - Site 3										
Off-Highway Trucks-0175	175	Diesel	3	0.44	0.35	**10**	4	11	8/1/2017	9/12/2017
Off-Highway Trucks-0250	210	Diesel	1	0.44	0.35	**10**	4	4	8/1/2017	9/12/2017
Off-Highway Trucks-0500	300-500	Diesel	10	0.44	0.30	**10**	3	30	8/1/2017	9/12/2017
Off-Highway Trucks-0500	300	Diesel	4	0.44	0.35	**10**	4	14	8/1/2017	9/12/2017
Off-Highway Trucks-0250	210	Diesel	2	0.44	0.35	**10**	4	7	8/1/2017	9/12/2017
Other General Industrial Equipment-0050	10	Diesel	5	0.34	1.00	**10**	10	50	8/1/2017	9/12/2017
Off-Highway Trucks-0250	200	Diesel	4	0.44	0.25	**10**	3	10	8/1/2017	9/12/2017
Off-Highway Trucks-0500	330	Diesel	2	0.44	0.25	**10**	3	5	8/1/2017	9/12/2017
Tractors/Loaders/Backhoes-0120	87	Diesel	2	0.37	0.25	**10**	3	5	8/1/2017	9/12/2017
Excavators-0500	300	Diesel	1	0.38	0.20	**10**	2	2	8/1/2017	9/12/2017
Construction Equipment Total			***34***							
Demobilization - Site 3 (Continued)										
Crawler Tractors-0175	125	Diesel	2	0.43	0.20	**10**	2	4	8/1/2017	9/12/2017
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	1/1/2014	3/5/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	1/1/2014	3/5/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	1/1/2014	3/5/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	1/1/2014	3/5/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	1/1/2014	3/5/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	1/1/2014	3/5/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	1/1/2014	3/5/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	1/1/2014	3/5/2014
Construction Equipment Total			***2***							
Demobilization - Site 4										
Off-Highway Trucks-0175	175	Diesel	3	0.44	0.35	**10**	4	11	8/1/2017	9/12/2017
Off-Highway Trucks-0250	210	Diesel	1	0.44	0.35	**10**	4	4	8/1/2017	9/12/2017
Off-Highway Trucks-0500	300-500	Diesel	10	0.44	0.30	**10**	3	30	8/1/2017	9/12/2017
Off-Highway Trucks-0500	300	Diesel	4	0.44	0.35	**10**	4	14	8/1/2017	9/12/2017
Off-Highway Trucks-0250	210	Diesel	2	0.44	0.35	**10**	4	7	8/1/2017	9/12/2017
Other General Industrial Equipment-0050	10	Diesel	5	0.34	1.00	**10**	10	50	8/1/2017	9/12/2017
Off-Highway Trucks-0250	200	Diesel	4	0.44	0.25	**10**	3	10	8/1/2017	9/12/2017
Off-Highway Trucks-0500	330	Diesel	2	0.44	0.25	**10**	3	5	8/1/2017	9/12/2017
Tractors/Loaders/Backhoes-0120	87	Diesel	2	0.37	0.25	**10**	3	5	8/1/2017	9/12/2017
Excavators-0500	300	Diesel	1	0.38	0.20	**10**	2	2	8/1/2017	9/12/2017
Construction Equipment Total			***34***							
Demobilization - Site 4 (Continued)										
Crawler Tractors-0175	125	Diesel	2	0.43	0.20	**10**	2	4	8/1/2017	9/12/2017
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	5/1/2014	7/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	5/1/2014	7/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	5/1/2014	7/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	5/1/2014	7/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	5/1/2014	7/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	5/1/2014	7/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	5/1/2014	7/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	5/1/2014	7/3/2014
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	5/1/2014	7/3/2014

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration	
						Months of Activity	Days of Activity
Demobilization - Site 1							
demobilization - enter area / volume to be demolished	Square Feet to demolish	0		Aug-17	Sep-17	2	30
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Aug-17	Sep-17	2	30
Trucks - Delivery	Number of Vehicles	0	15	Aug-17	Sep-17	2	30
Dust * (emission factor is in lbs/mile)	Number of Vehicles	26	1	Aug-17	Sep-17	2	30
Truck Loading	Number of Vehicles	0	15	Aug-17	Sep-17	2	30
Truck Loading-Dust	ton of mat. removed	0		Aug-17	Sep-17	2	30
Worker Trips	Number of Vehicles	43	40	Aug-17	Sep-17	2	30
Demobilization - Site 1 (Continued)							
demobilization - enter area / volume to be demolished	Square Feet to demolish	0		Aug-17	Sep-17	2	30
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Aug-17	Sep-17	2	30
Trucks - Delivery	Number of Vehicles	0	15	Aug-17	Sep-17	2	30
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Aug-17	Sep-17	2	30
Truck Loading	Number of Vehicles	0	15	Aug-17	Sep-17	2	30
Truck Loading	lb/ton of mat. removed	0		Aug-17	Sep-17	2	30
Worker Trips	Number of Vehicles	3	40	Aug-17	Sep-17	2	30
Demobilization - Site 2							
demobilization - enter area / volume to be demolished	Square Feet to demolish	0		Aug-17	Sep-17	2	30
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Aug-17	Sep-17	2	30
Trucks - Delivery	Number of Vehicles	0	15	Aug-17	Sep-17	2	30
Dust * (emission factor is in lbs/mile)	Number of Vehicles	26	1	Aug-17	Sep-17	2	30
Truck Loading	Number of Vehicles	0	15	Aug-17	Sep-17	2	30
Truck Loading	lb/ton of mat. removed	0		Aug-17	Sep-17	2	30
Worker Trips	Number of Vehicles	43	40	Aug-17	Sep-17	2	30
Demobilization - Site 2 (Continued)							
demobilization - enter area / volume to be demolished	Square Feet to demolish	0		Aug-17	Sep-17	2	30
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Aug-17	Sep-17	2	30
Trucks - Delivery	Number of Vehicles	0	15	Aug-17	Sep-17	2	30
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Aug-17	Sep-17	2	30
Truck Loading	Number of Vehicles	0	15	Aug-17	Sep-17	2	30
Truck Loading	lb/ton of mat. removed	0		Aug-17	Sep-17	2	30
Worker Trips	Number of Vehicles	3	40	Aug-17	Sep-17	2	30
Demobilization - Site 3							
demobilization - enter area / volume to be demolished	Square Feet to demolish	0		Aug-17	Sep-17	2	30
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Aug-17	Sep-17	2	30
Trucks - Delivery	Number of Vehicles	0	15	Aug-17	Sep-17	2	30
Dust * (emission factor is in lbs/mile)	Number of Vehicles	26	1	Aug-17	Sep-17	2	30
Truck Loading	Number of Vehicles	0	15	Aug-17	Sep-17	2	30
Truck Loading	lb/ton of mat. removed	0		Aug-17	Sep-17	2	30
Worker Trips	Number of Vehicles	43	40	Aug-17	Sep-17	2	30
Demobilization - Site 3 (Continued)							
demobilization - enter area / volume to be demolished	Square Feet to demolish	0		Aug-17	Sep-17	2	30
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Aug-17	Sep-17	2	30
Trucks - Delivery	Number of Vehicles	0	15	Aug-17	Sep-17	2	30
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Aug-17	Sep-17	2	30
Truck Loading	Number of Vehicles	0	15	Aug-17	Sep-17	2	30
Truck Loading	lb/ton of mat. removed	0		Aug-17	Sep-17	2	30
Worker Trips	Number of Vehicles	3	40	Aug-17	Sep-17	2	30
Demobilization - Site 4							
demobilization - enter area / volume to be demolished	Square Feet to demolish	0		Aug-17	Sep-17	2	30
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Aug-17	Sep-17	2	30
Trucks - Delivery	Number of Vehicles	0	15	Aug-17	Sep-17	2	30
Dust * (emission factor is in lbs/mile)	Number of Vehicles	26	1	Aug-17	Sep-17	2	30
Truck Loading	Number of Vehicles	0	15	Aug-17	Sep-17	2	30
Truck Loading	lb/ton of mat. removed	0		Aug-17	Sep-17	2	30
Worker Trips	Number of Vehicles	43	40	Aug-17	Sep-17	2	30
Demobilization - Site 4 (Continued)							
demobilization - enter area / volume to be demolished	Square Feet to demolish	0		Aug-17	Sep-17	2	30
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Dirt	Aug-17	Sep-17	2	30
Trucks - Delivery	Number of Vehicles	0	15	Aug-17	Sep-17	2	30
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Aug-17	Sep-17	2	30
Truck Loading	Number of Vehicles	0	15	Aug-17	Sep-17	2	30
Truck Loading	lb/ton of mat. removed	0		Aug-17	Sep-17	2	30
Worker Trips	Number of Vehicles	3	40	Aug-17	Sep-17	2	30

STATIONS

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
Fresno Station										
Graders-0175	174	Diesel	1	0.41	0.75	**8**	6	6	6/1/2018	4/16/2021
Rubber Tired Dozers-0500	357	Diesel	1	0.40	0.75	**8**	6	6	6/1/2018	4/16/2021
Tractors/Loaders/Backhoes-0120	108	Diesel	2	0.37	0.88	**8**	7	14	6/1/2018	4/16/2021
Off-Highway Trucks-0250	189	Diesel	1	0.44	1.00	**8**	8	8	6/1/2018	4/16/2021
Cranes-0500	399	Diesel	1	0.29	0.50	**8**	4	4	6/1/2018	4/16/2021
Forklifts-0175	145	Diesel	2	0.20	0.75	**8**	6	12	6/1/2018	4/16/2021
Other General Industrial Equipment-0050	45	Diesel	3	0.34	1.00	**8**	8	24	6/1/2018	4/16/2021
Other General Industrial Equipment-0050	49	Diesel	1	0.34	1.00	**8**	8	8	6/1/2018	4/16/2021
None-0	0	Diesel	0	0.00	0.25	**8**	2	0	9/1/2015	10/27/2015
None-0	0	Diesel	0	0.00	0.20	**8**	2	0	9/1/2015	10/27/2015
Construction Equipment Total			***12***							

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration	
						Months of Activity	Days of Activity
Fresno Station							
Fresno Station - enter area / volume to be demolished	Square Feet to demolish	0		Jun-18	Apr-21	35	750
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	20	Dirt	Jun-18	Apr-21	35	750
Trucks - Delivery	Number of Vehicles	0	15	Jun-18	Apr-21	35	750
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Jun-18	Apr-21	35	750
Truck Loading	Number of Vehicles	0	15	Jun-18	Apr-21	35	750
Truck Loading-Dust	ton of mat. removed	0		Jun-18	Apr-21	35	750
Worker Trips	Number of Vehicles	15	40	Jun-18	Apr-21	35	750

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
Bakersfield Station										
Graders-0175	174	Diesel	1	0.41	0.75	**8**	6	6	6/1/2019	4/15/2022
Rubber Tired Dozers-0500	357	Diesel	1	0.40	0.75	**8**	6	6	6/1/2019	4/15/2022
Tractors/Loaders/Backhoes-0120	108	Diesel	2	0.37	0.88	**8**	7	14	6/1/2019	4/15/2022
Off-Highway Trucks-0250	189	Diesel	1	0.44	1.00	**8**	8	8	6/1/2019	4/15/2022
Cranes-0500	399	Diesel	1	0.29	0.50	**8**	4	4	6/1/2019	4/15/2022
Forklifts-0175	145	Diesel	2	0.20	0.75	**8**	6	12	6/1/2019	4/15/2022
Other General Industrial Equipment-0050	45	Diesel	3	0.34	1.00	**8**	8	24	6/1/2019	4/15/2022
Other General Industrial Equipment-0050	49	Diesel	1	0.34	1.00	**8**	8	8	6/1/2019	4/15/2022
None-0	0	Diesel	0	0.00	0.25	**8**	2	0	9/1/2015	10/27/2015
None-0	0	Diesel	0	0.00	0.20	**8**	2	0	9/1/2015	10/27/2015
Construction Equipment Total			***12***							

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration	
						Months of Activity	Days of Activity
Bakersfield Station							
BKS Station - enter area / volume to be demolished	Square Feet to demolish	0		Jun-19	Apr-22	35	750
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	20	Dirt	Jun-19	Apr-22	35	750
Trucks - Delivery	Number of Vehicles	0	15	Jun-19	Apr-22	35	750
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Jun-19	Apr-22	35	750
Truck Loading	Number of Vehicles	0	15	Jun-19	Apr-22	35	750
Truck Loading-Dust	ton of mat. removed	0		Jun-19	Apr-22	35	750
Worker Trips	Number of Vehicles	15	40	Jun-19	Apr-22	35	750

HEAVY MAINTENANCE FACILITY

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
HMF Phase 1 & 3										
Graders-0175	174	Diesel	1	0.41	0.35	**8**	3	3	7/1/2018	12/14/2018
Rubber Tired Dozers-0500	357	Diesel	1	0.40	0.65	**8**	5	5	7/1/2018	12/14/2018
Tractors/Loaders/Backhoes-0120	108	Diesel	4	0.37	0.25	**8**	2	8	7/1/2018	12/14/2018
Off-Highway Trucks-0250	189	Diesel	1	0.44	0.65	**8**	5	5	7/1/2018	12/14/2018
Cranes-0500	399	Diesel	1	0.29	0.50	**8**	4	4	7/1/2018	12/14/2018
Forklifts-0175	145	Diesel	2	0.20	0.65	**8**	5	10	7/1/2018	12/14/2018
Excavators-0175	168	Diesel	1	0.38	0.35	**8**	3	3	7/1/2018	12/14/2018
Scrapers-0500	313	Diesel	3	0.48	0.30	**8**	2	7	7/1/2018	12/14/2018
Pavers-0120	100	Diesel	1	0.42	0.55	**8**	4	4	7/1/2018	12/14/2018
Paving Equipment-0120	104	Diesel	2	0.36	0.55	**8**	4	9	7/1/2018	12/14/2018
Construction Equipment Total			***17***							
HMF Phase 1 & 3 (Continued)										
Rollers-0120	95	Diesel	2	0.38	0.35	**8**	3	6	7/1/2018	12/14/2018
Other General Industrial Equipment-0050	49	Diesel	1	0.34	0.80	**8**	6	6	7/1/2018	12/14/2018
Other General Industrial Equipment-0050	45	Diesel	3	0.34	0.70	**8**	6	17	7/1/2018	12/14/2018
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013
Construction Equipment Total			***6***							

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration	
						Months of Activity	Days of Activity
HMF Phase 1 & 3							
HMF Phase 1 & 3 - enter area / volume to be demolished	Square Feet to demolish	0		Jul-18	Dec-18	6	120
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	13	Aggregate	Jul-18	Dec-18	6	120
Trucks - Delivery	Number of Vehicles	0	15	Jul-18	Dec-18	6	120
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Jul-18	Dec-18	6	120
Truck Loading	Number of Vehicles	0	15	Jul-18	Dec-18	6	120
Truck Loading-Dust	ton of mat. removed	0		Jul-18	Dec-18	6	120
Worker Trips	Number of Vehicles	21	40	Jul-18	Dec-18	6	120
HMF Phase 1 & 3 (Continued)							
HMF Phase 1 & 3 - enter area / volume to be demolished	Square Feet to demolish	0		Jul-18	Dec-18	6	120
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Jul-18	Dec-18	6	120
Trucks - Delivery	Number of Vehicles	0	15	Jul-18	Dec-18	6	120
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Jul-18	Dec-18	6	120
Truck Loading	Number of Vehicles	0	15	Jul-18	Dec-18	6	120
Truck Loading	lb/ton of mat. removed	0		Jul-18	Dec-18	6	120
Worker Trips	Number of Vehicles	8	40	Jul-18	Dec-18	6	120

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
HMF Track Phase 3										
Aerial Lifts-0120	60	Diesel	4	100.00	1.00	**1**	1	4	12/1/2018	5/3/2019
Other Construction Equipment-0120	106	Diesel	4	0.42	1.00	**3**	3	12	12/1/2018	5/3/2019
Other Construction Equipment-0050	10	Diesel	1	0.42	1.00	**0**	0	0	12/1/2018	5/3/2019
Other Construction Equipment-0050	10	Diesel	1	0.42	1.00	**0**	0	0	12/1/2018	5/3/2019
Cranes-0500	399	Diesel	2	0.29	1.00	**1**	1	1	12/1/2018	5/3/2019
Cranes-0175	147	Diesel	1	0.29	1.00	**4**	4	4	12/1/2018	5/3/2019
Other Construction Equipment-0050	16	Diesel	1	0.42	1.00	**4**	4	4	12/1/2018	5/3/2019
Excavators-0175	168	Diesel	1	0.38	1.00	**1**	1	1	12/1/2018	5/3/2019
Forklifts-0175	145	Diesel	1	0.20	1.00	**1**	1	1	12/1/2018	5/3/2019
Other Construction Equipment-0750	549	Diesel	1	0.42	1.00	**1**	1	1	12/1/2018	5/3/2019
Construction Equipment Total			***17***							
HMF Track Phase 3 (Continued)										
Forklifts-0175	174	Diesel	1	0.20	1.00	**3**	3	3	12/1/2018	5/3/2019
Off-Highway Trucks-0500	479	Diesel	1	0.44	1.00	**4**	4	4	12/1/2018	5/3/2019
Other Construction Equipment-0050	8	Diesel	1	0.42	1.00	**3**	3	3	12/1/2018	5/3/2019
Other General Industrial Equipment-0050	1	Diesel	1	0.34	1.00	**1**	1	1	12/1/2018	5/3/2019
Rollers-0120	95	Diesel	1	0.38	1.00	**4**	4	4	12/1/2018	5/3/2019
Scrapers-0500	313	Diesel	1	0.48	1.00	**4**	4	4	12/1/2018	5/3/2019
Other Construction Equipment-0050	15	Diesel	1	0.42	1.00	0	0	0	12/1/2018	5/3/2019
Skid Steer Loaders-0050	44	Diesel	1	0.37	1.00	**3**	3	3	12/1/2018	5/3/2019
Tractors/Loaders/Backhoes-0120	108	Diesel	1	0.37	1.00	**4**	4	4	12/1/2018	5/3/2019
Trenchers-0120	63	Diesel	1	0.50	1.00	**3**	3	3	12/1/2018	5/3/2019
Construction Equipment Total			***10***							
HMF Track Phase 3 (Continued)										
Off-Highway Trucks-0250	189	Diesel	1	0.44	1.00	**4**	4	4	12/1/2018	5/3/2019
Other General Industrial Equipment-0050	45	Diesel	1	0.34	1.00	**1**	1	1	12/1/2018	5/3/2019
Other Construction Equipment-0500	500	Diesel	1	0.42	1.00	**4**	4	4	12/1/2018	5/3/2019
Other Construction Equipment-0500	400	Diesel	1	0.42	1.00	**4**	4	4	12/1/2018	5/3/2019
Surfacing Equipment-0500	400	Diesel	0	0.30	1.00	**3**	3	0	12/1/2018	5/3/2019
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/1/2013	12/27/2013
None-0	0	Diesel	0	0.00	0.25	**8**	2	0	11/1/2013	12/27/2013
None-0	0	Diesel	0	0.00	0.25	**8**	2	0	11/1/2013	12/27/2013
None-0	0	Diesel	0	0.00	0.25	**8**	2	0	11/1/2013	12/27/2013
None-0	0	Diesel	0	0.00	0.20	**8**	2	0	11/1/2013	12/27/2013
Construction Equipment Total			***4***							

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration	
						Months of Activity	Days of Activity
HMF Track Phase 3							
HMF Track Phase 3 - enter area / volume to be demolish	Square Feet to demolish	0		Dec-18	May-19	6	110
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Dec-18	May-19	6	110
Trucks - Delivery	Number of Vehicles	0	15	Dec-18	May-19	6	110
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Dec-18	May-19	6	110
Truck Loading	Number of Vehicles	0	15	Dec-18	May-19	6	110
Truck Loading-Dust	ton of mat. removed	0		Dec-18	May-19	6	110
Worker Trips	Number of Vehicles	21	40	Dec-18	May-19	6	110
HMF Track Phase 3 (Continued)							
HMF Track Phase 3 - enter area / volume to be demolish	Square Feet to demolish	0		Dec-18	May-19	6	110
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	4	Aggregate	Dec-18	May-19	6	110
Trucks - Delivery	Number of Vehicles	0	15	Dec-18	May-19	6	110
Dust * (emission factor is in lbs/mile)	Number of Vehicles	1	1	Dec-18	May-19	6	110
Truck Loading	Number of Vehicles	0	15	Dec-18	May-19	6	110
Truck Loading	lb/ton of mat. removed	0		Dec-18	May-19	6	110
Worker Trips	Number of Vehicles	13	40	Dec-18	May-19	6	110
HMF Track Phase 3 (Continued)							
HMF Track Phase 3 - enter area / volume to be demolish	Square Feet to demolish	0		Dec-18	Oct-15	-37	110
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	1	Aggregate	Dec-18	May-19	6	110
Trucks - Delivery	Number of Vehicles	0	15	Dec-18	May-19	6	110
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Dec-18	May-19	6	110
Truck Loading	Number of Vehicles	0	15	Dec-18	May-19	6	110
Truck Loading	lb/ton of mat. removed	0		Dec-18	May-19	6	110
Worker Trips	Number of Vehicles	5	40	Dec-18	May-19	6	110

MAINTENANCE OF WAY FACILITY

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
MOWF										
Graders-0175	174	Diesel	1	0.41	0.35	**8**	3	3	7/1/2018	12/27/2019
Rough Terrain Forklifts-0500	357	Diesel	1	0.40	0.65	**8**	5	5	7/1/2018	12/27/2019
Tractors/Loaders/Backhoes-0120	108	Diesel	4	0.37	0.25	**8**	2	8	7/1/2018	12/27/2019
Off-Highway Trucks-0250	189	Diesel	1	0.44	0.65	**8**	5	5	7/1/2018	12/27/2019
Cranes-0500	399	Diesel	1	0.29	0.50	**6**	3	3	7/1/2018	12/27/2019
Forklifts-0175	145	Diesel	2	0.20	0.65	**6**	4	8	7/1/2018	12/27/2019
Excavators-0175	168	Diesel	1	0.38	0.35	**8**	3	3	7/1/2018	12/27/2019
Scrapers-0500	313	Diesel	3	0.48	0.30	**8**	2	7	7/1/2018	12/27/2019
Pavers-0120	100	Diesel	1	0.42	0.55	**8**	4	4	7/1/2018	12/27/2019
Paving Equipment-0120	104	Diesel	2	0.36	0.55	**8**	4	9	7/1/2018	12/27/2019
Construction Equipment Total			***17***							
MOWF (Continued)										
Rollers-0120	95	Diesel	2	0.38	0.35	**6**	2	4	7/1/2018	12/27/2019
Other Construction Equipment-0050	49	Diesel	1	0.42	0.80	**8**	6	6	7/1/2018	12/27/2019
Other General Industrial Equipment-0050	45	Diesel	3	0.34	0.70	**8**	6	17	7/1/2018	12/27/2019
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	8/2/2013
Construction Equipment Total			***6***							

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration	
						Months of Activity	Days of Activity
MOWF							
mowf - enter area / volume to be demolished	Square Feet to demolish	0		Jul-18	Dec-19	18	390
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	8	Aggregate	Jul-18	Dec-19	18	390
Trucks - Delivery	Number of Vehicles	0	15	Jul-18	Dec-19	18	390
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Jul-18	Dec-19	18	390
Truck Loading	Number of Vehicles	0	15	Jul-18	Dec-19	18	390
Truck Loading-Dust	ton of mat. removed	0		Jul-18	Dec-19	18	390
Worker Trips	Number of Vehicles	21	40	Jul-18	Dec-19	18	390
MOWF (Continued)							
mowf - enter area / volume to be demolished	Square Feet to demolish	0		Jul-18	Dec-19	18	390
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Jul-18	Dec-19	18	390
Trucks - Delivery	Number of Vehicles	0	15	Jul-18	Dec-19	18	390
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Jul-18	Dec-19	18	390
Truck Loading	Number of Vehicles	0	15	Jul-18	Dec-19	18	390
Truck Loading	lb/ton of mat. removed	0		Jul-18	Dec-19	18	390
Worker Trips	Number of Vehicles	8	40	Jul-18	Dec-19	18	390

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
MOWF Track										
Aerial Lifts-0120	60	Diesel	1	100.00	1.00	**1**	1	1	12/1/2018	2/1/2019
Other Construction Equipment-0120	106	Diesel	1	0.42	1.00	**3**	3	3	12/1/2018	2/1/2019
Bore/Drill Rigs-0500	291	Diesel	1	0.50	1.00	0	0	0	12/1/2018	2/1/2019
Other Construction Equipment-0050	10	Diesel	1	0.42	1.00	**0**	0	0	12/1/2018	2/1/2019
Other Construction Equipment-0050	10	Diesel	1	0.42	1.00	**0**	0	0	12/1/2018	2/1/2019
Cranes-0500	399	Diesel	1	0.29	1.00	**1**	1	1	12/1/2018	2/1/2019
Crawler Tractors-0175	147	Diesel	1	0.43	1.00	**4**	4	4	12/1/2018	2/1/2019
Other Construction Equipment-0175	142	Diesel	1	0.42	1.00	0	0	0	12/1/2018	2/1/2019
Other Construction Equipment-0050	16	Diesel	1	0.42	1.00	**4**	4	4	12/1/2018	2/1/2019
Excavators-0175	168	Diesel	1	0.38	1.00	**1**	1	1	12/1/2018	2/1/2019
Construction Equipment Total			***10***							
MOWF Track (Continued)										
Forklifts-0175	145	Diesel	1	0.20	1.00	**1**	1	1	12/1/2018	2/1/2019
Other Construction Equipment-0750	549	Diesel	1	0.42	1.00	**1**	1	1	12/1/2018	2/1/2019
Graders-0175	174	Diesel	1	0.41	1.00	**3**	3	3	12/1/2018	2/1/2019
Off-Highway Tractors-0500	267	Diesel	1	0.44	1.00	**3**	3	3	12/1/2018	2/1/2019
Off-Highway Trucks-0500	479	Diesel	1	0.44	1.00	**4**	4	4	12/1/2018	2/1/2019
Other Construction Equipment-0050	8	Diesel	1	0.42	1.00	**3**	3	3	12/1/2018	2/1/2019
Other General Industrial Equipment-0050	1	Diesel	1	0.34	1.00	**1**	1	1	12/1/2018	2/1/2019
Rollers-0120	95	Diesel	1	0.38	1.00	**4**	4	4	12/1/2018	2/1/2019
Rough Terrain Forklifts-0120	93	Diesel	1	0.40	1.00	**1**	1	1	12/1/2018	2/1/2019
Scrapers-0500	313	Diesel	1	0.48	1.00	**4**	4	4	12/1/2018	2/1/2019
Construction Equipment Total			***10***							
MOWF Track (Continued)										
Other Construction Equipment-0050	15	Diesel	1	0.42	1.00	0	0	0	12/1/2018	2/1/2019
Skid Steer Loaders-0050	44	Diesel	1	0.37	1.00	**3**	3	3	12/1/2018	2/1/2019
Surfacing Equipment-0500	362	Diesel	1	0.30	1.00	**3**	3	3	12/1/2018	2/1/2019
Sweepers/Scrubbers-0120	91	Diesel	1	0.46	1.00	**1**	1	1	12/1/2018	2/1/2019
Tractors/Loaders/Backhoes-0120	108	Diesel	1	0.37	1.00	**4**	4	4	12/1/2018	2/1/2019
Trenchers-0120	63	Diesel	1	0.50	1.00	**3**	3	3	12/1/2018	2/1/2019
Off-Highway Trucks-0250	189	Diesel	1	0.44	1.00	**4**	4	4	12/1/2018	2/1/2019
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/1/2013	12/27/2013
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/1/2013	12/27/2013
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	11/1/2013	12/27/2013
Construction Equipment Total			***7***							

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration	
						Months of Activity	Days of Activity
MOWF Track							
mowf - enter area / volume to be demolished	Square Feet to demolish	0		Dec-18	Feb-19	3	45
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	4	Aggregate	Dec-18	Feb-19	3	45
Trucks - Delivery	Number of Vehicles	0	15	Dec-18	Feb-19	3	45
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Dec-18	Feb-19	3	45
Truck Loading	Number of Vehicles	0	15	Dec-18	Feb-19	3	45
Truck Loading-Dust	ton of mat. removed	0		Dec-18	Feb-19	3	45
Worker Trips	Number of Vehicles	13	40	Dec-18	Feb-19	3	45
MOWF Track (Continued)							
mowf - enter area / volume to be demolished	Square Feet to demolish	0		Dec-18	Feb-19	3	45
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	0	Aggregate	Dec-18	Feb-19	3	45
Trucks - Delivery	Number of Vehicles	0	15	Dec-18	Feb-19	3	45
Dust * (emission factor is in lbs/mile)	Number of Vehicles	2	1	Dec-18	Feb-19	3	45
Truck Loading	Number of Vehicles	0	15	Dec-18	Feb-19	3	45
Truck Loading	lb/ton of mat. removed	0		Dec-18	Feb-19	3	45
Worker Trips	Number of Vehicles	13	40	Dec-18	Feb-19	3	45
MOWF Track (Continued)							
mowf - enter area / volume to be demolished	Square Feet to demolish	0		Dec-18	Feb-16	-33	45
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	4	Aggregate	Dec-18	Feb-19	3	45
Trucks - Delivery	Number of Vehicles	0	15	Dec-18	Feb-19	3	45
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Dec-18	Feb-19	3	45
Truck Loading	Number of Vehicles	0	15	Dec-18	Feb-19	3	45
Truck Loading	lb/ton of mat. removed	0		Dec-18	Feb-19	3	45
Worker Trips	Number of Vehicles	9	40	Dec-18	Feb-19	3	45

PARALLELLING STATIONS

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
PPSS - Sites 1-15 Concurrent										
Graders-0175	174	Diesel	15	0.41	1.00	**6**	6	90	7/1/2019	1/13/2020
Rubber Tired Dozers-0500	357	Diesel	15	0.40	1.00	**6**	6	90	7/1/2019	1/13/2020
Tractors/Loaders/Backhoes-0120	108	Diesel	30	0.37	1.00	**7**	7	210	7/1/2019	1/13/2020
Off-Highway Trucks-0250	189	Diesel	15	0.44	1.00	**8**	8	120	7/1/2019	1/13/2020
Cranes-0500	399	Diesel	15	0.29	1.00	**4**	4	60	7/1/2019	1/13/2020
Forklifts-0175	145	Diesel	30	0.20	1.00	**6**	6	180	7/1/2019	1/13/2020
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	4/1/2016	5/27/2016
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	4/1/2016	5/27/2016
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	4/1/2016	5/27/2016
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	4/1/2016	5/27/2016
Construction Equipment Total			***120***							
PPSS - Sites 16 & 17 Concurrent										
Graders-0175	174	Diesel	2	0.41	1.00	**6**	6	12	7/1/2020	1/13/2021
Rubber Tired Dozers-0500	357	Diesel	2	0.40	1.00	**6**	6	12	7/1/2020	1/13/2021
Tractors/Loaders/Backhoes-0120	108	Diesel	4	0.37	1.00	**7**	7	28	7/1/2020	1/13/2021
Off-Highway Trucks-0250	189	Diesel	2	0.44	1.00	**8**	8	16	7/1/2020	1/13/2021
Cranes-0500	399	Diesel	2	0.29	1.00	**4**	4	8	7/1/2020	1/13/2021
Forklifts-0175	145	Diesel	4	0.20	1.00	**6**	6	24	7/1/2020	1/13/2021
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	4/1/2016	5/27/2016
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	4/1/2016	5/27/2016
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	4/1/2016	5/27/2016
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	4/1/2016	5/27/2016
Construction Equipment Total			***16***							

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration	
						Months of Activity	Days of Activity
PPSS - Sites 1-15 Concurrent							
mowf - enter area / volume to be demolished	Square Feet to demolish	0		Jul-19	Jan-20	7	140
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	90	Aggregate	Jul-19	Jan-20	7	140
Trucks - Delivery	Number of Vehicles	0	15	Jul-19	Jan-20	7	140
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Jul-19	Jan-20	7	140
Truck Loading	Number of Vehicles	0	15	Jul-19	Jan-20	7	140
Truck Loading-Dust	ton of mat. removed	0		Jul-19	Jan-20	7	140
Worker Trips	Number of Vehicles	150	40	Jul-19	Jan-20	7	140
PPSS - Sites 16 & 17 Concurrent							
mowf - enter area / volume to be demolished	Square Feet to demolish	0		Jul-20	Jan-21	7	140
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	12	Aggregate	Jul-20	Jan-21	7	140
Trucks - Delivery	Number of Vehicles	0	15	Jul-20	Jan-21	7	140
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Jul-20	Jan-21	7	140
Truck Loading	Number of Vehicles	0	15	Jul-20	Jan-21	7	140
Truck Loading	lb/ton of mat. removed	0		Jul-20	Jan-21	7	140
Worker Trips	Number of Vehicles	20	40	Jul-20	Jan-21	7	140

SWITCHING STATIONS

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
SPSS - Sites 1-5 Councurrent										
Graders-0175	174	Diesel	5	0.41	1.00	**6**	6	30	3/1/2019	1/23/2020
Rubber Tired Dozers-0500	357	Diesel	5	0.40	1.00	**6**	6	30	3/1/2019	1/23/2020
Tractors/Loaders/Backhoes-0120	108	Diesel	10	0.37	1.00	**7**	7	70	3/1/2019	1/23/2020
Off-Highway Trucks-0250	189	Diesel	5	0.44	1.00	**8**	8	40	3/1/2019	1/23/2020
Cranes-0500	399	Diesel	5	0.29	1.00	**4**	4	20	3/1/2019	1/23/2020
Forklifts-0175	145	Diesel	10	0.20	1.00	**6**	6	60	3/1/2019	1/23/2020
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	7/26/2013
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	7/26/2013
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	7/26/2013
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	6/1/2013	7/26/2013
Construction Equipment Total			***40***							

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration	
						Months of Activity	Days of Activity
SPSS - Sites 1-5 Councurrent							
Demolition - enter area / volume to be demolished	Square Feet to demolish	0		Mar-19	Jan-20	11	234
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	30	Aggregate	Mar-19	Jan-20	11	234
Trucks - Delivery	Number of Vehicles	0	15	Mar-19	Jan-20	11	234
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Mar-19	Jan-20	11	234
Truck Loading	Number of Vehicles	0	15	Mar-19	Jan-20	11	234
Truck Loading-Dust	ton of mat. removed	0		Mar-19	Jan-20	11	234
Worker Trips	Number of Vehicles	50	40	Mar-19	Jan-20	11	234

TRACTION POWER SUPPLY STATIONS

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
TPSS - Sites 1-4 Concurrent										
Graders-0175	174	Diesel	4	0.41	1.00	**6**	6	24	8/1/2018	1/29/2020
Rubber Tired Dozers-0500	357	Diesel	4	0.40	1.00	**6**	6	24	8/1/2018	1/29/2020
Tractors/Loaders/Backhoes-0120	108	Diesel	8	0.37	1.00	**7**	7	56	8/1/2018	1/29/2020
Off-Highway Trucks-0250	189	Diesel	4	0.44	1.00	**8**	8	32	8/1/2018	1/29/2020
Cranes-0500	399	Diesel	4	0.29	1.00	**4**	4	16	8/1/2018	1/29/2020
Forklifts-0175	145	Diesel	8	0.20	1.00	**6**	6	48	8/1/2018	1/29/2020
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	4/1/2016	5/27/2016
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	4/1/2016	5/27/2016
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	4/1/2016	5/27/2016
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	4/1/2016	5/27/2016
Construction Equipment Total			***32***							
TPSS - Site 5										
Graders-0175	174	Diesel	1	0.41	1.00	**6**	6	6	8/1/2019	1/28/2021
Rubber Tired Dozers-0500	357	Diesel	1	0.40	1.00	**6**	6	6	8/1/2019	1/28/2021
Tractors/Loaders/Backhoes-0120	108	Diesel	2	0.37	1.00	**7**	7	14	8/1/2019	1/28/2021
Off-Highway Trucks-0250	189	Diesel	1	0.44	1.00	**8**	8	8	8/1/2019	1/28/2021
Cranes-0500	399	Diesel	1	0.29	1.00	**4**	4	4	8/1/2019	1/28/2021
Forklifts-0175	145	Diesel	2	0.20	1.00	**6**	6	12	8/1/2019	1/28/2021
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	4/1/2016	5/27/2016
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	4/1/2016	5/27/2016
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	4/1/2016	5/27/2016
None-0	0	Diesel	0	0.00	1.00	**8**	8	0	4/1/2016	5/27/2016
Construction Equipment Total			***8***							

Construction Dirt Handling, Hauling and Truck, Worker Trips	Units	Amount	Total Miles per Trip	Start Date	End Date	Construction Activity Duration	
						Months of Activity	Days of Activity
TPSS - Sites 1-4 Concurrent							
Demolition - enter area / volume to be demolished	Square Feet to demolish	0		Aug-18	Jan-20	18	390
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	24	Aggregate	Aug-18	Jan-20	18	390
Trucks - Delivery	Number of Vehicles	0	15	Aug-18	Jan-20	18	390
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Aug-18	Jan-20	18	390
Truck Loading	Number of Vehicles	0	15	Aug-18	Jan-20	18	390
Truck Loading-Dust	ton of mat. removed	0		Aug-18	Jan-20	18	390
Worker Trips	Number of Vehicles	40	40	Aug-18	Jan-20	18	390
TPSS - Site 5							
Demolition - enter area / volume to be demolished	Square Feet to demolish	0		Aug-19	Jan-21	18	390
Bulldozing (includes grading, excavating and trenching)	Hours of activity per day	6	Aggregate	Aug-19	Jan-21	18	390
Trucks - Delivery	Number of Vehicles	0	15	Aug-19	Jan-21	18	390
Dust * (emission factor is in lbs/mile)	Number of Vehicles	0	1	Aug-19	Jan-21	18	390
Truck Loading	Number of Vehicles	0	15	Aug-19	Jan-21	18	390
Truck Loading	lb/ton of mat. removed	0		Aug-19	Jan-21	18	390
Worker Trips	Number of Vehicles	10	40	Aug-19	Jan-21	18	390

HST Material Hauling

Data Taken from Project Descriptions or Provided

Estimated Values

Data used in calculations

Truck Capacity

20	cy/truck
30	tons/truck

HST Alignment Construction Haul Trucks [(1), (2)]

Source Geography [(4)]	Material Hauled	Total Quantity	Units	Possible Material Origin Location	Average Distance Travelled within air basin (One-way)	Duration of Activity (Years)	Duration of Activity (Days)		Duration of Activity (Years)	Haul (miles) Round Trips
L	Fill (Import)	11,300,000	cy	Between Fresno and Bakersfield	15	1.5	550		1.5	15
R	Sub-Ballast	1,229,930	cy	Bay Area, Sacramento, Riverside	15	1.5	1300	BY RAIL	1.5	15
R	Ballast	1,229,930	cy	Bay Area, Sacramento, Riverside	10	1.5	1300	BY RAIL	1.5	10
L	Concrete Railway Ties	655,000	each	Between Fresno and Bakersfield	10	1.0	1200	BY RAIL	1	10
N	Rail [(3)]	2,600,000	LF	Out of state. Only one time delivery	10	1.0	1200	BY RAIL	1	10
L/R	Reinforcing Steel (Manufacture & Fabricate)	156,000	Ton	Livermore, Fresno, Bakersfield, Pomona	10	2.0	1200		2	10
F/N	Structural Steel (Manufacture & Fabricate)	21,000	Ton	Out of state.	10	2.0	750		2	10
L	Structural Concrete	1,812,780	cy	Concrete Batch plant to construction site 7.3 miles away	15	3.0	1200		3	15
R/L	Cement for structures	445,037	tons	Cupertino, Ventura, Riverside, Long Beach	15	2.0	1200		2	15
R/L	Sand for structures	1,294,325	tons	Cupertino, Ventura, Riverside, Long Beach	15	2.0	1200		2	15
R/L	Aggregate for structures	1,690,417	tons	Cupertino, Ventura, Riverside, Long Beach	15	2.0	1200		2	15

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	Year of Activity							
				2013	2014	2015	2016	2017			2018
Fill (Import)	565,000	1.5	30	1.0	1.0	0.2	0.0	0.0			0.0
Sub-Ballast	61,497	1.5	30	0.2	1.0	1.0	1.0	1.0			1.0
Ballast	61,497	1.5	20	0.2	1.0	1.0	1.0	1.0			1.0
Concrete Railway Ties	10,917	1.0	20	0.0	0.8	1.0	1.0	1.0			1.0
Reinforcing Steel (Manufacture & Fabricate)	5,200	2.0	20	0.0	0.8	1.0	1.0	1.0			1.0
Structural Steel (Manufacture & Fabricate)	700	2.0	20	0.0	0.0	0.0	1.0	1.0			1.0
Structural Concrete	90,639	3.0	30	0.0	0.8	1.0	1.0	1.0			1.0
Cement for structures	14,835	2.0	30	0.0	0.8	1.0	1.0	1.0			1.0
Sand for structures	43,144	2.0	30	0.0	0.8	1.0	1.0	1.0			1.0
Aggregate for structures	56,347	2.0	30	0.0	0.8	1.0	1.0	1.0			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

Material Hauled	Number of Miles Driven per Year					
	2013	2014	2015	2016	2017	2018
Fill (Import)	11,300,000	11,300,000	2,260,000	-	-	-
Sub-Ballast	245,986	1,229,930	1,229,930	1,229,930	1,229,930	1,229,930
Ballast	163,991	819,953	819,953	819,953	819,953	819,953
Concrete Railway Ties	-	174,667	218,333	218,333	218,333	218,333
Reinforcing Steel (Manufacture & Fabricate)	-	41,600	52,000	52,000	52,000	52,000
Structural Steel (Manufacture & Fabricate)	-	-	-	7,000	7,000	7,000

Structural Concrete	-	725,112	906,390	906,390	906,390	906,390
Cement for structures	-	178,015	222,519	222,519	222,519	222,519
Sand for structures	-	517,730	647,162	647,162	647,162	647,162
Aggregate for structures	-	676,167	845,209	845,209	845,209	845,209
Total	11,709,977	15,663,174	7,201,497	4,948,497	4,948,497	4,948,497

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.

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 EMFAC2007							
	Unmitigated Grams per Mile							
uipment Descript	**CO**	**NO_x**	**PM_{10}**	**$PM_{2.5}$**	**ROG**	SO_2	**CO_2**	**CH_4**
HHDT 2013	2.65	11.27	0.52	0.44	0.60	0.016	1,662.35	0.03
HHDT 2014	2.47	9.86	0.47	0.40	0.54	0.016	1,662.35	0.03
HHDT 2015	2.29	8.59	0.43	0.36	0.48	0.016	1,662.35	0.02
HHDT 2016	2.13	7.47	0.39	0.32	0.43	0.016	1,662.35	0.02
HHDT 2017	1.98	6.50	0.35	0.29	0.38	0.016	1,662.35	0.02
HHDT 2018	1.84	5.66	0.30	0.26	0.34	0.016	1,662.35	0.02

	DATA FROM EMFAC2007							
	Mitigated Grams per Mile							
uipment Descript	**CO**	**NO_x**	**PM_{10}**	**$PM_{2.5}$**	**ROG**	SO_2	**CO_2**	**CH_4**
HHDT 2013	0.85	1.32	0.14	0.09	0.12	0.016	1,662	0.01
HHDT 2014	0.89	1.41	0.15	0.10	0.12	0.016	1,662	0.01
HHDT 2015	0.92	1.49	0.15	0.10	0.13	0.016	1,662	0.01
HHDT 2016	0.95	1.57	0.15	0.10	0.13	0.016	1,662	0.01
HHDT 2017	0.98	1.64	0.16	0.11	0.14	0.016	1,662	0.01
HHDT 2018	1.00	1.70	0.16	0.11	0.14	0.016	1,662	0.01

HST Material Hauling Emissions

uipment Descript	Unmitigated Tons per Year [1]							
	CO	NO_x	PM_{10}	$PM_{2.5}$	ROG	SO_2	CO_2	CH_4
HHDT 2013	34.21	145.28	6.67	5.65	7.76	0.21	21,438	0.36
HHDT 2014	42.56	170.05	8.12	6.81	9.30	0.28	28,676	0.43
HHDT 2015	18.16	68.09	3.39	2.82	3.81	0.13	13,184	0.17
HHDT 2016	11.59	40.71	2.12	1.74	2.33	0.09	9,060	0.11
HHDT 2017	10.77	35.40	1.92	1.56	2.08	0.09	9,060	0.10
HHDT 2018	10.01	30.82	1.64	1.41	1.86	0.09	9,060	0.09

uipment Descript	Mitigated Tons per Year [2]							
	CO	NO_x	PM_{10}	$PM_{2.5}$	ROG	SO_2	CO_2	CH_4
HHDT 2013	10.96	16.97	1.81	1.17	1.52	0.21	21,438	0.06
HHDT 2014	15.32	24.32	2.50	1.64	2.12	0.28	28,676	0.10
HHDT 2015	7.30	11.85	1.18	0.79	1.01	0.13	13,184	0.05
HHDT 2016	5.18	8.57	0.83	0.56	0.71	0.09	9,060	0.03
HHDT 2017	5.31	8.95	0.85	0.57	0.74	0.09	9,060	0.03
HHDT 2018	5.43	9.28	0.86	0.59	0.75	0.09	9,060	0.03

Notes

1 .Unmitigated:

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

2. Mitigated:

Exhaust emissions were mitigated by using only trucks of model year 2010 or newer.

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	15	0.125		0.125	15
R	Sub-Ballast	8,043	cy	Bay Area, Sacramento, Riverside	15	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	10	0.125	BY RAIL	0.125	10
L	Structural Concrete	11,854	cy	7.3 miles away	15	0.125	BY RAIL	0.125	10
R/L	Cement for structures	2,910	tons	Cupertino, Ventura, Riverside, Long Beach	15	0.125		0.125	10
R/L	Sand for structures	8,464	tons	Cupertino, Ventura, Riverside, Long Beach	15	0.125		0.125	15
R/L	structures	11,054	tons	Cupertino, Ventura, Riverside, Long Beach	15	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	15	0.125		0.125	15
R	Sub-Ballast	5,429	cy	Bay Area, Sacramento, Riverside	15	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	10	0.125		0.125	10
L	Structural Concrete	184,642	cy	7.3 miles away	15	0.125		0.125	10
R/L	Cement for structures	123,200	tons	Cupertino, Ventura, Riverside, Long Beach	15	0.125		0.125	10
R/L	Sand for structures	291,200	tons	Cupertino, Ventura, Riverside, Long Beach	15	0.125		0.125	15
R/L	Aggregate for structures	459,200	tons	Cupertino, Ventura, Riverside, Long Beach	15	0.125		0.125	15

(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

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)	Duration of Activity (Years)	Truck Haul (miles) Round Trips
R	Sub-Ballast	1,243,402	cy	2,611,143	tons	Riverside	56	1.5	375	1.5	15
R	Sub-Ballast	1,243,402	cy	2,611,143	tons	Sacramento	158	1.5	375	1.5	15
R	Ballast	1,244,969	cy	2,614,434	tons	Riverside	56	1.5	375	1.5	10
R	Ballast	1,244,969	cy	2,614,434	tons	Sacramento	158	1.0	250	1	10

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	626,680	625,891
2015	626,680	625,891
2016	626,680	625,891
2017	438,702	438,150
2018	2,876	2,872
2021	311,379	310,987

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

by California ARB

(3) 2014 was assumed to be the most conservative year, so rail emission factors in 2014 were used for all years.

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	4.23	21.47	0.57	0.56	0.97	0.02	1,624.96
Rail from Riverside 2015	4.23	21.47	0.57	0.56	0.97	0.02	1,624.96
Rail from Riverside 2016	4.23	21.47	0.57	0.56	0.97	0.02	1,624.96
Rail from Riverside 2017	2.96	15.03	0.40	0.39	0.68	0.01	1,137.54
Rail from Riverside 2018	0.02	0.10	0.00	0.00	0.00	0.00	7.46
Rail from Riverside 2021	2.10	10.67	0.28	0.28	0.48	0.01	807.39

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	12.00	60.85	1.62	1.57	2.75	0.04	4,605.25
Rail from Bay Area, Sacramento 2015	12.00	60.85	1.62	1.57	2.75	0.04	4,605.25
Rail from Bay Area, Sacramento 2016	12.00	60.85	1.62	1.57	2.75	0.04	4,605.25
Rail from Bay Area, Sacramento 2017	8.40	42.60	1.14	1.10	1.92	0.03	3,223.87
Rail from Bay Area, Sacramento 2018	0.06	0.28	0.01	0.01	0.01	0.00	21.13
Rail from Bay Area, Sacramento 2021	5.96	30.23	0.81	0.78	1.37	0.02	2,288.22

Notes

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

Construction Equipment - From ARB Nonroad 2011 model				
	Equipment Rated HP (2) hp/hr		Average Daily Load Factor	Average Daily Utilization Rate
Aerial Lifts	0050	Aerial Lifts-0050	0.31	1.00
Aerial Lifts	0120	Aerial Lifts-0120	100.00	1.00
Aerial Lifts	0175	Aerial Lifts-0175	200.00	1.00
Aerial Lifts	0250	Aerial Lifts-0250	300.00	1.00
Aerial Lifts	0500	Aerial Lifts-0500	400.00	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	Off-Highway Tractors-0050	0.44	1.00
Off-Highway Tractors	0120	Off-Highway Tractors-0120	0.44	1.00
Off-Highway Tractors	0175	Off-Highway Tractors-0175	0.44	1.00

Off-Highway Tractors	0250	Off-Highway Tractors-0250	0.44	1.00
Off-Highway Tractors	0500	Off-Highway Tractors-0500	0.44	1.00
Off-Highway Tractors	0750	Off-Highway Tractors-0750	0.44	1.00
Off-Highway Tractors	1000	Off-Highway Tractors-1000	0.44	1.00
Off-Highway Tractors	9999	Off-Highway Tractors-9999	0.44	1.00
Off-Highway Trucks	0050	Off-Highway Trucks-0050	0.44	1.00
Off-Highway Trucks	0120	Off-Highway Trucks-0120	0.44	1.00
Off-Highway Trucks	0175	Off-Highway Trucks-0175	0.44	1.00
Off-Highway Trucks	0250	Off-Highway Trucks-0250	0.44	1.00
Off-Highway Trucks	0500	Off-Highway Trucks-0500	0.44	1.00
Off-Highway Trucks	0750	Off-Highway Trucks-0750	0.44	1.00
Off-Highway Trucks	1000	Off-Highway Trucks-1000	0.44	1.00
Off-Highway Trucks	9999	Off-Highway Trucks-9999	0.44	1.00
Other Construction Equipment	0050	Other Construction Equipment-0050	0.42	1.00
Other Construction Equipment	0120	Other Construction Equipment-0120	0.42	1.00
Other Construction Equipment	0175	Other Construction Equipment-0175	0.42	1.00
Other Construction Equipment	0250	Other Construction Equipment-0250	0.42	1.00
Other Construction Equipment	0500	Other Construction Equipment-0500	0.42	1.00
Other Construction Equipment	0750	Other Construction Equipment-0750	0.42	1.00
Other Construction Equipment	1000	Other Construction Equipment-1000	0.42	1.00
Other Construction Equipment	9999	Other Construction Equipment-9999	0.42	1.00
Other General Industrial Equipment	0050	Other General Industrial Equipment-0050	0.34	1.00
Other General Industrial Equipment	0120	Other General Industrial Equipment-0120	0.34	1.00
Other General Industrial Equipment	0175	Other General Industrial Equipment-0175	0.34	1.00
Other General Industrial Equipment	0250	Other General Industrial Equipment-0250	0.34	1.00
Other General Industrial Equipment	0500	Other General Industrial Equipment-0500	0.34	1.00
Other General Industrial Equipment	0750	Other General Industrial Equipment-0750	0.34	1.00
Other General Industrial Equipment	1000	Other General Industrial Equipment-1000	0.34	1.00
Other General Industrial Equipment	9999	Other General Industrial Equipment-9999	0.34	1.00
Other Material Handling Equipment	0050	Other Material Handling Equipment-0050	0.3953	1.00
Other Material Handling Equipment	0120	Other Material Handling Equipment-0120	0.3953	1.00
Other Material Handling Equipment	0175	Other Material Handling Equipment-0175	0.3953	1.00
Other Material Handling Equipment	0250	Other Material Handling Equipment-0250	0.3953	1.00
Other Material Handling Equipment	0500	Other Material Handling Equipment-0500	0.3953	1.00
Other Material Handling Equipment	0750	Other Material Handling Equipment-0750	0.3953	1.00
Other Material Handling Equipment	1000	Other Material Handling Equipment-1000	0.3953	1.00
Other Material Handling Equipment	9999	Other Material Handling 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	Paving Equipment-0050	0.3551	1.00
Paving Equipment	0120	Paving Equipment-0120	0.3551	1.00
Paving Equipment	0175	Paving Equipment-0175	0.3551	1.00
Paving Equipment	0250	Paving Equipment-0250	0.3551	1.00
Paving Equipment	0500	Paving Equipment-0500	0.3551	1.00
Paving Equipment	0750	Paving Equipment-0750	0.3551	1.00
Paving Equipment	1000	Paving 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	Rough Terrain Forklifts-0050	0.402	1.00
Rough Terrain Forklifts	0120	Rough Terrain Forklifts-0120	0.402	1.00
Rough Terrain Forklifts	0175	Rough Terrain Forklifts-0175	0.402	1.00
Rough Terrain Forklifts	0250	Rough Terrain Forklifts-0250	0.402	1.00

Rough Terrain Forklifts	0500	Rough Terrain Forklifts-0500	0.402	1.00
Rough Terrain Forklifts	0750	Rough Terrain Forklifts-0750	0.402	1.00
Rubber Tired Dozers	0050	Rubber Tired Dozers-0050	0.3953	1.00
Rubber Tired Dozers	0120	Rubber Tired Dozers-0120	0.3953	1.00
Rubber Tired Dozers	0175	Rubber Tired Dozers-0175	0.3953	1.00
Rubber Tired Dozers	0250	Rubber Tired Dozers-0250	0.3953	1.00
Rubber Tired Dozers	0500	Rubber Tired Dozers-0500	0.3953	1.00
Rubber Tired Dozers	0750	Rubber Tired Dozers-0750	0.3953	1.00
Rubber Tired Loaders	0050	Rubber Tired Loaders-0050	0.3618	1.00
Rubber Tired Loaders	0120	Rubber Tired Loaders-0120	0.3618	1.00
Rubber Tired Loaders	0175	Rubber Tired Loaders-0175	0.3618	1.00
Rubber Tired Loaders	0250	Rubber Tired Loaders-0250	0.3618	1.00
Rubber Tired Loaders	0500	Rubber Tired Loaders-0500	0.3618	1.00
Rubber Tired Loaders	0750	Rubber Tired Loaders-0750	0.3618	1.00
Rubber Tired Loaders	1000	Rubber Tired Loaders-1000	0.3618	1.00
Rubber Tired Loaders	9999	Rubber 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	Skid Steer Loaders-0050	0.3685	1.00
Skid Steer Loaders	0120	Skid Steer Loaders-0120	0.3685	1.00
Skid Steer Loaders	0175	Skid Steer Loaders-0175	0.3685	1.00
Skid Steer Loaders	0250	Skid Steer Loaders-0250	0.3685	1.00
Skid Steer Loaders	0500	Skid Steer Loaders-0500	0.3685	1.00
Skid Steer Loaders	0750	Skid Steer Loaders-0750	0.3685	1.00
Skid Steer Loaders	1000	Skid Steer Loaders-1000	0.3685	1.00
Surfacing Equipment	0050	Surfacing Equipment-0050	0.3015	1.00
Surfacing Equipment	0120	Surfacing Equipment-0120	0.3015	1.00
Surfacing Equipment	0175	Surfacing Equipment-0175	0.3015	1.00
Surfacing Equipment	0250	Surfacing Equipment-0250	0.3015	1.00
Surfacing Equipment	0500	Surfacing Equipment-0500	0.3015	1.00
Surfacing Equipment	0750	Surfacing Equipment-0750	0.3015	1.00
Surfacing Equipment	1000	Surfacing Equipment-1000	0.3015	1.00
Surfacing Equipment	9999	Surfacing Equipment-9999	0.3015	1.00
Sweepers/Scrubbers	0050	Sweepers/Scrubbers-0050	0.4556	1.00
Sweepers/Scrubbers	0120	Sweepers/Scrubbers-0120	0.4556	1.00
Sweepers/Scrubbers	0175	Sweepers/Scrubbers-0175	0.4556	1.00
Sweepers/Scrubbers	0250	Sweepers/Scrubbers-0250	0.4556	1.00
Sweepers/Scrubbers	0500	Sweepers/Scrubbers-0500	0.4556	1.00
Sweepers/Scrubbers	1000	Sweepers/Scrubbers-1000	0.4556	1.00
Tractors/Loaders/Backhoes	0050	Tractors/Loaders/Backhoes-0050	0.3685	1.00
Tractors/Loaders/Backhoes	0120	Tractors/Loaders/Backhoes-0120	0.3685	1.00
Tractors/Loaders/Backhoes	0175	Tractors/Loaders/Backhoes-0175	0.3685	1.00
Tractors/Loaders/Backhoes	0250	Tractors/Loaders/Backhoes-0250	0.3685	1.00
Tractors/Loaders/Backhoes	0500	Tractors/Loaders/Backhoes-0500	0.3685	1.00
Tractors/Loaders/Backhoes	0750	Tractors/Loaders/Backhoes-0750	0.3685	1.00
Tractors/Loaders/Backhoes	1000	Tractors/Loaders/Backhoes-1000	0.3685	1.00
Tractors/Loaders/Backhoes	9999	Tractors/Loaders/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

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**

NOx EMISSION FACTORS

Equipment Type		HorsepowerBin	BaseNOx grams/hr										
			2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Aerial Lifts	Aerial Lifts-0050	0050	66.33234499	61.64487676	58.29060272	55.988564	52.2891762	49.42309455	46.0377152	44.1122847	42.0624647	41.477974	41.1164645
Aerial Lifts	Aerial Lifts-0120	0120	100.0902605	89.87809312	77.33851968	71.490221	61.9738774	53.67509671	47.4480668	44.816381	41.9364674	39.176981	36.4963965
Aerial Lifts	Aerial Lifts-0175	0175	161.8719225	151.6436991	129.6897749	106.30655	80.0179744	76.15527256	40.3979473	40.5148721	38.5703332	34.6021252	27.4761514
Aerial Lifts	Aerial Lifts-0250	0250	759.2703236	763.1122631	764.6167773	765.74303	571.935189	571.9643165	571.993444	16.8400388	16.901206	16.9623731	17.0235402
Aerial Lifts	Aerial Lifts-0500	0500	829.346394	537.0246351	539.1872328	541.34983	543.512428	545.675026	74.5403128	74.7951759	75.0500389	75.3049019	75.5597649
Bore/Drill Rigs	Bore/Drill Rigs-0050	0050	107.5988526	107.4282104	105.2343242	104.66373	104.560296	101.1038873	97.183387	94.7253535	92.2144149	91.9945392	85.7685185
Bore/Drill Rigs	Bore/Drill Rigs-0120	0120	194.7960586	187.2244032	175.4322434	168.84719	161.334691	152.3573243	142.458379	137.405676	127.931319	116.420424	110.056048
Bore/Drill Rigs	Bore/Drill Rigs-0175	0175	337.9656371	322.049041	303.5209398	295.30595	276.983278	234.7209497	185.539589	171.952471	154.318364	140.138908	108.340871
Bore/Drill Rigs	Bore/Drill Rigs-0250	0250	450.5464144	422.2781183	377.4742703	357.73353	330.152079	282.9231393	242.74116	211.723749	193.347095	177.765165	147.113041
Bore/Drill Rigs	Bore/Drill Rigs-0500	0500	651.4424459	614.4811422	575.7146815	541.13722	496.753122	463.0833006	368.325824	353.513108	298.339753	242.717266	217.497381
Bore/Drill Rigs	Bore/Drill Rigs-0750	0750	856.1016015	792.279929	741.1797699	741.76196	677.992356	667.1793748	485.948925	455.45006	363.485922	332.223856	249.938819
Bore/Drill Rigs	Bore/Drill Rigs-1000	1000	2022.396618	1600.858387	1378.167453	1382.5591	1389.24153	1394.86303	1399.95214	1404.50623	1408.52091	1411.98837	1054.70665
Bore/Drill Rigs	Bore/Drill Rigs-9999	9999	5626.495381	5659.772996	5688.679399	5713.2146	5733.37857	5749.171335	5760.59289	5767.64323	5774.69357	5781.74392	5788.79426
Cranes	Cranes-0050	0050	72.20649659	71.49899811	71.32187398	71.729843	72.1339112	72.52851026	70.8693556	70.6744342	71.0599826	71.3993069	71.6854521
Cranes	Cranes-0120	0120	275.0547353	270.0899898	268.3477034	265.00137	261.285889	253.771013	236.574746	221.71741	211.897649	200.667777	179.01618
Cranes	Cranes-0175	0175	380.9619992	376.3255626	362.563328	362.5667	349.65395	341.4148764	325.110189	312.740571	301.466403	291.149966	260.279219
Cranes	Cranes-0250	0250	518.9918841	510.0773685	496.7332644	493.59039	490.933206	471.4099214	446.160924	428.20196	410.612551	404.704274	366.530094
Cranes	Cranes-0500	0500	657.4247602	632.8653917	614.4886166	605.27938	576.486334	553.8028918	510.735454	488.917521	470.185256	447.455748	403.019953
Cranes	Cranes-0750	0750	728.1739167	713.6638878	707.1247234	704.58536	704.918878	701.828034	637.170106	616.023389	584.773308	530.881234	484.248684
Cranes	Cranes-1000	1000	3130.294494	3134.302807	3138.235856	3142.0936	3145.88919	3149.83024	2741.1939	2685.38456	2292.7484	2302.60239	2307.71181
Cranes	Cranes-9999	9999	1924.12607	1936.395266	676.7961266	680.95751	685.049762	689.0728812	693.026868	696.911722	700.727443	704.474032	708.151488
Crawler Tractors	Crawler Tractors-0050	0050	118.7229482	117.1947635	116.8661264	117.33949	116.231149	114.9766169	113.500693	112.732524	113.057328	112.076995	109.679331
Crawler Tractors	Crawler Tractors-0120	0120	286.0095546	285.1870455	281.506395	280.86025	277.590599	273.4553632	263.795176	255.92355	242.904304	235.312396	220.933733
Crawler Tractors	Crawler Tractors-0175	0175	456.1181613	452.2749851	445.805857	445.86245	440.564352	435.2062039	409.698557	384.361265	360.593205	338.905472	302.922699
Crawler Tractors	Crawler Tractors-0250	0250	560.0690561	555.7937508	549.3255313	547.4815	543.830861	534.4572195	502.529291	474.498831	443.667629	418.086229	371.674762
Crawler Tractors	Crawler Tractors-0500	0500	863.48706	857.0900872	833.6587533	827.71628	816.308803	795.818383	721.804331	672.421585	628.656991	579.375368	486.657419
Crawler Tractors	Crawler Tractors-0750	0750	1284.845278	1249.660462	1199.761024	1196.9033	1164.45784	1109.905691	1004.08623	928.376036	899.997082	850.626434	709.726101
Crawler Tractors	Crawler Tractors-1000	1000	2608.208807	2622.97162	2637.019211	2650.3486	2662.95658	2674.840107	2685.99055	2561.16392	2387.57048	2394.03043	2126.67722
Crawler Tractors	Crawler Tractors-9999	9999	3902.321384	3925.173308	3946.686322	3966.8206	3985.52802	4002.750363	4018.41597	3840.82	3850.92693	3860.84116	3868.65512
Excavators	Excavators-0050	0050	70.90474113	68.9949543	67.79339033	67.154132	65.9747504	64.033891	60.2594735	57.6346147	55.0914651	53.5294349	50.9763374
Excavators	Excavators-0120	0120	175.8716614	167.8687804	160.9929992	158.12796	149.94603	140.991802	125.869796	114.770312	104.933805	96.9401312	86.2636181
Excavators	Excavators-0175	0175	300.557444	284.4499081	261.8801934	253.67155	238.497652	217.5155604	184.242204	162.880045	145.336329	128.621437	104.457818
Excavators	Excavators-0250	0250	444.3527628	416.5925574	372.684048	359.83448	326.765466	295.7556081	235.595621	203.655305	179.016874	153.703568	121.238426
Excavators	Excavators-0500	0500	509.2061697	473.234413	431.5324671	418.97018	380.094661	342.3924208	275.053029	234.853083	202.615116	177.102275	138.941203
Excavators	Excavators-0750	0750	968.8952636	895.0314319	776.535277	761.34615	748.238288	627.045078	507.011583	454.786223	417.812133	368.412549	319.596598
Excavators	Excavators-1000	1000	2197.636253	2206.823641	2101.165012	2106.4856	2111.66857	1525.133859	1214.84135	1128.16023	1134.89017	1141.42271	753.381914
Excavators	Excavators-9999	9999	2710.183004	2408.696412	2153.770286	2165.8346	2180.2578	2194.111537	1843.44332	1849.2519	1862.29175	1874.88621	1373.91707
Forklifts	Forklifts-0050	0050	53.51065258	52.55328168	51.580168	51.125148	50.0364659	48.87870746	46.2202629	44.3234979	42.5600979	41.0597742	39.6388988
Forklifts	Forklifts-0120	0120	123.0221339	120.0822249	115.1615128	111.86676	107.557451	102.2912688	91.1601545	84.9971483	76.4131869	71.2698585	64.9863452
Forklifts	Forklifts-0175	0175	202.189214	197.891785	187.1227896	181.75817	174.650924	166.1397581	149.55214	136.815694	117.196999	104.834284	91.8720512
Forklifts	Forklifts-0250	0250	340.651511	325.6432677	324.6348348	312.76832	304.924421	291.8706247	246.511992	211.988511	180.820413	169.701668	141.706689
Forklifts	Forklifts-0500	0500	542.7691311	503.3397047	490.3384683	467.26309	424.614036	354.1415643	315.913193	300.19553	246.930384	233.026875	177.40548
Forklifts	Forklifts-1000	1000	2762.915126	2762.915126	2762.915126	2762.9151	2762.915126	2762.915126	2762.91513	2762.91513	2762.91513	2762.91513	2762.91513
Graders	Graders-0050	0050	104.8429487	105.1808582	104.8288641	105.14896	105.42906	105.5968033	102.82259	102.997967	101.237928	99.8438153	97.4620749
Graders	Graders-0120	0120	382.6179555	380.9265549	376.9556791	376.78208	375.999663	374.7771721	349.458845	342.818799	325.539631	319.947465	298.793835
Graders	Graders-0175	0175	537.9644259	534.4962426	529.3697669	529.06393	518.352379	501.2435609	466.355638	446.131764	415.905901	390.128431	341.962094
Graders	Graders-0250	0250	482.4901319	479.9487012	479.7311223	481.36822	478.908259	472.4069341	458.158383	449.349172	435.409368	407.400066	363.970537
Graders	Graders-0500	0500	456.7853568	444.8044765	447.29937	448.19585	443.858388	436.1914202	415.473217	406.575729	386.42705	381.083935	359.430005
Graders	Graders-1000	1000	3007.570083	3023.018055	3023.018055	3023.0181	3023.01805	3023.018055	3023.01805	3023.01805	3023.01805	3023.01805	777.472468
Graders	Graders-9999	9999	5293.990598	5317.879991	5338.895004	5355.2597	5361.41086	5386.813746	5411.58218	5435.79089	5459.53117	5482.91577	5504.85535
Off-Highway Tractors	Off-Highway Tractors-0050	0050	95.59452294	94.88715486	94.38579048	93.900233	93.232742	91.99403934	88.1204726	85.2381407	83.4355253	81.0233377	76.1715708
Off-Highway Tractors	Off-Highway Tractors-0120	0120	229.5305817	223.6029859	211.4351959	207.7226	198.616259	188.7805701	173.216151	163.465983	152.769847	143.016191	132.094834
Off-Highway Tractors	Off-Highway Tractors-0175	0175	393.0229558	373.2037451	349.5822295	331.75488	314.837462	283.7071655	254.10321	228.732159	207.258739	193.954952	162.078269
Off-Highway Tractors	Off-Highway Tractors-0250	0250	583.7614287	570.3097314	527.9847219	521.75055	503.024295	470.0572385	387.512784	347.587535	307.412841	259.140511	195.51446
Off-Highway Tractors	Off-Highway Tractors-0500	0500	711.0966291	646.7568763	588.2203076	577.13376	531.588794	467.0916553	387.704511	340.520302	291.657327	252.856238	209.18737
Off-Highway Tractors	Off-Highway Tractors-0750	0750	1201.17485	1132.739681	1010.58131	1017.5275	948.401893	760.9292829	554.806356	557.732858	489.735064	416.043168	405.376924
Off-Highway Tractors	Off-Highway Tractors-1000	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	Off-Highway Tractors-9999	9999	7253.928384	7298.946535	7344.082055	7384.7316	5828.02115	5855.643727	5884.3851	3509.46475	3504.2276	3525.48903	3547.06928
Off-Highway Trucks	Off-Highway Trucks-0050	0050	64.46561607	64.25414712	64.69171448	64.984659	65.1187987	61.58898848	57.6974299	55.6702192	53.3311669	51.4244595	49.4450291
Off-Highway Trucks	Off-Highway Trucks-0120	0120	248.1718275	240.1473218	198.1402196	198.84643	199.688204	183.0461565	171.56792	172.133725	172.639569	153.54106	131.802177
Off-Highway Trucks	Off-Highway Trucks-0175	0175	368.1311532	350.9085836	318.1038136	312.78484	291.2001	269.8795177	227.747466	197.148525	176.841284	161.573956	128.769999
Off-Highway Trucks	Off-Highway Trucks-0250	0250	518.8290321	495.7224926	463.8083421	455.62454	439.776076	404.3086451	342.130561	313.164721	284.894058	251.126362	195.812443
Off-Highway Trucks	Off-Highway Trucks-0500	0500	764.7188663	725.9236387	685.1186477	670.21572	631.938371	592.142733	505.444056	463.152641	406.426099	358.092987	288.320258
Off-Highway Trucks	Off-Highway Trucks-0750	0750	1642.454611	1599.232586	1535.613564	1531.5044	1498.80841	1372.048453	1107.49707	970.333922	887.291685	767.272345	670.861226
Off-Highway Trucks	Off-Highway Trucks-1000	1000	2434.121297	2361.821083	2211.562975	2207.4161	2178.23139	2074.238009	1786.95511	1763.46865	1706.67868	1610.77224	1406.65705
Off-Highway Trucks	Off-Highway Trucks-9999	9999	4421.50657	4246.806298	3988.594412	3955.9464	3733.57607	3642.944865	3092.8494	3046.58192	2902.76621	2795.10917	2391.52519
Other Construction Equipment	ther Construction Equipment-0050	0050	88.12370693	88.46982259	87.86746495	87.891079	87.2402811	86.17155385	84.1116668	82.9518566	81.1091592	79.5214889	77.3468311
Other Construction Equipment	ther Construction Equipment-0120	0120	235.6907357	231.9587895	225.6123213	222.14189	216.881032	211.8970988	195.729676	186.81654	178.225244	171.755504	154.828289
Other Construction Equipment	ther Construction Equipment-0175	0175	438.097528	424.2467616	412.1607798	409.81924	396.494851	370.9269895	339.068748	319.139564	302.256583	281.999923	241.43287
Other Construction Equipment	ther Construction Equipment-0250	0250	604.5321058	568.7897462	527.4747672	524.96721	507.354783	472.8974	420.902068	387.144537	366.118566	340.014209	283.240444
Other Construction Equipment	ther Construction Equipment-0500	0500	803.9581459	770.721548	702.8486225	698.94247	667.240568	619.0158871	535.821745	484.923913	440.360487	416.154607	353.133786
Other Construction Equipment	ther Construction Equipment-0750	0750	1147.845039	1099.485408	1058.041611	1058.3774	1037.01573	1003.624577	911.033969	874.461103	812.990459	729.029548	603.70087
Other Construction Equipment	ther Construction Equipment-1000	1000	1825.157347	1710.823449	1533.242744	1539.7379	1464.71596	1322.797252	1324.82623	1330.13275	1162.16792	1164.30923	1031.43395
Other Construction Equipment	ther Construction Equipment-9999	9999	3085.383311	3097.277406	2483.925442	2501.6693	2519.27805	2271.463937	2286.73528	2303.7195	2320.86697	2338.25246	2355.96309
Other General Industrial Equipment	General Industrial Equipment-0050	0050	68.51803112	67.74280921	67.03498191	66.491698	65.1332626	63.69778014	60.6962768	58.6150896	56.0450848	53.959939	51.4072092
Other General Industrial Equipment	General Industrial Equipment-0120	0120	180.4438135	175.9313363	171.2220063	166.14836	159.101041	149.3272032	133.713472	124.091134	111.074383	104.823072	91.1722025
Other General Industrial Equipment	General Industrial Equipment-0175	0175	328.4694591	317.3140513	304.29676	290.21208	277.044262	252.5563112	216.415904	179.051577	158.916725	150.523241	129.974482
Other General Industrial Equipment	General Industrial Equipment-0250	0250	510.3071287	472.2708784	447.3584557	410.03151	398.600777	364.090336	296.82596	265.129186	232.367153	219.571826	198.357248
Other General Industrial Equipment	General Industrial Equipment-0500	0500	654.2902537	588.8128276	569.6309424	550.59565	524.010965	495.6560129	453.804934	409.32969	361.385677	290.947673	243.436993
Other General Industrial Equipment	General Industrial Equipment-0750	0750	949.7188774	832.9446174	764.1732153	677.47672	659.004034	547.6310552	484.674042	453.61268	334.337923	306.300378	231.850171
Other General Industrial Equipment	General Industrial Equipment-1000	1000	1887.168653	1908.077097	1928.985542	1949.894	1435.27085	1447.459659	1454.5875	1461.71534	1468.84318	1474.39548	1193.97823
Other General Industrial Equipment	General Industrial Equipment-9999	9999	2923.54299	2952.384962	2981.226935	3010.0689	3038.91088	3067.752852	3096.59482	3125.4368	1558.74232	1573.63491	1588.52749
Other Material Handling Equipment	Material Handling Equipment-0050	0050	83.7235242	82.74471241	81.26764381	81.948925	81.9796263	78.77651567	74.0241212	73.9727328	73.4043642	70.9556538	70.3009303
Other Material Handling Equipment	Material Handling Equipment-0120	0120	234.4997596	212.3192533	198.6356143	185.52952	181.015031	171.8994312	153.064813	140.814755	129.309343	122.113208	103.738893
Other Material Handling Equipment	Material Handling Equipment-0175	0175	366.2674128	351.776171	331.4429927	327.91505	311.601822	289.1334592	229.734861	207.783512	182.839998	173.45131	141.711241
Other Material Handling Equipment	Material Handling Equipment-0250	0250	606.231512	588.6454839	565.6197255	542.61137	544.45805	495.8010471	401.174038	362.91277	274.28117	265.253745	239.874943
Other Material Handling Equipment	Material Handling Equipment-0500	0500	694.5656284	673.3169613	639.1842251	628.09537	625.991422	598.9491697	531.507784	494.300755	465.939047	436.399576	370.034342
Other Material Handling Equipment	Material Handling Equipment-0750	0750	756.1955243	763.276259	770.3569937	777.43773	784.518463	701.1044799	586.499146	590.397359	462.818415	465.473146	467.621628
Other Material Handling Equipment	Material Handling Equipment-1000	1000	1652.914432	1668.406878	823.6522408	823.65224	831.00625	838.3602591	845.714268	853.068277	860.422287	867.776296	875.130305
Other Material Handling Equipment	Material Handling Equipment-9999	9999	1824.696321	1841.609347	1426.28881	1435.1009	1448.09588	1461.090881	1474.08589	1487.08089	1500.07589	962.080153	966.263095
Pavers	Pavers-0050	0050	94.03351686	93.72632515	91.72541986	90.850937	90.2767897	89.35850941	87.2004848	83.3248879	82.1654717	79.5916657	76.3463874
Pavers	Pavers-0120	0120	220.6091971	213.2848888	205.8782343	205.28471	197.801526	194.8659555	175.916549	166.0036	159.860191	152.26235	134.713261
Pavers	Pavers-0175	0175	423.1443694	399.9062396	378.7047415	368.93376	331.99864	307.7706583	264.827986	245.432921	221.632177	203.175002	156.441358
Pavers	Pavers-0250	0250	390.8665224	374.9654909	366.99024	368.77997	356.676839	337.6434436	299.501517	268.990684	233.521886	210.65732	166.333195
Pavers	Pavers-0500	0500	489.5695737	461.6298012	414.4207686	396.74979	392.332515	338.1819472	315.508313	308.696137	290.203524	279.193219	246.233972
Pavers	Pavers-0750	0750	750.847552	754.3983621	757.8639632	761.24436	764.539538	767.7495124	770.874278	373.614611	370.040649	370.070452	80.6974532
Paving Equipment	Paving Equipment-0050	0050	66.06707816	65.78571865	64.51337808	62.574893	62.0408414	58.85350941	54.4413129	53.7880949	49.4615053	47.9911756	47.5273113

Paving Equipment	Paving Equipment-0120	0120	221.5417444	210.3907162	202.5232796	196.81101	185.959968	172.5367385	148.128446	140.50361	128.916471	117.272395	102.641773
Paving Equipment	Paving Equipment-0175	0175	312.6422894	295.3172773	276.223994	263.05877	238.355814	217.9572412	190.629197	164.385256	147.706491	135.871051	124.865585
Paving Equipment	Paving Equipment-0250	0250	445.1724093	438.3152765	408.6387814	407.84937	380.953545	347.5890167	293.000769	288.592388	262.976648	219.482128	193.231879
Paving Equipment	Paving Equipment-0500	0500	612.1536457	577.2991426	557.8557619	560.61696	548.727423	509.4875468	373.975356	345.600137	333.751167	303.559896	213.937053
Paving Equipment	Paving Equipment-0750	0750	946.0650409	842.0487665	846.6288162	851.11051	836.952496	722.3912827	725.562248	625.026174	589.642662	512.41502	379.287083
Paving Equipment	Paving Equipment-1000	1000	2224.842787	2237.39276	1367.15747	1375.1545	1382.99881	1390.690298	685.383005	689.326391	693.204187	697.016394	700.76301
Rollers	Rollers-0050	0050	74.53676822	73.68202648	72.42072561	72.157809	71.0548695	69.46694196	66.3201515	64.1865955	62.577425	60.2923798	57.1162044
Rollers	Rollers-0120	0120	230.937887	221.8250987	210.5658786	207.90626	197.402989	188.7803263	163.80917	152.249248	141.767055	133.447214	118.131728
Rollers	Rollers-0175	0175	290.3980596	278.3053379	259.0403775	255.58415	238.231625	219.2495107	184.249188	162.876711	144.266099	129.687407	104.199693
Rollers	Rollers-0250	0250	531.4473295	475.4559632	422.3257605	406.83439	392.883068	361.6516621	278.063877	249.553895	240.50211	224.818217	191.659464
Rollers	Rollers-0500	0500	837.6390269	752.6622706	739.118845	720.29803	681.437983	563.9283041	476.822738	375.154323	365.104366	356.886165	308.276855
Rollers	Rollers-0750	0750	1667.302946	1673.53917	1679.687198	975.80974	978.96861	982.1242958	223.623935	224.50113	225.356479	226.189982	227.001639
Rough Terrain Forklifts	Rough Terrain Forklifts-0050	0050	104.4187418	101.5129214	99.3442003	98.65043	96.9281158	92.28999373	90.0632494	86.9660427	84.13313	83.4678227	74.2110967
Rough Terrain Forklifts	Rough Terrain Forklifts-0120	0120	204.8923412	191.3310434	174.378086	167.64463	151.710665	134.8872884	113.962724	105.559382	98.6088835	93.2027725	85.0865228
Rough Terrain Forklifts	Rough Terrain Forklifts-0175	0175	228.4115757	207.6979423	193.7605897	184.74224	172.037221	156.0885777	130.065128	116.734493	102.16902	84.6011391	70.9947204
Rough Terrain Forklifts	Rough Terrain Forklifts-0250	0250	595.5189992	531.7882891	511.4558941	514.17747	516.888299	519.5877108	480.454674	470.17834	454.250792	265.827073	62.1392601
Rough Terrain Forklifts	Rough Terrain Forklifts-0500	0500	876.8527376	694.4276942	698.0071318	701.6108	705.226149	709.5950714	371.399798	371.988724	311.591742	71.4706808	71.6434997
Rough Terrain Forklifts	Rough Terrain Forklifts-0750	0750	3768.098056	3778.375764	3788.653472	3798.9312	3809.20889	3819.486596	3829.7643	3840.04201	3850.31972	65.7574745	65.9798963
Rubber Tired Dozers	Rubber Tired Dozers-0050	0050	109.2386454	108.9119855	109.3633846	109.67548	109.919851	110.0394112	110.079392	110.103977	110.12091	110.138815	110.186542
Rubber Tired Dozers	Rubber Tired Dozers-0120	0120	306.4818706	307.7636156	308.7819424	309.55449	310.165897	304.8845514	300.629978	300.863558	292.778922	289.00912	279.626424
Rubber Tired Dozers	Rubber Tired Dozers-0175	0175	580.5678866	581.2421519	581.8738253	582.47916	583.013476	561.5380793	549.084268	528.349423	517.144927	517.294282	505.313645
Rubber Tired Dozers	Rubber Tired Dozers-0250	0250	689.9153619	676.121811	664.8817262	665.84235	666.791343	659.5228727	660.070481	660.359136	643.921724	626.983979	549.78707
Rubber Tired Dozers	Rubber Tired Dozers-0500	0500	1201.439226	1166.760426	1137.863975	1129.3606	1123.18984	1098.986166	1022.84084	986.191116	947.126398	926.442188	863.940357
Rubber Tired Dozers	Rubber Tired Dozers-0750	0750	1727.213722	1729.698764	1732.12178	1734.4823	1736.77993	1656.036886	1553.11825	1553.08665	1553.0412	1552.98102	1552.90509
Rubber Tired Loaders	Rubber Tired Loaders-0050	0050	95.10367487	93.59916643	92.84802555	92.985762	92.413213	91.52405303	89.6223583	85.5682081	83.7033302	80.1846613	77.1516105
Rubber Tired Loaders	Rubber Tired Loaders-0120	0120	238.6279096	234.075336	225.3090958	223.40078	213.803143	205.6792851	189.292229	176.929397	165.313064	153.294064	138.4873
Rubber Tired Loaders	Rubber Tired Loaders-0175	0175	368.7936714	359.3282884	342.7276715	336.17744	322.417576	303.5159014	271.848918	250.71873	230.463386	212.381727	176.975508
Rubber Tired Loaders	Rubber Tired Loaders-0250	0250	436.4045036	428.8117858	411.1142115	403.97052	391.096413	370.5928898	322.160962	298.317921	275.454836	250.862794	211.224236
Rubber Tired Loaders	Rubber Tired Loaders-0500	0500	646.2297159	637.4656375	616.8063802	612.82556	597.501965	566.3228404	506.338046	463.055723	422.234361	390.908147	324.410538
Rubber Tired Loaders	Rubber Tired Loaders-0750	0750	1103.472499	1086.911289	1040.769141	1040.3526	995.18807	980.2920197	846.931966	737.212779	714.255469	657.446932	590.758025
Rubber Tired Loaders	Rubber Tired Loaders-1000	1000	2038.307331	2018.705758	2026.359541	2032.4504	2035.92327	1984.171033	1863.22379	1804.28975	1802.67189	1804.40213	1580.19038
Rubber Tired Loaders	Rubber Tired Loaders-9999	9999	3453.377147	3477.907319	3501.36871	3522.4942	3537.31861	3224.745644	2529.29412	2534.01747	2542.05655	2549.58204	2556.55017
Scrapers	Scrapers-0050	0050	116.1611854	116.6531841	117.1274998	117.58413	117.981033	118.3579562	118.72009	119.067435	119.39999	119.717757	110.875095
Scrapers	Scrapers-0120	0120	289.3101471	288.3346918	287.4148772	289.02964	290.576486	292.054689	290.028891	286.51435	279.006453	277.887486	268.017725
Scrapers	Scrapers-0175	0175	684.1362054	669.0927937	640.6122622	634.52701	613.650234	577.6443338	524.395148	500.790368	476.497853	442.503235	397.809733
Scrapers	Scrapers-0250	0250	1012.744542	998.815506	977.0319973	977.17231	961.542801	928.9627095	851.762648	790.048754	752.579726	700.537837	619.4484
Scrapers	Scrapers-0500	0500	1222.063267	1204.61914	1175.287597	1170.0716	1141.18116	1101.71572	1002.47863	941.310518	879.483543	825.792254	685.664449
Scrapers	Scrapers-0750	0750	1498.923039	1462.65402	1400.628993	1400.6089	1351.68696	1307.124556	1214.71134	1112.75538	1036.68401	974.830037	821.220131
Scrapers	Scrapers-1000	1000	6137.28576	6137.28576	6137.28576	6137.2858	6137.28576	6137.28576	6137.28576	6137.28576	6137.28576	6137.28576	6137.28576
Scrapers	Scrapers-9999	9999	6657.181315	6721.438266	6786.142768	6851.3918	6917.29106	6983.956001	7051.51296	7120.10049	6193.76405	6251.19917	4895.08915
Skid Steer Loaders	Skid Steer Loaders-0050	0050	82.16987377	77.71394192	73.11946828	71.587378	68.8163862	66.11542497	62.4175988	60.1100777	58.401012	56.3701456	54.3037742
Skid Steer Loaders	Skid Steer Loaders-0120	0120	123.0677697	115.6306158	104.6336554	99.390422	92.3714323	85.39246974	75.2751102	69.6585324	64.0736404	60.383145	55.2609161
Skid Steer Loaders	Skid Steer Loaders-0175	0175	280.5581667	244.3484982	234.0980597	229.35796	194.212141	162.418853	157.81676	127.032052	104.336828	102.451836	86.895868
Skid Steer Loaders	Skid Steer Loaders-0250	0250	414.5806524	335.5137877	260.0138977	263.55327	267.403232	255.9666169	237.743476	124.650609	101.121198	80.4492251	66.5047957
Skid Steer Loaders	Skid Steer Loaders-0500	0500	466.0574961	312.6681795	313.1286713	313.48058	141.334189	62.25598833	62.2414521	62.1701196	62.0341567	61.8234086	25.9606146
Skid Steer Loaders	Skid Steer Loaders-0750	0750	464.9603243	466.8403415	468.5907023	470.21141	471.702455	473.0638467	474.295582	475.397661	476.370084	477.21285	478.055616
Skid Steer Loaders	Skid Steer Loaders-1000	1000	3032.281431	3039.017404	3045.753377	3052.4894	1415.21786	1444.255039	1475.30043	1508.65935	1544.69527	1583.84436	841.58295
Surfacing Equipment	Surfacing Equipment-0050	0050	60.64053073	59.55315419	58.34041954	58.541577	58.733958	56.49088746	56.6719543	54.0415838	47.6725284	46.2348304	43.2507882
Surfacing Equipment	Surfacing Equipment-0120	0120	159.0850833	155.5105128	147.6516814	143.744	136.744739	133.8262161	120.483031	108.720753	100.435671	94.2068895	88.0480122
Surfacing Equipment	Surfacing Equipment-0175	0175	295.3051657	270.8631282	260.4032784	261.3911	257.387248	255.1054064	210.551416	211.059293	195.901543	181.593887	163.641362
Surfacing Equipment	Surfacing Equipment-0250	0250	405.6159394	385.4979386	342.9074505	343.7741	344.950967	303.8108957	282.158303	239.276094	227.778627	204.789139	178.769021
Surfacing Equipment	Surfacing Equipment-0500	0500	459.1601954	447.0985535	425.5513775	426.11673	396.326433	349.5959088	253.036414	235.10068	204.151977	194.253614	178.972345
Surfacing Equipment	Surfacing Equipment-0750	0750	641.1290041	641.872865	609.0678368	609.51963	533.999288	513.6016701	420.707953	404.047982	388.275537	314.867641	270.006579
Surfacing Equipment	Surfacing Equipment-1000	1000	1546.834296	1403.763307	1408.173354	1412.4321	1416.53896	1420.49354	1424.29519	1427.94319	1246.82863	1092.40794	1093.86918
Surfacing Equipment	Surfacing Equipment-9999	9999	2062.523291	1313.786327	1317.338743	1321.834	1326.17867	1330.372704	1334.41612	1338.30893	1342.05111	1345.64268	769.971818
Sweepers/Scrubbers	Sweepers/Scrubbers-0050	0050	94.84792152	94.02318991	93.6503386	93.981061	93.7075639	92.4773476	89.3828409	86.2131069	84.044353	80.4043881	74.8557746
Sweepers/Scrubbers	Sweepers/Scrubbers-0120	0120	264.9980911	252.4778388	249.6797847	249.07149	238.549924	220.844947	193.00023	185.29103	170.975907	161.603703	141.948872
Sweepers/Scrubbers	Sweepers/Scrubbers-0175	0175	723.4212323	709.3713569	686.9998784	675.99132	623.948502	613.9537947	565.449342	549.208187	470.087975	410.230382	349.799735
Sweepers/Scrubbers	Sweepers/Scrubbers-0250	0250	657.091306	620.5517933	624.3342617	628.11673	631.639941	558.5900706	504.316107	377.095619	278.48042	210.78267	154.1632
Sweepers/Scrubbers	Sweepers/Scrubbers-0500	0500	823.056519	826.5106601	829.9648013	833.41894	836.873084	838.8728849	840.271703	749.127898	749.738332	750.441736	751.14514
Sweepers/Scrubbers	Sweepers/Scrubbers-1000	1000	1532.53817	1545.272446	1558.006722	1570.741	1583.47527	1596.20955	1608.94383	1621.6781	1634.41238	1647.14665	871.578524
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes-0050	0050	78.64670589	77.89962344	76.32330541	75.879779	74.595768	73.46229683	69.6271359	66.9272601	63.6569075	61.7403405	58.3344323
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes-0120	0120	185.1579231	179.4703601	170.8791939	166.89361	160.175665	151.1903708	133.970851	121.262848	109.788854	100.548168	88.2340367
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes-0175	0175	291.0887108	282.6900748	264.2575565	259.57589	238.62157	221.1866935	188.780098	168.636418	149.289723	129.968761	106.958958
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes-0250	0250	404.8229626	393.9177709	374.0251346	365.20936	343.048653	322.512802	288.801938	259.766894	228.89108	205.007628	162.564319
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes-0500	0500	584.9619672	564.3878383	532.979223	521.1333	477.793641	440.5708658	362.743304	325.645362	284.235986	250.532226	211.16412
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes-0750	0750	911.766464	913.8971946	898.5339773	901.9373	876.68129	859.2139409	756.456476	689.451284	639.743668	616.812783	496.218804
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes-1000	1000	1391.741355	1403.739815	1218.734855	1226.2123	1235.3269	1243.787482	1241.97958	1248.03882	942.559623	948.794339	941.359468
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes-9999	9999	4404.494291	4305.874856	3978.721637	3847.2727	3877.27467	3732.184756	3299.79285	2819.06772	2636.67949	2622.13305	2508.19132
Trenchers	Trenchers-0050	0050	110.6348666	110.138178	109.2331234	108.4948	106.502916	104.1761531	99.8241294	96.6861782	94.5265299	90.7177289	87.2555609
Trenchers	Trenchers-0120	0120	317.2734254	307.2853205	301.2113023	298.89663	290.298988	282.6257255	257.8678	245.706093	233.713927	223.070815	217.015006
Trenchers	Trenchers-0175	0175	611.4426701	614.095187	572.5971283	570.70791	507.252327	508.9638971	460.478467	395.666223	359.802994	347.887348	320.358443
Trenchers	Trenchers-0250	0250	817.5440992	775.1227533	714.2194519	717.07138	708.32413	695.5372455	633.775932	573.666628	547.444443	483.520385	428.670823
Trenchers	Trenchers-0500	0500	826.0926479	829.1178385	787.3104751	789.69905	739.914647	621.4730895	579.965375	565.036597	539.345879	472.894399	422.556488
Trenchers	Trenchers-0750	0750	637.2563476	639.6510438	567.8896924	505.14653	507.237574	444.8480094	319.024726	219.880376	174.274504	147.846985	93.7818021
Trenchers	Trenchers-1000	1000	5638.864646	5652.239899	5665.615152	5678.9904	5692.36566	5705.740912	5719.11616	5732.49142	5745.86667	5759.24192	5772.61718

PM10 EMISSION FACTORS

Equipment Type		HorsepowerBin	BasePM grams/hr										
			2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Aerial Lifts	Aerial Lifts-0050	0050	3.507698842	2.79298723	2.250322211	2.2503222	1.48942643	1.134613118	0.84217835	0.65433129	0.44900993	0.36015142	0.31715872
Aerial Lifts	Aerial Lifts-0120	0120	5.727772121	4.625841036	3.702093374	3.7020934	2.51224879	1.862987134	1.31508262	1.06003599	0.86643741	0.68471867	0.61669857
Aerial Lifts	Aerial Lifts-0175	0175	6.938636966	6.307479822	5.32834965	5.3283497	3.43963389	3.246878658	1.26789844	1.27836319	1.2103164	1.08905983	0.97271143
Aerial Lifts	Aerial Lifts-0250	0250	39.21325685	39.62882133	39.73161205	39.731612	35.4662344	35.46885216	35.4714699	0.5760384	0.58153569	0.58703299	0.59253029
Aerial Lifts	Aerial Lifts-0500	0500	26.31786773	11.7235559	11.85491856	11.854919	12.1176439	12.24900655	1.04822022	1.05816772	1.06811521	1.0780627	1.0880102
Bore/Drill Rigs	Bore/Drill Rigs-0050	0050	8.019348949	7.855797102	7.535156509	7.484382	7.55136904	7.112208353	6.67927008	6.2454876	5.90864955	5.846034	4.96338461
Bore/Drill Rigs	Bore/Drill Rigs-0120	0120	12.4805881	11.5345172	10.47091945	10.470919	9.42878241	8.717680668	7.82053656	7.47092073	6.66915858	5.70907619	5.25880328
Bore/Drill Rigs	Bore/Drill Rigs-0175	0175	16.0700337	14.93410196	13.91302354	13.913024	12.5458001	10.53233019	8.34784106	7.77368066	6.97819181	6.40375454	4.95283215
Bore/Drill Rigs	Bore/Drill Rigs-0250	0250	13.93831696	13.06150053	11.33038536	11.330385	10.0197209	8.564098482	7.29975994	6.44395378	6.01880758	5.75518062	4.83078899
Bore/Drill Rigs	Bore/Drill Rigs-0500	0500	21.84358307	20.22030621	18.61009681	18.610097	16.2835826	14.79795153	11.9903551	11.6785556	9.72185978	7.88670948	7.0206674
Bore/Drill Rigs	Bore/Drill Rigs-0750	0750	28.84961138	26.99021345	25.21120822	25.211208	22.5785569	22.11801754	15.9603739	14.9836739	12.1077829	11.2682843	8.91269686
Bore/Drill Rigs	Bore/Drill Rigs-1000	1000	47.42936296	37.85294367	26.92048732	26.920487	27.3812377	27.65917021	27.9010676	28.1033972	28.2603145	28.361403	8.47182517
Bore/Drill Rigs	Bore/Drill Rigs-9999	9999	132.7903711	135.5889417	138.0199035	138.0199	141.779001	143.1071357	144.067662	144.66058	145.253497	145.846415	146.439332
Cranes	Cranes-0050	0050	7.286212693	7.143621727	7.10834436	7.1083444	7.33390288	7.445780478	7.49292932	7.41576324	7.52330393	7.61179768	7.6781284
Cranes	Cranes-0120	0120	20.37732623	20.00556284	19.93804501	19.938045	19.4350111	18.89825649	17.5453878	16.4324887	15.6251752	14.7942418	13.1314553
Cranes	Cranes-0175	0175	20.48387966	20.30523275	19.59891961	19.59892	19.0479193	18.63249667	17.7730432	17.0795496	16.5242327	15.9923185	14.2943658
Cranes	Cranes-0250	0250	23.78968975	23.43228961	22.8637733	22.863773	22.6871741	21.79589608	20.5820423	19.8330869	18.9653026	18.7351324	16.9933224
Cranes	Cranes-0500	0500	27.22135273	26.24770055	25.53663296	25.536633	24.0829858	23.1452263	21.3021502	20.384459	19.709674	18.8471812	17.1166677
Cranes	Cranes-0750	0750	24.79292149	24.55318502	24.63044826	24.630448	24.9777054	24.97261405	23.2189614	22.8484898	22.156362	20.8874479	19.6590139
Cranes	Cranes-1000	1000	154.9950807	155.2718192	155.5434226	155.54342	156.072071	156.3360816	127.921841	126.386734	99.3959195	100.049522	100.391495
Cranes	Cranes-9999	9999	46.32608152	47.11854179	16.13556257	16.135563	16.7537146	17.05502416	17.3511561	17.6421103	17.9278869	18.2084859	18.4839072
Crawler Tractors	Crawler Tractors-0050	0050	14.03622412	13.71719151	13.63693784	13.636938	13.620215	13.39408097	13.1095103	13.0041416	13.0818705	12.985944	12.4769465
Crawler Tractors	Crawler Tractors-0120	0120	23.56164328	23.71640488	23.53777089	23.537771	23.4654199	23.2426984	22.4012329	21.76089	20.6472346	20.0000817	18.5936054
Crawler Tractors	Crawler Tractors-0175	0175	24.48965002	24.46151226	24.32389374	24.323894	24.4045395	24.26879915	22.9394179	21.5904945	20.3590066	19.1843355	17.2608795
Crawler Tractors	Crawler Tractors-0250	0250	21.7359254	21.59091901	21.35646422	21.356464	21.2675959	20.90451077	19.6710346	18.6077344	17.2862959	16.3167153	14.4765093
Crawler Tractors	Crawler Tractors-0500	0500	33.18665611	33.11031723	32.39232835	32.392328	32.1007553	31.39154013	28.769836	27.0783193	25.5295765	23.7828856	20.1607918
Crawler Tractors	Crawler Tractors-0750	0750	46.08632486	44.90234083	43.8386433	43.838643	42.9332209	41.08631848	37.7697642	35.4723763	34.5567125	33.0031522	27.3802247
Crawler Tractors	Crawler Tractors-1000	1000	76.11984944	76.81715395	77.4845657	77.484566	78.7289345	79.3054792	79.8512654	74.8006305	68.639289	68.9848035	58.1296037
Crawler Tractors	Crawler Tractors-9999	9999	100.9014447	102.3354387	103.6997558	103.69976	106.211488	107.353909	108.416423	100.462179	101.169991	101.837741	102.406244
Excavators	Excavators-0050	0050	5.626883005	5.371546307	5.193470562	5.1934706	4.91929874	4.563729214	3.9337179	3.48322462	3.04483607	2.75571622	2.28224768
Excavators	Excavators-0120	0120	13.54184544	12.64009462	12.02648571	12.026486	11.0506335	10.1542316	8.6210139	7.55712289	6.63733642	5.87886717	4.79832618
Excavators	Excavators-0175	0175	15.33626757	14.17479683	12.91389956	12.9139	11.8469385	10.82163841	9.10114983	8.01298857	7.14491181	6.32104595	5.07093055
Excavators	Excavators-0250	0250	14.07876444	13.39272514	12.04501027	12.04501	10.7306619	9.787420245	7.8208411	6.69027701	5.85201579	5.03338062	3.98584122
Excavators	Excavators-0500	0500	16.47784761	15.39588694	14.13339348	14.133393	12.6700777	11.5165747	9.33276044	7.99538307	6.89811873	6.08886092	4.78980913
Excavators	Excavators-0750	0750	32.04530263	29.46270858	24.80627174	24.806272	24.4786145	21.24143541	17.6348806	16.1945687	14.9559201	13.1260353	11.6639013
Excavators	Excavators-1000	1000	70.70118691	71.29770817	67.14761481	67.147615	67.826312	36.50844267	25.8145404	21.7132375	22.0268093	22.3327155	8.50910403
Excavators	Excavators-9999	9999	78.07102286	66.55221135	55.58611411	55.586114	57.2150466	58.01338848	34.4736963	34.6388762	35.0188472	35.3836335	13.5610261
Forklifts	Forklifts-0050	0050	6.14126785	5.900633646	5.685569298	5.6855693	5.3598294	5.093085051	4.48424471	4.0338373	3.61534537	3.24881072	2.92892278
Forklifts	Forklifts-0120	0120	10.26707459	10.03824066	9.649580804	9.6495808	9.01300345	8.487827093	7.37561371	6.77709088	5.91146156	5.38873485	4.69209331
Forklifts	Forklifts-0175	0175	10.99732423	10.75266544	10.22826724	10.228267	9.66879253	9.211922898	8.24825882	7.56354739	6.39803475	5.66604212	4.89131544
Forklifts	Forklifts-0250	0250	15.93416054	15.11375045	15.06632185	15.066322	14.0830468	13.47707286	11.0327891	9.27735226	7.76264528	7.27373693	5.91819627
Forklifts	Forklifts-0500	0500	25.5165885	23.29375193	23.02331254	23.023313	19.6612524	16.05304941	14.0374513	13.1915258	10.2303476	9.58770509	6.83738397
Forklifts	Forklifts-1000	1000	154.3016218	154.3016218	154.3016218	154.30162	154.301622	154.3016218	154.301622	154.301622	154.301622	154.301622	154.301622
Graders	Graders-0050	0050	13.8803503	13.99553553	13.87968491	13.879685	14.072764	14.11965156	13.4782069	13.5179018	13.1187259	12.7921529	12.0836836
Graders	Graders-0120	0120	31.53623491	31.58903445	31.39478289	31.394783	31.4704448	31.35527119	29.0191051	28.4786797	26.8204203	26.2655463	24.201238
Graders	Graders-0175	0175	29.99228975	29.95913045	29.76048424	29.760484	29.2967268	28.36293814	26.324106	25.1336097	23.4074121	21.9397374	19.113645
Graders	Graders-0250	0250	15.48409738	15.44862167	15.49849975	15.4985	15.6681319	15.59020786	15.18265	15.0015033	14.5227533	13.4474122	11.9818532
Graders	Graders-0500	0500	17.37904154	16.93575726	17.21576484	17.215765	17.3844606	17.18544735	16.2592233	15.9357861	15.1552459	14.9571987	14.0521273
Graders	Graders-1000	1000	105.0139402	105.2075671	105.2075671	105.20757	105.207567	105.2075671	105.207567	105.207567	105.207567	105.207567	7.03031451
Graders	Graders-9999	9999	158.0715821	159.6069737	161.0176594	161.01766	163.304458	164.9458988	166.501071	167.970101	169.353141	170.650381	171.769981
Off-Highway Tractors	Off-Highway Tractors-0050	0050	9.813597477	9.639299351	9.54714098	9.547141	9.36156483	9.096345177	8.25384604	7.63285702	7.22425413	6.68239501	5.63055279
Off-Highway Tractors	Off-Highway Tractors-0120	0120	19.08383874	18.59001375	17.43239614	17.432396	16.3122045	15.39705791	13.8686062	12.8721966	11.803739	10.8289668	9.6232649
Off-Highway Tractors	Off-Highway Tractors-0175	0175	20.61580449	19.33952532	17.98721138	17.987211	16.0810824	14.51316044	12.8601158	11.417489	10.1633835	9.52520736	7.9104556
Off-Highway Tractors	Off-Highway Tractors-0250	0250	20.94160652	20.44153892	18.9782533	18.978253	18.3114313	17.39692449	14.5165427	13.0451178	11.5682657	9.90933777	7.40476587
Off-Highway Tractors	Off-Highway Tractors-0500	0500	25.67477007	23.21599495	21.10348466	21.103485	19.3492079	17.19755225	14.4393465	12.6387857	10.7949131	9.31653287	7.93804701
Off-Highway Tractors	Off-Highway Tractors-0750	0750	42.1794268	40.05268828	33.96500926	33.965009	32.4059998	27.77959186	20.8098532	21.1755701	18.7224946	15.8062929	15.3900552
Off-Highway Tractors	Off-Highway Tractors-1000	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	Off-Highway Tractors-9999	9999	272.9336692	274.5243848	276.1656682	276.16567	209.459498	211.1337492	212.886302	98.8990867	98.8948568	99.7359054	100.580183
Off-Highway Trucks	Off-Highway Trucks-0050	0050	6.748887107	6.675912052	6.731289463	6.7312895	6.76892584	5.884334013	4.88357123	4.41279065	4.04969147	3.74532924	3.37669344
Off-Highway Trucks	Off-Highway Trucks-0120	0120	20.77373128	19.34255005	16.07111436	16.071114	16.2176296	15.02329115	13.9947129	14.0569979	14.1142811	12.0278498	9.6644099
Off-Highway Trucks	Off-Highway Trucks-0175	0175	21.45222565	20.03467486	17.83034515	17.830345	16.2315487	14.96146587	12.4521349	10.5778201	9.35832881	8.38009073	6.41704242
Off-Highway Trucks	Off-Highway Trucks-0250	0250	22.30201187	21.61975008	20.49145581	20.491456	19.7304937	18.12049754	14.8213781	13.5435094	12.0476263	10.5154136	8.0423156
Off-Highway Trucks	Off-Highway Trucks-0500	0500	29.8953909	28.30734012	26.59266663	26.592667	24.6329503	22.97049355	19.3914559	17.7040702	15.4375401	13.6546594	10.6912492
Off-Highway Trucks	Off-Highway Trucks-0750	0750	70.23209814	68.59526594	65.67897615	65.678976	64.2632412	58.3824629	45.7032613	39.6948023	36.1956513	30.6572986	25.8696776
Off-Highway Trucks	Off-Highway Trucks-1000	1000	73.09158885	70.32544896	65.19267646	65.192676	64.0395466	59.99534492	48.0411793	47.2112334	45.0367783	40.9141117	32.4282984
Off-Highway Trucks	Off-Highway Trucks-9999	9999	141.1721715	136.222148	124.984411	124.98441	113.593661	109.6144327	85.3545129	82.5350318	74.6276566	67.9689644	49.2081817
Other Construction Equipment	Other Construction Equipment-0050	0050	7.944839601	8.035546468	7.930074477	7.9300745	7.85125992	7.657385289	7.24635248	7.03963497	6.69131116	6.43184348	6.0137566
Other Construction Equipment	Other Construction Equipment-0120	0120	18.40644806	18.05588677	17.62166255	17.621663	17.0341886	16.64366558	15.1103786	14.2745125	13.5028178	12.9724627	11.3874769
Other Construction Equipment	Other Construction Equipment-0175	0175	22.97684718	22.36392872	21.80849761	21.808498	21.2219807	19.80712812	18.1261587	17.1507043	16.3611557	15.2042803	12.9285492
Other Construction Equipment	Other Construction Equipment-0250	0250	23.32570984	21.72716254	19.55160212	19.551602	19.1564213	18.05954339	16.2573067	14.9261339	13.962385	12.9296787	10.9138002
Other Construction Equipment	Other Construction Equipment-0500	0500	30.51551776	29.29053189	26.44350563	26.443506	25.4032924	23.34087785	20.250211	18.2135314	16.546251	15.6895032	13.1730279
Other Construction Equipment	Other Construction Equipment-0750	0750	38.1627811	37.17630424	35.94519295	35.945193	35.8751016	34.70756083	31.7088706	30.4421189	27.4740651	23.4874436	19.0191917
Other Construction Equipment	Other Construction Equipment-1000	1000	51.19366811	46.74345368	40.29098079	40.290981	37.3241589	31.30418617	31.6347678	32.0500149	25.7078806	25.8912865	19.3946178
Other Construction Equipment	Other Construction Equipment-9999	9999	101.8158758	102.5146609	68.22536	68.22536	70.2922338	61.13713397	61.9423711	62.7834657	63.6146368	64.4388691	65.25964
Other General Industrial Equipment	General Industrial Equipment-0050	0050	6.830093392	6.672396897	6.533807634	6.5338076	6.13359728	5.834785848	5.16718112	4.68230415	4.12183276	3.64445645	3.07147686
Other General Industrial Equipment	General Industrial Equipment-0120	0120	15.30536869	14.93803349	14.62588955	14.62589	13.4295022	12.38259127	10.6914299	9.76035418	8.33780995	7.67646283	6.21484354
Other General Industrial Equipment	General Industrial Equipment-0175	0175	17.77862332	17.21670183	16.53607326	16.536073	15.4184351	14.21589389	12.0885928	9.6183012	8.52516271	8.02200945	6.93775213
Other General Industrial Equipment	General Industrial Equipment-0250	0250	22.02878436	19.90761505	18.59116749	18.591167	16.107877	14.71806395	11.4989458	10.0066995	8.72048524	8.44736798	7.87729136
Other General Industrial Equipment	General Industrial Equipment-0500	0500	25.07275007	22.39481861	21.82001106	21.820011	20.3787627	19.43605587	17.7197503	16.3402276	14.3823473	11.5778798	9.82916171
Other General Industrial Equipment	General Industrial Equipment-0750	0750	32.5267487	28.1398811	25.11677783	25.116778	22.1021191	18.20243386	16.7031603	16.1579161	12.5787481	11.8293855	9.8814211
Other General Industrial Equipment	General Industrial Equipment-1000	1000	47.62994821	49.02806029	50.42617237	50.426172	33.8632392	34.61219583	35.0342676	35.4563394	35.8784111	36.1825609	24.0451308
Other General Industrial Equipment	General Industrial Equipment-9999	9999	72.26691667	74.69246001	77.11800334	77.118003	81.96909	84.39463334	86.8201767	89.24572	12.5374343	12.9835835	13.4297327
Other Material Handling Equipment	Material Handling Equipment-0050	0050	8.757198579	8.421433483	8.125868603	8.1258686	8.38457403	7.712942982	6.61106511	6.5435434	6.36440133	5.74795077	5.59934102
Other Material Handling Equipment	Material Handling Equipment-0120	0120	18.99983803	16.48650027	15.22914065	15.229141	13.8996421	12.95052102	10.7571885	9.49842147	8.33957106	7.47282349	5.55461033
Other Material Handling Equipment	Material Handling Equipment-0175	0175	20.37554446	19.08661592	17.94158585	17.941586	16.8559657	15.56314621	12.1700877	10.9903813	9.54718876	9.1093596	7.87895553
Other Material Handling Equipment	Material Handling Equipment-0250	0250	25.04198176	24.25922893	22.89520433	22.895204	22.0080221	19.29194418	14.266036	12.46591	8.83486557	8.6257971	7.71265396
Other Material Handling Equipment	Material Handling Equipment-0500	0500	28.09590243	27.57126097	26.03593697	26.035937	25.633014	24.32672078	21.2598073	19.5789404	18.4573067	17.6080445	15.3115599
Other Material Handling Equipment	Material Handling Equipment-0750	0750	24.70951327	25.4213366	26.13315994	26.13316	27.5568066	25.72774122	22.9779198	23.4776422	17.199582	17.5191341	17.7969268
Other Material Handling Equipment	Material Handling Equipment-1000	1000	39.59218057	40.83956946	6.437556755	6.4375568	6.65786673	6.878176713	7.09848669	7.31879667	7.53910665	7.75941663	7.97972661
Other Material Handling Equipment	Material Handling Equipment-9999	9999	44.18915083	45.57993468	27.60061802	27.600618	29.1449529	29.97977619	30.8145995	31.6494228	32.4842461	8.07520155	8.20051329
Pavers	Pavers-0050	0050	9.771381896	9.709122578	9.540029153	9.5400292	9.26311676	9.077455817	8.62709252	7.82252455	7.56637039	7.09254219	6.38437124
Pavers	Pavers-0120	0120	17.30149575	16.59844215	16.04731725	16.047317	15.4220605	15.16675588	13.3557886	12.5265462	12.0362458	11.3311019	9.61798292
Pavers	Pavers-0175	0175	21.63426627	20.0686895	18.94900056	18.949001	16.6472823	15.3752631	13.1416973	12.2713043	11.0079179	10.0195063	7.52070086
Pavers	Pavers-0250	0250	10.0969098	9.421182462	9.330092592	9.3300926	9.24325668	8.860334668	7.98063108	7.30165781	6.43029501	5.96094444	4.82729155
Pavers	Pavers-0500	0500	17.2386577	15.97941704	13.76196757	13.761968	13.0875524	11.89252611	11.2327256	11.0207011	10.4922917	10.0577427	8.58259676
Pavers	Pavers-0750	0750	31.42856589	31.9515337	32.46195182	32.461952	33.445139	33.91790804	34.3781274	16.2861533	16.2447192	16.3776267	2.74006572
Paving Equipment	Paving Equipment-0050	0050	5.812182364	5.750536002	5.522985409	5.5229854	5.10909528	4.561035221	3.80697171	3.6676406	2.82919607	2.48445972	2.36049889

Paving Equipment	Paving Equipment-0120	0120	17.18527333	16.03426601	15.46756344	15.467563	14.2605221	13.06667636	10.7216983	10.0994162	8.9831912	7.74804008	6.34559073
Paving Equipment	Paving Equipment-0175	0175	15.29962012	14.27277468	13.27552265	13.275523	11.9520612	10.98972777	9.53971096	8.31440765	7.44799947	6.78075316	6.1806454
Paving Equipment	Paving Equipment-0250	0250	16.49843789	16.22722137	14.82045197	14.820452	13.901799	13.19610457	10.9913802	10.9603303	9.5732782	8.03284171	7.04652206
Paving Equipment	Paving Equipment-0500	0500	22.35631301	20.61571566	19.97459953	19.9746	20.1429595	18.6871106	13.3962916	12.1650447	11.9864996	11.1207379	7.50309369
Paving Equipment	Paving Equipment-0750	0750	24.42520839	19.16069686	19.48335528	19.483355	20.0992749	17.3979823	17.649698	15.2653444	13.6730013	11.6855598	8.27486243
Paving Equipment	Paving Equipment-1000	1000	64.21905869	64.70146905	33.071831	33.071831	34.133322	34.64879743	10.7742326	10.9711356	11.1647148	11.3549702	11.5419018
Rollers	Rollers-0050	0050	6.846538061	6.703468457	6.517184978	6.517185	6.33706939	6.06676906	5.458675	5.05770042	4.74850107	4.32145709	3.70622811
Rollers	Rollers-0120	0120	17.39482696	16.57920799	15.72136587	15.721366	14.6755129	13.87428228	11.5164895	10.4591112	9.5087148	8.74272696	7.30684379
Rollers	Rollers-0175	0175	13.7720828	12.98318834	12.10087217	12.100872	11.1726786	10.26761832	8.6036815	7.62926141	6.68843563	6.08379643	4.86793754
Rollers	Rollers-0250	0250	19.27864245	17.02071885	14.96766359	14.967664	14.0175587	12.76651546	9.56517647	8.30979136	7.97889179	7.65850394	6.49629993
Rollers	Rollers-0500	0500	34.90089909	30.99646522	30.44164822	30.441648	27.9795458	22.683135	19.3871935	14.3551889	14.1716117	14.0260258	12.8520317
Rollers	Rollers-0750	0750	61.4267973	61.99304409	62.55359433	62.553594	47.0697248	47.44066567	9.19422835	9.31546808	9.43367288	9.54884275	9.66097769
Rough Terrain Forklifts	Rough Terrain Forklifts-0050	0050	9.051337911	8.622516715	8.285469202	8.2854692	7.88683327	7.094521596	6.82478697	6.28530452	5.76230967	5.69197142	4.01037577
Rough Terrain Forklifts	Rough Terrain Forklifts-0120	0120	13.15271797	11.62647146	10.22697305	10.226973	8.5004899	7.246571043	5.59128124	4.87922735	4.30759753	3.88481721	3.18786925
Rough Terrain Forklifts	Rough Terrain Forklifts-0175	0175	9.825836019	8.216015017	7.649669489	7.6496695	6.76623102	6.140641258	5.04271735	4.48865052	3.86369511	3.1684392	2.59486128
Rough Terrain Forklifts	Rough Terrain Forklifts-0250	0250	26.68342542	23.46155317	22.6309653	22.630965	23.144964	23.4020262	22.7051904	22.6619443	22.182455	11.7596221	1.57869581
Rough Terrain Forklifts	Rough Terrain Forklifts-0500	0500	25.71544474	21.1328755	21.34403109	21.344031	21.7683361	21.99407029	14.3710174	14.4638415	12.9776541	1.34074844	1.35257504
Rough Terrain Forklifts	Rough Terrain Forklifts-0750	0750	198.7425758	200.0846683	201.4267608	201.42676	204.110946	205.4530383	206.795131	208.137223	209.479316	2.27074397	2.29073378
Rubber Tired Dozers	Rubber Tired Dozers-0050	0050	14.32139699	14.27305268	14.41065503	14.410655	14.5586549	14.58888068	14.5970337	14.5989755	14.5989185	14.5988582	14.6033717
Rubber Tired Dozers	Rubber Tired Dozers-0120	0120	27.13369114	27.4202984	27.6369845	27.636984	27.899625	27.1973336	26.795252	26.8130631	26.0085413	25.6263773	24.6458631
Rubber Tired Dozers	Rubber Tired Dozers-0175	0175	33.09366288	33.19837062	33.29670471	33.296705	33.4745535	32.29133831	31.5929429	30.5468498	29.8748402	29.8837898	29.0514382
Rubber Tired Dozers	Rubber Tired Dozers-0250	0250	33.19312518	32.9392488	32.73256109	32.732561	32.9664549	32.64804727	32.7247315	32.7658491	32.2367668	31.2689298	26.7368059
Rubber Tired Dozers	Rubber Tired Dozers-0500	0500	56.19119065	54.55898129	53.11113054	53.111131	52.4813526	51.44330958	47.7880405	45.9554045	44.2135095	43.2936143	40.2245154
Rubber Tired Dozers	Rubber Tired Dozers-0750	0750	63.19077789	63.43442248	63.67287065	63.672871	64.1341776	60.06217557	57.2688347	57.2728431	57.2765535	57.2799523	57.2830246
Rubber Tired Loaders	Rubber Tired Loaders-0050	0050	10.91636782	10.51161491	10.32218424	10.322184	10.1510834	9.876538573	9.51531339	8.47729623	8.01718567	7.22461655	6.53370071
Rubber Tired Loaders	Rubber Tired Loaders-0120	0120	20.90719725	20.47013648	19.604293	19.604293	18.4663216	17.63900582	15.9621048	14.6534949	13.4171879	12.1829753	10.6396248
Rubber Tired Loaders	Rubber Tired Loaders-0175	0175	20.60057503	20.06461671	19.22797682	19.227977	18.1558031	17.08223315	15.2342461	14.0211904	12.8962005	11.8487296	9.76101243
Rubber Tired Loaders	Rubber Tired Loaders-0250	0250	14.75149118	14.63605889	14.00150291	14.001503	13.5064477	12.8518534	11.1420664	10.2899533	9.45781652	8.60092891	7.26603476
Rubber Tired Loaders	Rubber Tired Loaders-0500	0500	24.39516712	24.26623327	23.47225558	23.472256	23.0053501	22.0183791	19.6719611	17.9951814	16.3173237	14.9701552	12.2746263
Rubber Tired Loaders	Rubber Tired Loaders-0750	0750	43.74181229	43.33318074	41.19470627	41.194706	39.9820265	39.55339348	33.6692036	28.8319823	27.8973618	25.4512082	22.2978929
Rubber Tired Loaders	Rubber Tired Loaders-1000	1000	58.70266764	58.43253754	59.04864329	59.048643	59.9042633	58.08578312	52.8206635	50.6350908	50.5600123	50.6776142	41.3177225
Rubber Tired Loaders	Rubber Tired Loaders-9999	9999	97.35630208	99.23307651	101.0324609	101.03246	103.884091	89.44817598	60.1873062	60.3373665	60.5856631	60.8196706	61.0383389
Scrapers	Scrapers-0050	0050	15.24228736	15.43294152	15.61669256	15.616693	15.9450482	16.08864674	16.226611	16.3589409	16.4856366	16.6066979	14.6959102
Scrapers	Scrapers-0120	0120	21.11328143	21.29327775	21.40613765	21.406138	22.0912404	22.41313053	22.3821078	22.1343771	21.5326193	21.5420022	20.6794994
Scrapers	Scrapers-0175	0175	35.93893041	35.20538679	34.00359271	34.003593	33.1400265	31.39329983	28.5048647	27.3087094	26.0200128	24.0798023	21.6951501
Scrapers	Scrapers-0250	0250	46.67490312	45.91359169	44.7918783	44.791878	44.2647224	42.87606787	38.851408	35.939888	34.3862516	32.0444142	28.5042941
Scrapers	Scrapers-0500	0500	49.41753623	48.78890171	47.76266785	47.762668	46.8768109	45.38922013	41.1691015	38.5828134	36.0981841	33.9110175	27.9898628
Scrapers	Scrapers-0750	0750	57.07799783	55.96315108	53.68998506	53.689985	52.4712912	50.72529717	46.8930698	43.1780955	40.785586	38.6423311	32.2609914
Scrapers	Scrapers-1000	1000	286.1426995	286.1426995	286.1426995	286.1427	286.1427	286.1426995	286.1427	286.1427	286.1427	286.1427	286.1427
Scrapers	Scrapers-9999	9999	245.1481675	249.7970411	254.4735064	254.47351	263.937123	268.7398374	273.60142	278.531621	223.341153	227.383295	150.064558
Skid Steer Loaders	Skid Steer Loaders-0050	0050	6.21002789	5.420718092	4.63871923	4.6387192	3.92733687	3.514658864	2.86070612	2.44649665	2.16968213	1.8304657	1.49340428
Skid Steer Loaders	Skid Steer Loaders-0120	0120	7.877902029	7.059058266	6.130001598	6.1300016	5.18321156	4.582682685	3.69820536	3.21393441	2.71889492	2.4062511	1.96583165
Skid Steer Loaders	Skid Steer Loaders-0175	0175	13.5914196	11.06182439	10.6716396	10.67164	8.90167616	7.051225475	6.86954016	5.21268632	4.07134149	3.9697708	3.59179335
Skid Steer Loaders	Skid Steer Loaders-0250	0250	16.90328719	13.28784141	9.230992729	9.2309927	9.79146094	9.479902825	8.77103722	3.63470723	3.10661403	2.65027178	2.01919567
Skid Steer Loaders	Skid Steer Loaders-0500	0500	16.22173822	10.96830664	11.01613797	11.016138	3.72264427	0.881425553	0.89295505	0.90378651	0.91392003	0.92335574	0.8951777
Skid Steer Loaders	Skid Steer Loaders-0750	0750	18.85773586	19.13462717	19.39242254	19.392423	19.8507254	20.0512329	20.2326445	20.3949601	20.5381797	20.6623034	20.7864271
Skid Steer Loaders	Skid Steer Loaders-1000	1000	108.8819387	108.9629155	109.0438924	109.04389	34.6764826	35.96006363	37.3397793	38.8296817	40.4464994	42.210307	6.79287467
Surfacing Equipment	Surfacing Equipment-0050	0050	5.081481069	4.915596662	4.669323837	4.6693238	4.76662027	4.327830567	4.36816097	3.92394754	2.73409759	2.4208987	1.88840518
Surfacing Equipment	Surfacing Equipment-0120	0120	11.39369238	11.0948259	10.46661335	10.466613	9.47241493	9.169451977	7.72824802	6.65789333	5.93699262	5.36908559	4.89615742
Surfacing Equipment	Surfacing Equipment-0175	0175	14.35710658	13.1686281	12.5518346	12.551835	12.4981432	12.41674215	10.0740741	10.1563709	9.43261021	8.72846316	8.05285397
Surfacing Equipment	Surfacing Equipment-0250	0250	13.50008808	12.35628999	10.34136549	10.341365	10.5451982	8.990936843	8.33858061	7.21830586	6.99307268	6.16479276	5.36865778
Surfacing Equipment	Surfacing Equipment-0500	0500	14.67192833	14.3514545	13.71024981	13.71025	12.9807949	11.65895616	9.06861501	8.69501395	7.46559447	6.98488595	6.61410603
Surfacing Equipment	Surfacing Equipment-0750	0750	20.13698463	20.30902467	19.13385866	19.133859	17.179604	16.76645017	14.5134645	14.148571	13.7910291	11.8388063	10.1346236
Surfacing Equipment	Surfacing Equipment-1000	1000	39.50891697	34.10515024	34.3815355	34.381535	34.9042827	35.15062471	35.3869296	35.6131831	29.9030392	25.074857	25.163573
Surfacing Equipment	Surfacing Equipment-9999	9999	57.94176848	29.39310782	29.6589907	29.658991	30.3207231	30.63467767	30.9373578	31.2287634	31.5088946	31.7777513	10.8258906
Sweepers/Scrubbers	Sweepers/Scrubbers-0050	0050	10.06845875	9.898692242	9.837791486	9.8377915	9.94226465	9.684701786	8.97310716	8.20187081	7.72307339	6.96928051	5.75610822
Sweepers/Scrubbers	Sweepers/Scrubbers-0120	0120	23.25982047	22.10394119	22.04609056	22.046091	21.2661949	19.21880293	16.1754588	15.4389438	14.0236126	12.8543281	10.5285483
Sweepers/Scrubbers	Sweepers/Scrubbers-0175	0175	40.51751153	39.72089371	38.17125298	38.171253	34.2596764	33.61173818	30.6640987	29.5197801	24.3662871	20.3089182	16.7511242
Sweepers/Scrubbers	Sweepers/Scrubbers-0250	0250	26.68055915	24.49065722	24.70791386	24.707914	25.1304167	21.63354639	20.2947826	15.0940444	9.6258059	7.38698401	4.65719595
Sweepers/Scrubbers	Sweepers/Scrubbers-0500	0500	35.17880178	35.51757361	35.85634544	35.856345	36.5338891	36.77872597	36.9847457	32.5211665	32.611072	32.7093331	32.8075942
Sweepers/Scrubbers	Sweepers/Scrubbers-1000	1000	37.37463092	38.49994309	39.62525527	39.625255	41.8758796	43.00119179	44.126504	45.2518161	46.3771283	47.5024405	6.79932183
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes-0050	0050	7.579586719	7.384121555	7.003900075	7.0039001	6.62036057	6.381601293	5.58678912	5.0138594	4.3845929	4.00410053	3.35299625
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes-0120	0120	14.91028169	14.30224519	13.45338363	13.453384	12.4395051	11.51145119	9.71628769	8.43186575	7.30748532	6.39759647	5.18275811
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes-0175	0175	14.81927951	14.30945486	13.33561066	13.335611	12.1625171	11.32642795	9.65636127	8.59568189	7.62461027	6.62743711	5.46366344
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes-0250	0250	13.01153337	12.70887319	12.14322915	12.143229	11.3965185	10.81655688	9.79236604	8.8315894	7.92647065	7.22566813	5.90571742
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes-0500	0500	19.76493986	19.18800978	18.08602768	18.086028	16.5911224	15.58754711	12.9304833	11.6992614	10.2819372	9.18338408	7.81368063
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes-0750	0750	32.35458569	32.81678751	32.52676995	32.52677	32.330633	31.93769988	28.1479788	25.0129856	23.3901616	22.7502797	18.9880603
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes-1000	1000	25.60305781	26.29465863	27.03504644	27.035046	28.2011675	28.7548784	26.1323076	26.5202723	15.9323718	16.2298005	16.1075981
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes-9999	9999	138.7826674	134.079133	119.2865075	119.28651	117.964528	113.3274314	89.8672109	65.3316918	56.5737216	56.2682604	51.6568714
Trenchers	Trenchers-0050	0050	10.23811702	10.17891584	10.04258996	10.04259	9.60941682	9.157160365	8.31603699	7.72335821	7.31169331	6.56713038	5.88903334
Trenchers	Trenchers-0120	0120	24.89840869	24.03122333	23.56445655	23.564457	22.8546232	22.23017102	19.8185176	18.7423978	17.5796832	16.5948305	15.9135507
Trenchers	Trenchers-0175	0175	31.52183279	31.87136311	29.58958039	29.58958	26.4220947	26.65489222	24.3132931	20.493124	18.5951406	18.1012407	16.5146181
Trenchers	Trenchers-0250	0250	32.18237985	30.48108869	28.48710911	28.487109	28.4025241	28.27085872	26.6649037	23.2773378	22.4376453	19.304715	17.6804386
Trenchers	Trenchers-0500	0500	30.28534893	30.60730916	29.02358621	29.023586	26.9728388	23.21927788	21.8387988	21.275458	20.7353241	18.5173115	17.3288432
Trenchers	Trenchers-0750	0750	21.5904835	21.91011006	19.06784735	19.067847	16.7584222	14.22526803	8.91126935	4.74193968	2.81224639	2.79504054	2.77594907
Trenchers	Trenchers-1000	1000	253.6758664	255.1307487	256.5856311	256.58563	259.495396	260.9502783	262.405161	263.860043	265.314925	266.769808	268.22469

VOC EMISSION FACTORS

Equipment Type		HorsepowerBin	BaseHC grams/hr										
			2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Aerial Lifts	Aerial Lifts-0050	0050	4.429599202	3.624586493	3.073497451	2.9401334	2.67024261	2.483113743	2.33509446	2.20294986	2.0239325	1.90162505	1.87388671
Aerial Lifts	Aerial Lifts-0120	0120	5.518246923	4.603322903	3.850879013	3.6371885	3.07616078	2.652087113	2.32168849	2.19129587	2.09957086	1.9991254	1.91545535
Aerial Lifts	Aerial Lifts-0175	0175	7.75566908	7.32745692	6.460230894	5.7053543	4.99122427	4.794055524	3.08518855	3.16434575	3.19664942	3.1385417	2.93890226
Aerial Lifts	Aerial Lifts-0250	0250	57.98898852	58.47278285	58.61531612	58.702624	51.365023	51.43404344	51.5030638	2.97878386	3.12372672	3.26866958	3.41361244
Aerial Lifts	Aerial Lifts-0500	0500	44.86102681	22.69946806	23.00708082	23.314694	23.6223063	23.9299191	6.51189157	6.82673083	7.14157008	7.45640934	7.77124859
Bore/Drill Rigs	Bore/Drill Rigs-0050	0050	14.30349933	13.96737311	13.60274316	13.81373	14.1781706	13.53736838	12.902617	12.4276243	11.9752133	11.8871649	10.7119341
Bore/Drill Rigs	Bore/Drill Rigs-0120	0120	12.63349884	11.99237125	11.11652419	11.125559	10.8567823	10.19436467	9.43986282	9.16547767	8.58810347	7.80279572	7.4853353
Bore/Drill Rigs	Bore/Drill Rigs-0175	0175	20.81057081	19.79771486	18.9969065	18.967	18.1219525	15.95305998	13.3507538	12.8602668	11.8809078	11.1313125	9.43830659
Bore/Drill Rigs	Bore/Drill Rigs-0250	0250	21.68429947	20.9875871	19.29159725	19.008808	18.2228724	16.36513493	14.6940566	13.5422546	13.0472743	12.6604578	11.406634
Bore/Drill Rigs	Bore/Drill Rigs-0500	0500	33.08207823	31.84619867	30.4333547	29.849022	28.5541095	27.06809722	23.7184211	23.605438	21.0027817	18.5087221	17.2625552
Bore/Drill Rigs	Bore/Drill Rigs-0750	0750	41.82471416	41.14072565	40.58304262	41.803733	39.5971554	39.51255971	31.181396	30.1849575	27.2975842	26.486837	23.8194294
Bore/Drill Rigs	Bore/Drill Rigs-1000	1000	67.47115861	51.42376457	40.07374131	41.699277	44.0333719	46.02047564	47.8000198	49.3688474	50.7217361	51.8493773	22.4724058
Bore/Drill Rigs	Bore/Drill Rigs-9999	9999	170.3263694	180.592636	189.5103611	197.07955	203.300209	208.1723322	211.695921	213.870976	216.046031	218.221086	220.396141
Cranes	Cranes-0050	0050	20.93284231	20.69346272	20.45711473	20.876193	21.2942513	21.70162014	20.7278956	20.4436817	20.8241212	21.130354	21.350049
Cranes	Cranes-0120	0120	27.57747468	27.02906885	26.87711651	26.549437	26.1850192	25.42339404	23.5399724	21.9102861	20.894209	19.7503103	17.4162958
Cranes	Cranes-0175	0175	29.35112184	29.07601314	28.08133373	28.242907	27.3459638	26.83801203	25.6433673	24.7533955	24.0355569	23.3737911	21.0938817
Cranes	Cranes-0250	0250	35.76882172	35.31255928	34.58276817	34.56708	34.5685348	33.4109596	31.806322	30.8027187	29.7116535	29.5030565	27.0240343
Cranes	Cranes-0500	0500	41.1916799	40.0050294	39.21068372	38.897055	37.5569513	36.42388702	34.0029159	32.9447428	32.2439675	31.2731125	28.9942728
Cranes	Cranes-0750	0750	36.82011075	37.17848838	37.7988077	38.615547	39.460428	40.05618041	37.7498243	37.6609804	37.0755007	35.5917457	34.2518255
Cranes	Cranes-1000	1000	231.5530042	232.0836211	232.6046887	233.11622	233.619286	234.1244393	193.408287	190.79544	152.191221	153.496994	154.348594
Cranes	Cranes-9999	9999	81.94076059	82.94428173	29.52938683	32.163174	34.7532069	37.29948474	39.8020078	42.2607762	44.6757897	47.0470485	49.3745525
Crawler Tractors	Crawler Tractors-0050	0050	39.59543292	38.74698364	38.28872329	38.704824	38.7969132	38.37915423	37.7407657	37.5580538	37.8342168	37.7249927	36.5161605
Crawler Tractors	Crawler Tractors-0120	0120	27.57286187	27.64943169	27.35761795	27.440161	27.2477804	27.03041551	26.1146757	25.392427	24.2384184	23.6340213	22.2117905
Crawler Tractors	Crawler Tractors-0175	0175	33.96317138	33.96338231	33.77486965	34.077802	33.9565963	33.84032197	32.1847551	30.537593	29.017152	27.5919367	25.1521673
Crawler Tractors	Crawler Tractors-0250	0250	33.21331324	33.25960359	33.1879086	33.451785	33.5925015	33.31745508	31.7594085	30.4432366	28.7421527	27.5443101	25.1374293
Crawler Tractors	Crawler Tractors-0500	0500	50.93878606	51.2980824	50.73363092	51.165886	51.2088443	50.63588517	47.2230142	45.1666084	43.263904	41.0807189	36.3765795
Crawler Tractors	Crawler Tractors-0750	0750	72.25482173	71.25562667	70.3380702	71.240607	70.552597	68.54895969	64.3085334	61.6623599	60.974498	59.310096	51.8859958
Crawler Tractors	Crawler Tractors-1000	1000	137.0839529	138.3179717	139.4871473	140.59017	141.625459	142.5910447	143.48413	134.955448	124.816019	125.675556	105.672337
Crawler Tractors	Crawler Tractors-9999	9999	176.6711561	179.5848235	182.3410027	184.93454	187.359199	189.6074346	191.66996	179.48773	180.476265	181.741344	182.762437
Excavators	Excavators-0050	0050	9.649167152	9.452231964	9.316082795	9.4029407	9.25916451	8.793849369	7.93157651	7.39503093	6.74947859	6.38860704	5.6634492
Excavators	Excavators-0120	0120	14.63025666	13.87665152	13.3359192	13.269733	12.6263801	11.86978641	10.4631059	9.52223904	8.74473981	8.09219582	7.09792879
Excavators	Excavators-0175	0175	20.70686852	19.57064871	18.16834188	18.004661	17.3499754	16.27526312	14.2478472	13.0347112	12.0867371	11.1818377	9.66582535
Excavators	Excavators-0250	0250	23.32927161	22.61376476	20.91804435	20.73894	19.5784938	18.42644595	15.6634046	14.2783804	13.3091278	12.2989784	10.8852276
Excavators	Excavators-0500	0500	26.88812761	26.08970443	24.91781253	25.148458	23.9691169	22.64968416	19.5926242	17.9643366	16.617027	15.7067212	14.0716077
Excavators	Excavators-0750	0750	51.21901792	48.57919141	43.03794206	43.648294	44.4505745	40.39276559	35.7826426	34.1397102	33.0488104	31.325568	29.3312737
Excavators	Excavators-1000	1000	115.3902342	116.9443654	111.3241594	112.21141	113.300568	66.08561422	47.5257184	42.304754	43.9118524	45.453608	25.0055686
Excavators	Excavators-9999	9999	126.8848679	110.44521	100.0103657	104.59819	109.813773	114.7897645	71.2875872	72.6801456	76.2008241	79.575776	39.9569493
Forklifts	Forklifts-0050	0050	16.58075506	15.81548609	15.18861962	15.003247	14.3247307	13.59694139	11.8730932	10.6018605	9.51146881	8.59530815	7.81220303
Forklifts	Forklifts-0120	0120	11.80206307	11.53486283	11.07974878	10.81448	10.4153328	9.877253057	8.67871856	8.0757917	7.19751909	6.7162509	6.06824937
Forklifts	Forklifts-0175	0175	15.08460764	14.83478128	14.17418491	13.947176	13.6185033	13.11691898	11.9640434	11.1280851	9.73091926	8.91022532	8.01880598
Forklifts	Forklifts-0250	0250	23.94924383	22.87147213	22.94079399	22.263085	21.8184569	21.08939208	17.8879941	15.5894121	13.677315	13.0989423	11.3497299
Forklifts	Forklifts-0500	0500	38.14601901	35.07752601	34.85088957	33.219551	30.844564	25.92995339	23.6634466	22.9528292	19.4058441	18.8922931	15.5894211
Forklifts	Forklifts-1000	1000	227.5554024	227.5554125	227.5554125	227.55541	227.555412	227.5554125	227.555412	227.555412	227.555412	227.555412	227.555412
Graders	Graders-0050	0050	41.0127625	41.37896659	40.92220371	41.250182	41.5271873	41.6542047	39.1766096	39.2798987	38.0652164	37.0837797	34.7341254
Graders	Graders-0120	0120	40.03538954	40.00042732	39.66420114	39.759297	39.7780293	39.69430786	36.7998502	36.1779953	34.2860872	33.7501893	31.3720395
Graders	Graders-0175	0175	42.95348189	42.86638124	42.62730042	42.800093	42.1256368	40.92992218	38.2672604	36.8148864	34.590693	32.7406934	29.0985562
Graders	Graders-0250	0250	26.06049041	26.44182234	26.92861478	27.566816	27.9170664	28.10030427	27.7700155	27.7519645	27.2647629	25.8620452	23.6397198
Graders	Graders-0500	0500	29.56602494	29.92366601	31.27120051	32.457775	33.2859297	33.80089003	33.269832	33.5286754	32.9172354	33.3078781	32.4129787
Graders	Graders-1000	1000	189.7940613	190.7602869	190.7602869	190.76029	190.760287	190.7602869	190.760287	190.760287	190.760287	190.760287	26.4119145
Graders	Graders-9999	9999	283.2337916	288.9315076	294.2701849	299.13716	303.182431	308.7749882	314.138122	319.278393	324.203818	328.924295	333.203971
Off-Highway Tractors	Off-Highway Tractors-0050	0050	23.86965761	23.39419369	23.21475166	23.116026	23.0763308	22.4665655	20.365481	18.9038616	17.9893798	16.7804023	14.2435823
Off-Highway Tractors	Off-Highway Tractors-0120	0120	21.56670522	20.98962287	19.64155049	19.385307	18.5347269	17.57551343	16.0059219	15.0256894	14.0048803	13.1115755	12.0006724
Off-Highway Tractors	Off-Highway Tractors-0175	0175	27.42006106	26.0233164	24.46559171	23.438763	22.6557712	20.80959129	18.9620965	17.3656108	16.0863543	15.6221897	13.9169472
Off-Highway Tractors	Off-Highway Tractors-0250	0250	33.40005485	32.9521418	31.19722241	31.31964	30.824685	29.72526607	25.7418115	23.9695205	22.0564026	19.8791469	16.4742783
Off-Highway Tractors	Off-Highway Tractors-0500	0500	39.85737613	36.91084472	34.71481614	35.136329	33.6115994	31.00804041	27.5144922	25.4933106	23.4176552	21.8950992	19.9426362
Off-Highway Tractors	Off-Highway Tractors-0750	0750	65.65244927	63.33976766	55.73391579	58.006542	56.1198521	50.1789777	41.625605	43.6544997	41.1546586	37.7492075	38.3011936
Off-Highway Tractors	Off-Highway Tractors-1000	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	Off-Highway Tractors-9999	9999	478.5090203	481.7408037	484.9998064	487.99959	368.253586	371.5864376	374.99421	213.014181	216.57668	221.679223	226.707236
Off-Highway Trucks	Off-Highway Trucks-0050	0050	15.29414354	15.07646799	15.22589776	15.325209	15.3761241	13.20727331	10.4908715	9.36520297	8.70920909	8.43075519	8.07503056
Off-Highway Trucks	Off-Highway Trucks-0120	0120	25.41043176	24.18507682	19.59392522	19.881022	20.2511485	18.66032219	17.6146072	17.8721398	18.0945614	15.9141345	13.5630393
Off-Highway Trucks	Off-Highway Trucks-0175	0175	29.67605256	28.30954392	25.83416373	25.755055	24.4809706	23.18132797	20.2785749	18.2336971	16.9039078	15.964737	13.5353854
Off-Highway Trucks	Off-Highway Trucks-0250	0250	36.16075035	35.52498512	34.19052136	34.124071	33.5782206	31.58445382	27.3635495	25.7490962	23.9598955	21.9303782	18.5069241
Off-Highway Trucks	Off-Highway Trucks-0500	0500	51.94363463	50.07066771	47.60348293	47.057708	45.2033502	43.07618285	38.4191926	36.415368	33.5758271	31.3624793	27.474101
Off-Highway Trucks	Off-Highway Trucks-0750	0750	115.0392565	113.7537551	110.9002002	111.34793	109.864075	102.4128077	85.1357124	77.5497138	72.7783808	66.373595	60.1523885
Off-Highway Trucks	Off-Highway Trucks-1000	1000	133.0368828	129.2285509	119.637384	120.17633	119.070023	113.0590477	93.7591158	93.4128216	90.8405364	85.0305905	71.660139
Off-Highway Trucks	Off-Highway Trucks-9999	9999	256.7598649	251.1598428	235.7160565	237.53841	223.055846	220.198642	182.437013	180.176033	165.775198	151.529238	116.88861
Other Construction Equipment	her Construction Equipment-0050	0050	16.98059102	17.23384513	16.97063231	17.102151	16.9538211	16.58662251	15.6466985	15.3709688	14.7815856	14.2633362	13.3825445
Other Construction Equipment	her Construction Equipment-0120	0120	21.42790351	21.07597028	20.50046185	20.321663	19.9865658	19.62228399	17.9841089	17.1675035	16.3785263	15.8515995	14.1854243
Other Construction Equipment	her Construction Equipment-0175	0175	32.14526448	31.19334976	30.44933249	30.542417	29.8129992	27.94164856	25.7746825	24.6173599	23.5810014	22.199501	19.3966746
Other Construction Equipment	her Construction Equipment-0250	0250	35.54428794	33.39360098	30.68346266	30.932496	30.5071257	29.07663408	26.6544195	24.9774391	23.8771531	22.6394957	19.7559621
Other Construction Equipment	her Construction Equipment-0500	0500	47.23817568	45.90476522	42.40689051	42.977294	41.9857105	39.50390026	35.3181016	32.7703212	30.7108862	29.8730466	26.5428749
Other Construction Equipment	her Construction Equipment-0750	0750	59.52397352	58.86362201	57.94081111	59.238094	59.5682249	58.72246273	55.1781219	54.0762632	50.8118058	45.9185801	40.3480052
Other Construction Equipment	her Construction Equipment-1000	1000	82.60309159	75.29017752	63.07014288	65.055585	60.4409326	51.71356442	53.3500266	55.0886856	45.7598766	47.0187361	37.6204682
Other Construction Equipment	her Construction Equipment-9999	9999	166.801546	169.0638035	114.8103897	117.93121	120.940938	107.2899606	109.643856	112.38819	115.049935	117.634997	120.150253
Other General Industrial Equipment	eneral Industrial Equipment-0050	0050	15.78757214	15.42070931	15.10391047	14.958544	14.2516341	13.63035792	12.0565548	10.9290125	9.73951098	8.79095456	7.5860251
Other General Industrial Equipment	eneral Industrial Equipment-0120	0120	17.51673142	17.06183103	16.66254417	16.136048	15.4156771	14.39531883	12.6338049	11.7080727	10.3271531	9.79443914	8.38442936
Other General Industrial Equipment	eneral Industrial Equipment-0175	0175	24.26760701	23.6081613	22.90445054	22.244542	21.5948921	20.34733216	17.754523	14.9501581	13.5943663	13.2302547	12.0658583
Other General Industrial Equipment	eneral Industrial Equipment-0250	0250	33.48858139	30.80299671	29.38845715	27.177144	26.6882068	24.98608643	20.6861328	18.8984134	17.3161779	17.0909825	16.4851007
Other General Industrial Equipment	eneral Industrial Equipment-0500	0500	40.0860381	36.96449756	36.83657033	36.484215	35.8345448	34.82889519	32.8387746	31.1080138	28.8169719	25.1620262	23.0450988
Other General Industrial Equipment	eneral Industrial Equipment-0750	0750	53.20613508	48.42688253	45.36153568	43.132071	43.1995327	37.74099734	36.161427	34.4584784	29.1802904	28.9579016	25.9389315
Other General Industrial Equipment	eneral Industrial Equipment-1000	1000	82.00788639	84.27542741	86.54296482	88.810502	60.5533024	62.63983508	64.3124232	65.9850112	67.6575993	69.0122871	47.4090432
Other General Industrial Equipment	eneral Industrial Equipment-9999	9999	103.5349959	112.4328485	121.3306966	130.22854	139.126393	148.0242409	156.922089	165.819937	33.4248426	37.8360639	42.2472852
Other Material Handling Equipment	aterial Handling Equipment-0050	0050	21.9685182	20.66540936	19.79708472	20.242951	20.6134536	18.86610224	15.5784719	15.4106432	15.0558703	13.4498899	13.3940321
Other Material Handling Equipment	aterial Handling Equipment-0120	0120	20.8960076	18.52724557	17.06415951	16.288012	16.1283773	15.32084595	13.2890645	12.1124971	11.1479381	10.5019536	8.78253288
Other Material Handling Equipment	aterial Handling Equipment-0175	0175	27.49322019	26.4495062	24.97669377	25.208962	24.1855841	22.81549385	18.596489	17.3261769	15.7139639	15.2951278	13.2816476
Other Material Handling Equipment	aterial Handling Equipment-0250	0250	38.73764867	38.02469231	36.54033203	35.441017	35.9391572	32.6116924	26.1158627	23.8611614	19.0880333	19.0920384	17.7948056
Other Material Handling Equipment	aterial Handling Equipment-0500	0500	42.78527325	42.78244728	41.17550479	41.299247	42.0680085	40.9350936	37.2417058	35.5013833	34.4341856	33.7137837	30.631676
Other Material Handling Equipment	aterial Handling Equipment-0750	0750	37.45916637	39.94339979	42.42763156	44.911863	47.3960951	45.47358674	42.7589917	45.0799652	36.2347141	37.8267927	39.5534977
Other Material Handling Equipment	aterial Handling Equipment-1000	1000	61.57691274	65.71005478	15.31330453	15.313305	17.4915807	19.66985679	21.8481329	24.026409	26.2046852	28.3829613	30.5612374
Other Material Handling Equipment	aterial Handling Equipment-9999	9999	65.45146975	70.30156658	48.436795	50.787714	54.3776306	57.96754729	61.557464	65.1473807	68.7372974	24.8543224	26.0933202
Pavers	Pavers-0050	0050	25.47898513	25.35650372	25.168817	24.723796	24.5968476	24.15495331	23.0445411	21.1905858	20.606557	19.3047692	17.5669014
Pavers	Pavers-0120	0120	20.35362136	19.47714145	18.77809868	18.858789	18.1393189	17.89505788	15.7318378	14.8204154	14.3262343	13.6289281	11.7869959
Pavers	Pavers-0175	0175	30.91283621	28.91075458	27.4411011	27.023529	24.5190144	22.88908874	19.8639722	18.6988776	17.0932379	15.896377	12.660393
Pavers	Pavers-0250	0250	15.57321177	15.12498969	15.22752621	15.69425	15.6425705	15.26476366	14.1912712	13.4566398	12.4156301	11.8307999	10.3332901
Pavers	Pavers-0500	0500	24.36317226	22.94190574	20.24241968	19.790978	20.2635289	18.84817518	18.4675539	18.7107585	18.5054888	18.4257447	16.9223102
Pavers	Pavers-0750	0750	38.6971357	40.81727716	42.88653979	44.904925	46.8724337	48.78906504	50.6548192	29.3322463	29.7884731	31.0763947	13.4743212
Paving Equipment	Paving Equipment-0050	0050	11.89104068	11.69020852	11.20505478	10.459627	10.5606276	9.899669874	8.4523489	8.27990488	6.83477909	6.08581113	6.00573258

Paving Equipment	Paving Equipment-0120	0120	19.89075541	18.58696241	17.85407115	17.60203	16.8566249	15.62610823	13.2078476	12.5331422	11.4206163	10.1862534	8.7542093
Paving Equipment	Paving Equipment-0175	0175	20.69313745	19.47670383	18.18792452	18.000243	16.9873435	15.84336691	14.1417826	12.792719	11.744069	11.0079427	10.4069294
Paving Equipment	Paving Equipment-0250	0250	25.25406526	24.94290705	23.20331577	23.501737	22.2605654	21.29041774	18.2628978	18.413394	16.7755301	14.6613434	13.374789
Paving Equipment	Paving Equipment-0500	0500	34.28665201	31.90999608	31.29903437	32.005882	32.1496335	30.34234488	22.9667456	21.6936942	21.7847768	20.9400212	16.0063263
Paving Equipment	Paving Equipment-0750	0750	44.24885364	37.43749875	38.71084599	39.961381	40.4673288	36.93703428	38.092641	35.1473986	33.6592958	31.3457212	26.496449
Paving Equipment	Paving Equipment-1000	1000	120.337834	121.2528393	53.97138737	55.340341	56.6852615	58.00614892	19.2600386	20.7209626	22.1574061	23.569369	24.9568514
Rollers	Rollers-0050	0050	15.09924392	14.89339878	14.59555391	14.68079	14.4487904	13.90205233	12.556186	11.7889056	11.181217	10.4277753	9.16629883
Rollers	Rollers-0120	0120	20.91423579	19.99584314	18.99149571	18.818054	17.8559918	16.99728449	14.263032	13.127089	12.1177702	11.3331595	9.7870378
Rollers	Rollers-0175	0175	18.64835728	17.76839392	16.77929669	16.728211	15.821013	14.75519687	12.7525315	11.5963379	10.4745482	9.76536563	8.22313315
Rollers	Rollers-0250	0250	30.88318408	27.52235619	24.42656562	23.800761	23.2544326	21.55047426	16.864632	15.3522872	15.1177975	14.7987964	13.0624865
Rollers	Rollers-0500	0500	52.74970129	46.8145356	46.35165995	45.645316	43.453299	35.98112165	31.4442737	24.6200047	24.7246165	24.7969229	23.3781758
Rollers	Rollers-0750	0750	97.9376948	98.60146382	99.25801481	73.664201	74.4151006	75.15846459	16.1466148	16.9159848	17.666674	18.3986824	19.1120099
Rough Terrain Forklifts	Rough Terrain Forklifts-0050	0050	19.02200618	18.83982218	18.56892912	18.675753	18.1985839	16.95711772	16.8370105	15.9840083	14.998749	14.9796515	11.0616865
Rough Terrain Forklifts	Rough Terrain Forklifts-0120	0120	14.26316935	12.71116461	11.37926692	11.020374	9.9698668	8.940250546	7.52292471	6.89948375	6.4635302	6.14267485	5.51196469
Rough Terrain Forklifts	Rough Terrain Forklifts-0175	0175	12.16867847	10.62949206	10.08160316	9.8895469	9.40314817	8.811894165	7.74367593	7.23691754	6.60438724	5.72383541	5.10133649
Rough Terrain Forklifts	Rough Terrain Forklifts-0250	0250	40.30663032	35.72917967	34.60745799	35.069079	35.5266688	35.98024551	34.8503767	34.8096796	34.0646877	19.5994806	5.32665031
Rough Terrain Forklifts	Rough Terrain Forklifts-0500	0500	41.19830791	34.94945131	35.44172332	35.957222	36.4643197	37.00660854	25.0476691	25.4855353	24.2167758	8.15885437	8.50117728
Rough Terrain Forklifts	Rough Terrain Forklifts-0750	0750	300.4042584	301.9034538	303.4026361	304.90182	306.401	307.9001827	309.399365	310.898547	312.397729	12.4750834	13.0021386
Rubber Tired Dozers	Rubber Tired Dozers-0050	0050	40.40512068	39.87521425	40.23937516	40.418664	40.5233838	40.55723462	40.5562846	40.5538366	40.5474517	40.5407002	40.5517184
Rubber Tired Dozers	Rubber Tired Dozers-0120	0120	32.29959806	32.60017369	32.84228464	33.029733	33.1783006	32.48217326	32.1001148	32.1468639	31.2939953	30.9362211	29.8124695
Rubber Tired Dozers	Rubber Tired Dozers-0175	0175	46.58770008	46.78902488	46.98186877	47.168676	47.3361475	45.82352674	44.9874524	43.5104625	42.6466449	42.7082296	41.8366494
Rubber Tired Dozers	Rubber Tired Dozers-0250	0250	49.95772217	49.80750561	49.71592654	50.205695	50.7079499	50.46124508	50.8100188	51.0422351	50.1553102	48.9536393	42.1723835
Rubber Tired Dozers	Rubber Tired Dozers-0500	0500	85.83676814	83.97510711	82.54053935	82.58309	82.7818762	81.76493246	77.1006288	74.7531402	72.4964989	71.4471502	67.5394805
Rubber Tired Dozers	Rubber Tired Dozers-0750	0750	101.9685291	102.8903422	103.7929579	104.6764	105.540701	100.3376936	96.6388343	96.8470706	97.0508021	97.2500155	97.4446954
Rubber Tired Loaders	Rubber Tired Loaders-0050	0050	28.60756917	27.30870986	26.68508366	26.598264	26.1539415	25.31008521	24.4234843	21.7826195	20.8279786	19.2538518	17.7295453
Rubber Tired Loaders	Rubber Tired Loaders-0120	0120	24.10813212	23.66227634	22.72823504	22.625175	21.6871643	20.81132392	19.029414	17.7127611	16.4936467	15.3510538	13.7905598
Rubber Tired Loaders	Rubber Tired Loaders-0175	0175	28.84580209	28.3706455	27.36995459	27.168507	26.3410008	25.11291799	22.8193316	21.3910367	20.0473152	18.8791203	16.3428104
Rubber Tired Loaders	Rubber Tired Loaders-0250	0250	25.46582019	25.70854067	25.1655611	25.251095	24.9286282	24.07561927	21.5881513	20.4315882	19.3318966	18.1552054	16.1333021
Rubber Tired Loaders	Rubber Tired Loaders-0500	0500	41.39285307	41.89335818	41.41130718	41.919484	41.5716962	40.26737936	36.993142	34.715985	32.5205806	30.8501166	27.1165549
Rubber Tired Loaders	Rubber Tired Loaders-0750	0750	73.28535318	74.1687231	72.717032	74.368827	72.9384401	72.61234556	64.4541397	57.7454601	56.8026399	53.7228852	49.4394425
Rubber Tired Loaders	Rubber Tired Loaders-1000	1000	102.2147789	101.8840103	103.5710265	105.0948	106.272854	103.7667897	94.6770794	91.6761607	91.9804367	92.6623403	77.3674644
Rubber Tired Loaders	Rubber Tired Loaders-9999	9999	178.6390372	183.8145369	188.7826545	193.44075	197.290776	170.4767694	115.021856	116.75436	119.486347	122.117937	124.648523
Scrapers	Scrapers-0050	0050	44.57636271	45.26698038	45.93246702	46.572825	47.1160577	47.6302331	48.1242341	48.5980606	49.0517128	49.4851906	43.7826107
Scrapers	Scrapers-0120	0120	23.92739903	24.03638649	24.17017054	24.572014	24.9594397	25.33192143	25.3271932	25.0773478	24.4086044	24.4577286	23.4718132
Scrapers	Scrapers-0175	0175	50.94400183	49.9674048	48.176457	48.323348	47.3893683	45.2129775	41.3802464	39.962329	38.3554676	35.9389293	32.8307035
Scrapers	Scrapers-0250	0250	70.47556639	69.57547383	68.11464411	68.400103	67.6907363	65.85230692	60.3433806	56.4354267	54.446949	51.2829647	46.1920272
Scrapers	Scrapers-0500	0500	76.21016004	75.87745344	74.92351122	75.551519	74.7080672	73.11655749	67.5286019	64.3564233	61.2850701	58.637628	50.5015216
Scrapers	Scrapers-0750	0750	88.60339371	87.99525311	85.58846418	87.201159	86.010146	84.64439758	80.0874477	75.37999	72.4933554	70.0151733	61.0164458
Scrapers	Scrapers-1000	1000	444.5242479	444.5242675	444.5242675	444.52427	444.524268	444.5242675	444.524268	444.524268	444.524268	444.524268	444.524268
Scrapers	Scrapers-9999	9999	372.2928119	381.4592242	390.5659267	399.62203	408.637431	417.6229642	426.590467	435.552927	358.188608	366.021947	257.625965
Skid Steer Loaders	Skid Steer Loaders-0050	0050	11.47237339	10.1394733	8.94634804	8.6797013	8.11969383	7.625241876	6.55623774	5.94622049	5.61942381	5.09936572	4.5591133
Skid Steer Loaders	Skid Steer Loaders-0120	0120	8.001553356	7.328019231	6.56683695	6.3488685	5.92499614	5.476561066	4.73579237	4.37584498	3.99395444	3.7808469	3.43001041
Skid Steer Loaders	Skid Steer Loaders-0175	0175	18.12987356	14.76744085	14.11755563	14.196274	12.2134685	9.74925622	9.59881946	8.17272186	7.45559078	7.56357242	6.85870267
Skid Steer Loaders	Skid Steer Loaders-0250	0250	24.18959819	19.62300649	14.55712227	15.1314	15.7223838	15.36253362	14.4151476	7.31406047	6.53148298	5.87657609	5.3779455
Skid Steer Loaders	Skid Steer Loaders-0500	0500	24.96809907	18.64728016	19.07614655	19.475721	8.28945679	5.322594004	5.67208273	5.99788202	6.29974291	6.57734265	4.87399281
Skid Steer Loaders	Skid Steer Loaders-0750	0750	20.83586122	21.95839449	23.00351082	23.971211	24.8614954	25.67436367	26.4098159	27.0678521	27.6484723	28.1516764	28.6548806
Skid Steer Loaders	Skid Steer Loaders-1000	1000	193.3907644	193.8161228	194.2414727	194.66682	62.1866053	65.10422608	68.1224865	71.2644319	74.5574973	78.0346046	18.3444724
Surfacing Equipment	Surfacing Equipment-0050	0050	11.20609671	10.86871483	10.14145406	10.303398	10.4580242	9.428837272	9.56895533	9.11207887	5.90488264	5.12192156	4.42481361
Surfacing Equipment	Surfacing Equipment-0120	0120	13.17639848	12.98769284	12.35504929	12.100083	11.7158922	11.4087423	9.82295105	8.56631547	7.69860618	7.09961805	6.64777874
Surfacing Equipment	Surfacing Equipment-0175	0175	20.66087115	18.6567122	17.80024288	17.995172	17.7733813	17.68911194	14.5352054	14.6701499	13.6523095	12.6766574	11.958734
Surfacing Equipment	Surfacing Equipment-0250	0250	21.79111878	20.07563006	17.29091311	17.510035	17.7431615	15.48196795	14.3295386	12.5884913	12.33812	11.3494958	10.3571028
Surfacing Equipment	Surfacing Equipment-0500	0500	22.00444785	21.92500505	21.40242868	21.742376	20.8848428	19.05926269	15.2808664	14.9954247	13.377501	12.825759	12.4819987
Surfacing Equipment	Surfacing Equipment-0750	0750	27.07624599	27.73357156	26.62626268	27.228706	24.800612	24.5884913	21.8356606	21.7410202	21.7475473	19.8650618	18.3080428
Surfacing Equipment	Surfacing Equipment-1000	1000	70.99401174	59.8190598	60.37806743	60.918534	61.440439	61.94375837	62.4284646	62.8945254	53.3571699	45.0489037	45.4083352
Surfacing Equipment	Surfacing Equipment-9999	9999	101.6210441	45.47259724	46.18937827	47.555196	48.877981	50.15773209	51.3944497	52.5881338	53.7387844	54.8464015	23.3609503
Sweepers/Scrubbers	Sweepers/Scrubbers-0050	0050	24.51770731	24.05103736	23.84947363	24.38559	24.3469971	23.68071402	21.7930204	19.7654841	18.5415745	17.0973129	14.3768489
Sweepers/Scrubbers	Sweepers/Scrubbers-0120	0120	26.46340425	25.01507887	24.90546337	25.048417	24.13272	22.01991178	18.7927751	18.0842361	16.686174	15.6481773	13.4098033
Sweepers/Scrubbers	Sweepers/Scrubbers-0175	0175	57.59057754	56.61250369	54.77204101	53.938684	49.8006208	49.07643972	45.2889786	43.9773336	37.6338395	32.8642183	28.3330788
Sweepers/Scrubbers	Sweepers/Scrubbers-0250	0250	40.94756193	38.21099612	38.83885527	39.466714	40.0744758	35.5905804	33.6624824	26.4937857	19.4773085	16.2081173	12.2247191
Sweepers/Scrubbers	Sweepers/Scrubbers-0500	0500	50.07260122	51.07592668	52.07924994	53.082573	54.0858964	54.97026688	55.8054819	49.3063295	49.6708115	50.2555965	50.8403815
Sweepers/Scrubbers	Sweepers/Scrubbers-1000	1000	41.50334091	46.06541911	50.62749549	55.189572	59.7516482	64.31372463	68.875801	73.4378774	77.9999538	82.5620301	16.0436085
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes-0050	0050	17.42875049	16.91187086	15.89656112	15.666006	15.1210308	14.6337086	12.8239703	11.6886544	10.5605972	9.9100744	8.77311755
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes-0120	0120	16.19022878	15.62639478	14.76557816	14.544677	13.9616427	13.1382283	11.4218904	10.2698975	9.31508935	8.55571751	7.4755543
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes-0175	0175	20.33488513	19.86839413	18.7529461	18.732344	17.5822796	16.69648485	14.6256843	13.4483353	12.3673912	11.2301315	9.82635246
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes-0250	0250	21.3531562	21.19298795	20.58791561	20.616999	20.0072033	19.36892872	18.0703222	16.8894692	15.6778728	14.7996387	12.8178555
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes-0500	0500	32.07721914	31.73216331	30.74269453	30.946807	29.5561369	28.42174728	24.8831523	23.4040881	21.6404551	20.3068133	18.4099581
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes-0750	0750	50.84572153	52.529489	53.31893456	54.938521	55.0218137	55.34680854	50.2492882	46.7700976	45.0778329	44.9265503	39.8230275
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes-1000	1000	50.96101692	54.1684818	44.86412864	46.772521	49.2082457	51.49385495	47.9098928	49.3970677	33.7665431	35.7881276	33.7763123
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes-9999	9999	220.9349042	215.1250269	197.4962139	192.10788	199.072633	194.359652	163.064058	129.090726	118.608458	120.430694	114.789355
Trenchers	Trenchers-0050	0050	21.44567343	21.35047458	21.0606719	21.051121	20.4814505	19.50480361	17.5377478	16.2987948	15.5049046	14.2289576	12.9804804
Trenchers	Trenchers-0120	0120	30.14145882	28.95409572	28.31573286	28.193199	27.4826019	26.75042446	23.950998	22.7027551	21.4365221	20.407648	19.7422491
Trenchers	Trenchers-0175	0175	45.56275913	46.00724375	42.748236	42.993313	38.4496639	38.81821216	35.4411096	30.1088749	27.7946262	27.1412141	25.1370431
Trenchers	Trenchers-0250	0250	50.48482481	47.88770849	45.16685595	45.621162	45.25669	45.10039141	42.6428563	38.1831511	37.0654322	32.9763997	30.6458444
Trenchers	Trenchers-0500	0500	46.17045826	47.07716817	45.54198587	46.370323	44.0634434	39.58401247	38.1919176	37.9634896	37.3561154	33.857783	32.4852171
Trenchers	Trenchers-0750	0750	29.37365673	31.18709619	30.25700445	29.231186	30.7862007	29.27293199	24.1697685	20.087878	18.0338594	16.9325843	14.6257622
Trenchers	Trenchers-1000	1000	400.1529244	401.8667003	403.5804586	405.29422	407.007975	408.7217333	410.435492	412.14925	413.863008	415.576766	417.290525

CO2 EMISSION FACTORS

Equipment Type		HorsepowerBin	BaseCO2 pounds/hr										
			2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Aerial Lifts	Aerial Lifts-0050	0050	18.13951023	18.13951023	18.13951023	18.13951	18.1395102	18.13951023	18.1395102	18.1395102	18.1395102	18.1395102	18.1395102
Aerial Lifts	Aerial Lifts-0120	0120	26.18134434	26.18134434	26.18134434	26.181344	26.1813443	26.18134434	26.1813443	26.1813443	26.1813443	26.1813443	26.1813443
Aerial Lifts	Aerial Lifts-0175	0175	46.14045525	46.14045525	46.14045525	46.140455	46.1404552	46.14045525	46.1404552	46.1404552	46.1404552	46.1404552	46.1404552
Aerial Lifts	Aerial Lifts-0250	0250	74.26986237	74.26986237	74.26986237	74.269862	74.2698624	74.26986237	74.2698624	74.2698624	74.2698624	74.2698624	74.2698624
Aerial Lifts	Aerial Lifts-0500	0500	134.3930843	134.3930843	134.3930843	134.39308	134.393084	134.3930843	134.393084	134.393084	134.393084	134.393084	134.393084
Bore/Drill Rigs	Bore/Drill Rigs-0050	0050	26.11138481	26.10793514	25.92534264	25.913537	25.9205739	25.69487305	25.6428851	25.6527209	25.6795921	25.6837423	25.4301908
Bore/Drill Rigs	Bore/Drill Rigs-0120	0120	45.79447574	45.8390917	45.88833411	45.95931	45.9545394	46.17779688	46.3264172	46.3899645	46.5522594	46.7750636	46.5386908
Bore/Drill Rigs	Bore/Drill Rigs-0175	0175	87.25128494	87.00906106	86.87884339	86.677546	86.6087598	86.59194267	86.4022218	86.4053914	86.5025181	86.6344307	86.6520864
Bore/Drill Rigs	Bore/Drill Rigs-0250	0250	119.5853843	119.4590508	118.9051929	118.77037	118.926202	118.7790205	118.418863	118.156252	118.594457	118.881419	119.00073
Bore/Drill Rigs	Bore/Drill Rigs-0500	0500	197.1540333	196.9173881	197.3689412	196.94294	196.797914	197.5518936	199.177863	199.002577	199.323461	200.726717	199.20531
Bore/Drill Rigs	Bore/Drill Rigs-0750	0750	358.4152951	358.6303203	358.8708783	359.25759	359.095586	357.7290601	352.365128	352.191619	354.226141	354.2149	357.265485
Bore/Drill Rigs	Bore/Drill Rigs-1000	1000	529.7188848	530.5271022	529.8837378	529.77822	529.767789	529.7550649	529.739205	529.718885	529.691917	529.6544	530.89547
Bore/Drill Rigs	Bore/Drill Rigs-9999	9999	1537.67831	1537.67831	1537.67831	1537.6783	1537.67831	1537.67831	1537.67831	1537.67831	1537.67831	1537.67831	1537.67831
Cranes	Cranes-0050	0050	14.74189084	14.74200918	14.74134408	14.740666	14.7399756	14.73927157	14.7385537	14.7378218	14.7370752	14.7363136	14.7355365
Cranes	Cranes-0120	0120	29.26315753	29.25996681	29.25696892	29.254988	29.2511047	29.24796894	29.2606909	29.262148	29.2626257	29.266078	29.2801163
Cranes	Cranes-0175	0175	49.1836087	49.18015355	49.16539239	49.163787	49.1616736	49.17049826	49.1555704	49.1599701	49.1615982	49.1591068	49.1543341
Cranes	Cranes-0250	0250	71.89127524	71.8900075	71.8917509	71.889951	71.8813563	71.89470397	71.8938839	71.8859297	71.8867949	71.8702276	71.8700796
Cranes	Cranes-0500	0500	111.0658018	111.0928571	111.1209811	111.09631	111.118521	111.1624788	111.254166	111.21519	111.194893	111.184999	111.153924
Cranes	Cranes-0750	0750	187.2345196	187.1866789	187.1395303	187.12547	187.114169	187.1075951	187.008168	187.00734	186.937002	186.922186	186.926146
Cranes	Cranes-1000	1000	308.1369217	308.1381562	308.1394372	308.14077	308.142149	308.1246498	308.106802	308.088594	308.070017	308.070017	308.070017
Cranes	Cranes-9999	9999	340.5188617	340.5188617	340.5188617	340.51886	340.518862	340.5188617	340.518862	340.518862	340.518862	340.518862	340.518862
Crawler Tractors	Crawler Tractors-0050	0050	22.841491	22.85470267	22.85777552	22.860036	22.8624481	22.86502794	22.8677936	22.8000392	22.7969457	22.8167987	22.819487
Crawler Tractors	Crawler Tractors-0120	0120	43.17612826	43.18901631	43.21078793	43.214549	43.1917651	43.1961324	43.19392	43.171394	43.1213868	43.1519747	43.1721562
Crawler Tractors	Crawler Tractors-0175	0175	73.56774015	73.54907175	73.54490646	73.542569	73.5415424	73.55111055	73.5771548	73.5255611	73.5112147	73.56966	73.5419922
Crawler Tractors	Crawler Tractors-0250	0250	100.1264849	100.0935653	100.0501931	100.05758	100.052363	100.1073685	100.045107	100.0124	99.9291842	99.9042596	99.8046124
Crawler Tractors	Crawler Tractors-0500	0500	168.9698623	169.0115546	169.0820206	169.0219	169.040033	169.0670563	168.874176	168.918054	168.665171	168.41872	168.326523
Crawler Tractors	Crawler Tractors-0750	0750	281.5104908	281.2361777	281.1932719	281.15844	281.301698	281.0568509	281.252038	281.66201	281.524956	281.534044	281.544173
Crawler Tractors	Crawler Tractors-1000	1000	410.0227893	410.0881746	410.1615658	410.24452	410.339037	410.4477018	410.57395	410.638222	409.58608	409.577462	408.286922
Crawler Tractors	Crawler Tractors-9999	9999	721.7863672	721.7863672	721.7863672	721.78637	721.786367	721.7863672	721.786367	721.786367	721.786367	721.786367	721.786367
Excavators	Excavators-0050	0050	17.44984569	17.44046707	17.43912862	17.441715	17.4461374	17.44295373	17.4133085	17.4256109	17.4233878	17.4329565	17.4267906
Excavators	Excavators-0120	0120	35.43957045	35.45648498	35.46834793	35.475681	35.4752162	35.48010329	35.5135258	35.5156602	35.5402566	35.5141138	35.4901572
Excavators	Excavators-0175	0175	64.0265333	64.02651776	64.03266988	64.036927	64.0555991	64.04198633	64.0395652	64.0228952	64.0306686	64.0292567	64.0275261
Excavators	Excavators-0250	0250	95.85531502	95.8665877	95.8779243	95.874822	95.8435865	95.82338089	95.7044316	95.6852024	95.7003097	95.6809443	95.7765353
Excavators	Excavators-0500	0500	143.5135444	143.6013361	143.5998742	143.62198	143.526279	143.6132759	143.600775	143.636062	143.473169	143.273709	143.312693
Excavators	Excavators-0750	0750	251.3022472	250.8016484	250.9671967	250.9339	251.019526	251.3478151	251.554204	251.293985	251.264026	251.643133	251.528525
Excavators	Excavators-1000	1000	367.9720208	368.0651409	368.1697405	368.28808	368.423063	365.4263255	365.380879	366.609471	366.619862	366.631189	366.643582
Excavators	Excavators-9999	9999	681.0789644	681.0789644	681.0789644	681.07896	681.078964	681.0789644	681.078964	681.078964	681.078964	681.078964	681.078964
Forklifts	Forklifts-0050	0050	10.88907411	10.88907411	10.88907411	10.889074	10.8890741	10.88907411	10.8890741	10.8890741	10.8890741	10.8890741	10.8890741
Forklifts	Forklifts-0120	0120	18.97720628	18.97720628	18.97720628	18.977206	18.9772063	18.97720628	18.9772063	18.9772063	18.9772063	18.9772063	18.9772063
Forklifts	Forklifts-0175	0175	32.59101373	32.59101373	32.59101373	32.591014	32.5910137	32.59101373	32.5910137	32.5910137	32.5910137	32.5910137	32.5910137
Forklifts	Forklifts-0250	0250	48.14022819	48.14022819	48.14022819	48.140228	48.1402282	48.14022819	48.1402282	48.1402282	48.1402282	48.1402282	48.1402282
Forklifts	Forklifts-0500	0500	79.54123194	79.54123194	79.54123194	79.541232	79.5412319	79.54123194	79.5412319	79.5412319	79.5412319	79.5412319	79.5412319
Forklifts	Forklifts-1000	1000	202.9735369	202.9735369	202.9735369	202.97354	202.973537	202.9735369	202.973537	202.973537	202.973537	202.973537	202.973537
Graders	Graders-0050	0050	19.1636388	19.16458158	19.16563358	19.166815	19.1681511	19.16967461	19.1714278	19.173467	19.1758682	19.1787373	19.1822259
Graders	Graders-0120	0120	42.62076047	42.61891584	42.61598515	42.611421	42.6042702	42.59622828	42.5314567	42.5069909	42.507076	42.5001078	42.4462564
Graders	Graders-0175	0175	70.98073111	70.9531338	70.91627692	70.900553	70.8378193	70.73797555	70.5277708	70.4339076	70.3239477	70.2872342	70.1751529
Graders	Graders-0250	0250	96.93080304	96.90738935	96.89642616	96.905753	96.8998002	96.91989345	96.8547331	96.8432774	96.7124487	96.5448001	96.4457894
Graders	Graders-0500	0500	137.7506208	137.7043566	137.6912119	137.68406	137.582461	137.5452961	137.574762	137.541388	137.466807	137.450669	137.459299
Graders	Graders-1000	1000	373.3175401	373.3175401	373.3175401	373.31754	373.31754	373.3175401	373.31754	373.31754	373.31754	373.31754	373.31754
Graders	Graders-9999	9999	932.9068412	932.9068412	932.9068412	932.90684	932.906841	932.9068412	932.906841	932.906841	932.906841	932.906841	932.906841
Off-Highway Tractors	Off-Highway Tractors-0050	0050	20.87429151	20.87323692	20.85912522	20.862714	20.8725713	20.87530557	20.9043	20.9140472	20.9222528	20.9442539	20.977888
Off-Highway Tractors	Off-Highway Tractors-0120	0120	37.61988314	37.58422842	37.57367916	37.570501	37.546057	37.52959061	37.4399047	37.4228616	37.4392937	37.4378328	37.4993322
Off-Highway Tractors	Off-Highway Tractors-0175	0175	79.19714473	79.20408649	79.22370167	79.190054	79.2242832	79.17162962	79.1257415	79.1261405	79.1556583	79.1534551	79.1314919
Off-Highway Tractors	Off-Highway Tractors-0250	0250	106.5351158	106.5180678	106.3981091	106.40119	106.406192	106.3645454	106.441253	106.489651	106.443513	106.536257	106.610532
Off-Highway Tractors	Off-Highway Tractors-0500	0500	167.0490117	167.1255419	166.9498446	166.92381	166.648359	166.4512267	166.406631	166.260986	166.225009	166.227335	166.214854
Off-Highway Tractors	Off-Highway Tractors-0750	0750	287.7811576	287.6671655	286.8293719	286.81985	286.773241	286.531836	286.532315	286.528118	286.523705	286.596439	286.593525
Off-Highway Tractors	Off-Highway Tractors-1000	1000	499.7454507	499.7454507	499.7454507	499.74545	499.745451	499.7454507	499.745451	499.745451	499.745451	499.745451	499.745451
Off-Highway Tractors	Off-Highway Tractors-9999	9999	838.7526938	839.2872364	839.8473469	840.4349	841.051978	841.7008481	842.384038	869.445406	869.689292	870.864103	872.091345
Off-Highway Trucks	Off-Highway Trucks-0050	0050	13.74187747	13.74838628	13.75527515	13.76258	13.7703415	13.80935443	13.8164699	13.7528978	13.7551024	13.7963372	13.8063143
Off-Highway Trucks	Off-Highway Trucks-0120	0120	37.62272127	37.616994	37.61663558	37.614319	37.6118449	37.6091969	37.6071052	37.5944538	37.580857	37.5099997	37.5994653
Off-Highway Trucks	Off-Highway Trucks-0175	0175	69.36681927	69.32979829	69.28346859	69.264743	69.2565051	69.28704364	69.2564105	69.3071776	69.3472101	69.3824822	69.4089191
Off-Highway Trucks	Off-Highway Trucks-0250	0250	91.9134021	91.87718385	91.83364573	91.848828	91.8119601	91.82564596	91.9099618	91.9787765	92.0792086	92.0928233	91.9769387
Off-Highway Trucks	Off-Highway Trucks-0500	0500	164.4764703	164.5350345	164.5243892	164.5199	164.457953	164.3274792	164.412782	164.343917	164.066753	164.064224	164.159155
Off-Highway Trucks	Off-Highway Trucks-0750	0750	290.6050163	290.6722993	290.4399309	290.3672	289.72108	289.0641792	288.420559	287.806397	287.919919	287.882695	288.388942
Off-Highway Trucks	Off-Highway Trucks-1000	1000	394.291318	394.2056586	393.6607973	393.57964	393.36276	392.9017655	391.345937	391.233351	391.298795	392.23931	392.66682
Off-Highway Trucks	Off-Highway Trucks-9999	9999	784.629597	781.4492743	778.3013561	778.02288	778.225417	779.0974841	781.28758	781.821065	782.57705	782.776574	784.166365
Other Construction Equipment	her Construction Equipment-0050	0050	20.29650159	20.30073344	20.30250767	20.300326	20.3006663	20.29456586	20.2923346	20.276392	20.2842036	20.2736491	20.2791523
Other Construction Equipment	her Construction Equipment-0120	0120	38.73193887	38.7555705	38.77887657	38.787422	38.8271819	38.82433752	38.8871936	38.8839205	38.8859997	38.8816622	38.8602654
Other Construction Equipment	her Construction Equipment-0175	0175	72.33603598	72.36882069	72.37879211	72.371248	72.3808523	72.34104554	72.3286177	72.3783377	72.3700337	72.3654025	72.3530302
Other Construction Equipment	her Construction Equipment-0250	0250	104.2284409	104.2501391	104.1188974	104.12378	104.069794	104.0359063	104.088638	104.093318	104.060968	104.060568	104.159636
Other Construction Equipment	her Construction Equipment-0500	0500	172.3067503	172.0401255	171.5478248	171.45698	171.456647	171.2939713	171.248164	171.230672	171.238733	171.287432	171.433134
Other Construction Equipment	her Construction Equipment-0750	0750	285.2584428	285.3324676	285.4086036	285.47433	285.488441	285.3897029	285.303096	285.300342	285.177044	285.380444	286.195891
Other Construction Equipment	her Construction Equipment-1000	1000	395.1344199	395.1084849	395.079896	395.04822	394.975413	394.4824713	394.416648	394.43006	394.333715	394.207663	397.455887
Other Construction Equipment	her Construction Equipment-9999	9999	523.4241532	523.4241532	524.7650543	524.6696	524.567828	524.4590957	524.342662	524.21768	524.08317	523.938	523.780852
Other General Industrial Equipment	eneral Industrial Equipment-0050	0050	15.34176963	15.34176963	15.34176963	15.34177	15.3417696	15.34176963	15.3417696	15.3417696	15.3417696	15.3417696	15.3417696
Other General Industrial Equipment	eneral Industrial Equipment-0120	0120	28.57434599	28.57434599	28.57434599	28.574346	28.574346	28.57434599	28.574346	28.574346	28.574346	28.574346	28.574346
Other General Industrial Equipment	eneral Industrial Equipment-0175	0175	58.45892214	58.45892214	58.45892214	58.458922	58.4589221	58.45892214	58.4589221	58.4589221	58.4589221	58.4589221	58.4589221
Other General Industrial Equipment	eneral Industrial Equipment-0250	0250	82.17656154	82.17656154	82.17656154	82.176562	82.1765615	82.17656154	82.1765615	82.1765615	82.1765615	82.1765615	82.1765615
Other General Industrial Equipment	eneral Industrial Equipment-0500	0500	139.3428711	139.3428711	139.3428711	139.34287	139.342871	139.3428711	139.342871	139.342871	139.342871	139.342871	139.342871
Other General Industrial Equipment	eneral Industrial Equipment-0750	0750	232.6413703	232.6413703	232.6413703	232.64137	232.64137	232.6413703	232.64137	232.64137	232.64137	232.64137	232.64137
Other General Industrial Equipment	eneral Industrial Equipment-1000	1000	347.0155526	347.0155526	347.0155526	347.01555	347.015553	347.0155526	347.015553	347.015553	347.015553	347.015553	347.015553
Other General Industrial Equipment	eneral Industrial Equipment-9999	9999	784.215938	784.215938	784.215938	784.21594	784.215938	784.215938	784.215938	784.215938	784.215938	784.215938	784.215938
Other Material Handling Equipment	aterial Handling Equipment-0050	0050	17.98947408	17.98947408	17.98947408	17.989474	17.9894741	17.98947408	17.9894741	17.9894741	17.9894741	17.9894741	17.9894741
Other Material Handling Equipment	aterial Handling Equipment-0120	0120	42.3972197	42.3972197	42.3972197	42.39722	42.3972197	42.3972197	42.3972197	42.3972197	42.3972197	42.3972197	42.3972197
Other Material Handling Equipment	aterial Handling Equipment-0175	0175	65.60120045	65.60120045	65.60120045	65.6012	65.6012005	65.60120045	65.6012005	65.6012005	65.6012005	65.6012005	65.6012005
Other Material Handling Equipment	aterial Handling Equipment-0250	0250	98.89760349	98.89760349	98.89760349	98.897603	98.8976035	98.89760349	98.8976035	98.8976035	98.8976035	98.8976035	98.8976035
Other Material Handling Equipment	aterial Handling Equipment-0500	0500	149.7535499	149.7535499	149.7535499	149.75355	149.75355	149.7535499	149.75355	149.75355	149.75355	149.75355	149.75355
Other Material Handling Equipment	aterial Handling Equipment-0750	0750	256.103526	256.103526	256.103526	256.10353	256.103526	256.103526	256.103526	256.103526	256.103526	256.103526	256.103526
Other Material Handling Equipment	aterial Handling Equipment-1000	1000	418.6867386	418.6867386	418.6867386	418.68674	418.686739	418.6867386	418.686739	418.686739	418.686739	418.686739	418.686739
Other Material Handling Equipment	aterial Handling Equipment-9999	9999	476.2958565	476.2958565	476.2958565	476.29586	476.295856	476.2958565	476.295856	476.295856	476.295856	476.295856	476.295856
Pavers	Pavers-0050	0050	20.55324227	20.57289979	20.56352866	20.560935	20.5611169	20.56130876	20.5419561	20.5277785	20.5283617	20.5403999	20.532803
Pavers	Pavers-0120	0120	37.67954389	37.74175605	37.76999615	37.770591	37.7426105	37.72315232	37.7476066	37.7542001	37.7445959	37.7538417	37.7814909
Pavers	Pavers-0175	0175	75.51681519	75.44250144	75.39692643	75.41044	75.435828	75.48527135	75.4999211	75.508249	75.4651957	75.4718464	75.4980435
Pavers	Pavers-0250	0250	102.0894794	102.0784242	102.0440112	102.04638	102.01987	101.8969493	101.809417	101.746285	101.7432	101.757458	101.786249
Pavers	Pavers-0500	0500	154.0835992	154.5447568	154.7128909	154.44019	154.449401	154.0217152	154.103854	154.253433	154.122535	153.919213	154.046097
Pavers	Pavers-0750	0750	357.510207	357.510207	357.510207	357.51021	357.510207	357.510207	357.510207	357.510207	357.510207	357.510207	357.510207
Paving Equipment	Paving Equipment-0050	0050	15.65032991	15.64132047	15.63844449	15.634353	15.6324527	15.62137819	15.6364654	15.6345157	15.629326	15.6383171	15.6451352

Paving Equipment	Paving Equipment-0120	0120	36.22089986	36.21178216	36.21334063	36.237723	36.2377498	36.24732951	36.2405361	36.2061125	36.2261873	36.2100386	36.2135144
Paving Equipment	Paving Equipment-0175	0175	60.33949217	60.28730904	60.2856416	60.296128	60.3147026	60.33533565	60.337113	60.3075244	60.2944166	60.2939807	60.2958531
Paving Equipment	Paving Equipment-0250	0250	87.85273042	87.91991999	87.92021434	87.920521	87.8854521	87.93095848	87.8991732	87.8966722	87.8965428	87.8964094	87.9188695
Paving Equipment	Paving Equipment-0500	0500	137.3691133	137.1542128	137.1466481	137.14572	137.144514	137.1443122	137.075943	137.068555	137.092323	137.128438	137.160963
Paving Equipment	Paving Equipment-0750	0750	247.1002472	246.6098388	246.6125202	246.61531	246.618222	246.6212574	246.624426	246.627736	246.631199	247.065624	247.077541
Paving Equipment	Paving Equipment-1000	1000	343.5176005	343.5176005	343.5176005	343.5176	343.517601	343.5176005	343.517601	343.517601	343.517601	343.517601	343.517601
Rollers	Rollers-0050	0050	17.12119742	17.12396115	17.12113156	17.119642	17.1133895	17.11246498	17.107752	17.1106138	17.1150649	17.1102366	17.1061846
Rollers	Rollers-0120	0120	37.58784992	37.57786285	37.5493725	37.551933	37.5632348	37.5542368	37.5333902	37.5381546	37.5357918	37.5479251	37.5657627
Rollers	Rollers-0175	0175	61.86477026	61.88131079	61.90259249	61.910633	61.8829253	61.85717725	61.8752946	61.8909463	61.8809084	61.8731633	61.8727004
Rollers	Rollers-0250	0250	92.11003096	92.0178205	92.0177246	92.046046	92.04846	92.05892528	92.0688104	92.0681849	92.0688617	92.0889564	92.1134699
Rollers	Rollers-0500	0500	145.9079617	145.7090592	145.6914001	145.84168	146.097674	146.2083263	146.410098	146.401268	146.40117	146.40238	146.540849
Rollers	Rollers-0750	0750	224.4374928	224.4374928	224.4374928	224.43749	224.437493	224.4374928	224.437493	224.437493	224.437493	224.437493	224.437493
Rough Terrain Forklifts	Rough Terrain Forklifts-0050	0050	24.2801445	24.29073177	24.29145744	24.290436	24.2780743	24.27968822	24.2789596	24.2790318	24.287646	24.2758078	24.2641867
Rough Terrain Forklifts	Rough Terrain Forklifts-0120	0120	44.49978985	44.49364356	44.49230235	44.498485	44.5211872	44.51640395	44.5075463	44.5096783	44.5247021	44.5324583	44.5283316
Rough Terrain Forklifts	Rough Terrain Forklifts-0175	0175	59.73024468	59.7166107	59.71750146	59.717839	59.7156537	59.72039912	59.7289197	59.7282477	59.7379856	59.7432984	59.7341812
Rough Terrain Forklifts	Rough Terrain Forklifts-0250	0250	96.56408373	96.36700387	96.32718157	96.319647	96.3119722	96.30414888	96.2785218	96.2647234	96.2560517	96.4521578	96.4012777
Rough Terrain Forklifts	Rough Terrain Forklifts-0500	0500	170.6064696	170.822602	170.8134585	170.80423	170.794927	170.7650756	170.273367	170.266177	170.048009	170.550086	170.549902
Rough Terrain Forklifts	Rough Terrain Forklifts-0750	0750	288.3146831	288.3146831	288.3146831	288.31468	288.314683	288.3146831	288.314683	288.314683	288.314683	288.314683	288.314683
Rubber Tired Dozers	Rubber Tired Dozers-0050	0050	20.67344292	20.66931675	20.66779628	20.666197	20.6645133	20.66273755	20.6639986	20.6685483	20.6733519	20.6784316	20.6868798
Rubber Tired Dozers	Rubber Tired Dozers-0120	0120	37.31884257	37.32297884	37.32731335	37.331861	37.3366378	37.3416621	37.3469538	37.3520264	37.4006423	37.4056307	37.5800678
Rubber Tired Dozers	Rubber Tired Dozers-0175	0175	68.12584725	68.12364035	68.1213543	68.118985	68.1165278	68.11091754	68.1050596	68.1020001	68.0989785	68.095815	68.0939098
Rubber Tired Dozers	Rubber Tired Dozers-0250	0250	96.32674327	96.32752903	96.32835862	96.329236	96.3301647	96.33115006	96.3321971	96.3333118	96.3705045	96.374931	96.3415703
Rubber Tired Dozers	Rubber Tired Dozers-0500	0500	163.3041741	163.2784824	163.1894909	163.12442	163.096843	163.0878064	163.34585	163.321987	163.180684	163.058921	163.122052
Rubber Tired Dozers	Rubber Tired Dozers-0750	0750	265.5556982	265.5518342	265.5477872	265.54354	265.53909	265.5344084	265.529482	265.524292	265.518814	265.513026	265.5069
Rubber Tired Loaders	Rubber Tired Loaders-0050	0050	19.23810233	19.23648917	19.21752695	19.216631	19.218454	19.23921768	19.2402835	19.2384205	19.2430283	19.2375608	19.2367698
Rubber Tired Loaders	Rubber Tired Loaders-0120	0120	35.40564945	35.4013937	35.33969194	35.343989	35.3311436	35.30232599	35.2787555	35.2709028	35.2939082	35.3149322	35.3403369
Rubber Tired Loaders	Rubber Tired Loaders-0175	0175	62.18133588	62.17109537	62.16423099	62.154428	62.1420521	62.13503372	62.1519283	62.1570056	62.1440537	62.1747197	62.1332131
Rubber Tired Loaders	Rubber Tired Loaders-0250	0250	85.11998321	85.1099299	85.09278399	85.081019	85.0781334	85.08635954	85.0566494	85.0295573	85.003244	85.0042396	85.0511249
Rubber Tired Loaders	Rubber Tired Loaders-0500	0500	131.9231574	131.8670373	131.7997758	131.74798	131.833387	131.5949272	131.536868	131.412167	131.306037	131.321561	131.287524
Rubber Tired Loaders	Rubber Tired Loaders-0750	0750	241.0855815	241.4277234	241.158323	241.12912	241.401106	241.4654191	242.483598	242.754493	242.957664	243.516956	244.247113
Rubber Tired Loaders	Rubber Tired Loaders-1000	1000	346.5629527	346.5460239	346.5273505	346.50665	346.483567	346.4576717	346.428415	346.355688	346.315242	346.235369	346.262376
Rubber Tired Loaders	Rubber Tired Loaders-9999	9999	627.2947185	627.2947185	627.2947185	627.29472	627.294718	627.850929	627.294718	627.247428	627.2458	627.244056	627.242182
Scrapers	Scrapers-0050	0050	22.14815888	22.14815888	22.14815888	22.148159	22.1481589	22.14815888	22.1481589	22.1481589	22.1481589	22.1481589	22.1481589
Scrapers	Scrapers-0120	0120	47.86463784	47.86281415	47.88260293	47.882219	47.8809971	47.88244124	47.8621427	47.7981001	47.8362952	47.8331145	47.8069372
Scrapers	Scrapers-0175	0175	93.38117281	93.37439305	93.33967349	93.336121	93.3336505	93.32098971	93.290865	93.2728285	93.263779	93.2701455	93.2560361
Scrapers	Scrapers-0250	0250	123.6986988	123.6972311	123.696064	123.70114	123.696473	123.6878868	123.714222	123.626096	123.675487	123.691917	123.659453
Scrapers	Scrapers-0500	0500	211.4232191	211.4197496	211.4272436	211.3963	211.320354	211.3183189	211.33431	211.23902	211.354545	211.485708	211.50208
Scrapers	Scrapers-0750	0750	313.2635092	313.2489704	313.224725	313.22027	313.130202	313.0767984	312.890648	312.57688	312.404001	312.42674	312.512552
Scrapers	Scrapers-1000	1000	525.885982	525.885982	525.885982	525.88598	525.885982	525.885982	525.885982	525.885982	525.885982	525.885982	525.885982
Scrapers	Scrapers-9999	9999	1087.953631	1087.953631	1087.953631	1087.9536	1087.95363	1087.953631	1087.95363	1087.95363	1087.95363	1087.95363	1087.95363
Skid Steer Loaders	Skid Steer Loaders-0050	0050	20.53844065	20.53188837	20.52993142	20.538855	20.527763	20.53696798	20.524354	20.5437971	20.5331257	20.5339427	20.5277884
Skid Steer Loaders	Skid Steer Loaders-0120	0120	29.86404157	29.84991166	29.85505103	29.841362	29.8354619	29.83236751	29.8157318	29.8248623	29.8334117	29.8513638	29.8648523
Skid Steer Loaders	Skid Steer Loaders-0175	0175	64.2375996	64.23063133	64.21815112	64.204477	63.8941044	64.00022729	64.1440551	64.1490754	64.1547085	64.1610741	64.2416966
Skid Steer Loaders	Skid Steer Loaders-0250	0250	83.66001102	83.47036856	83.56464707	83.518039	83.4656069	83.43040854	83.3614471	82.8179007	82.8515454	82.8887311	82.9300794
Skid Steer Loaders	Skid Steer Loaders-0500	0500	113.9274774	113.9274774	113.9274774	113.92748	113.927477	113.9274774	113.927477	113.927477	113.927477	113.927477	113.927477
Skid Steer Loaders	Skid Steer Loaders-0750	0750	224.1166137	224.1166137	224.1166137	224.11661	224.116614	224.1166137	224.116614	224.116614	224.116614	224.116614	224.116614
Skid Steer Loaders	Skid Steer Loaders-1000	1000	422.8615352	422.8615352	422.8615352	422.86154	422.861535	422.8615352	422.861535	422.861535	422.861535	422.861535	422.861535
Surfacing Equipment	Surfacing Equipment-0050	0050	13.92004164	13.91923017	13.91836516	13.917441	13.9164519	13.97924382	13.9835682	14.0048143	13.9990995	14.0055565	14.0067297
Surfacing Equipment	Surfacing Equipment-0120	0120	30.65429572	30.65105125	30.66349222	30.60626	30.6170388	30.68623264	30.7348011	30.7756418	30.7743749	30.825642	30.8187882
Surfacing Equipment	Surfacing Equipment-0175	0175	52.03455144	52.14719611	52.1434088	52.139525	52.0672516	52.0233392	51.9385049	51.9351228	51.9314572	51.9274706	51.9231178
Surfacing Equipment	Surfacing Equipment-0250	0250	75.58377154	75.51666375	75.44985809	75.435259	75.4265123	75.25228012	75.2842884	75.4205808	75.4472188	75.5068344	75.5305064
Surfacing Equipment	Surfacing Equipment-0500	0500	124.68625	124.6158313	124.6337268	124.63302	124.448045	125.0158008	124.723678	125.204698	125.261425	125.292857	124.973311
Surfacing Equipment	Surfacing Equipment-0750	0750	212.4704123	212.4443893	212.6725639	212.68771	213.147448	213.4143693	212.129316	211.753865	211.707706	212.060906	212.057147
Surfacing Equipment	Surfacing Equipment-1000	1000	282.7208453	282.726918	282.7334053	282.74035	282.747806	282.7558287	282.764485	282.773855	281.321956	281.206898	281.161487
Surfacing Equipment	Surfacing Equipment-9999	9999	388.5484817	388.5484817	388.5484817	388.54848	388.548482	388.5484817	388.548482	388.548482	388.548482	388.548482	388.548482
Sweepers/Scrubbers	Sweepers/Scrubbers-0050	0050	20.70428933	20.70428933	20.70428933	20.704289	20.7042893	20.70428933	20.7042893	20.7042893	20.7042893	20.7042893	20.7042893
Sweepers/Scrubbers	Sweepers/Scrubbers-0120	0120	40.70844058	40.70844058	40.70844058	40.708441	40.7084406	40.70844058	40.7084406	40.7084406	40.7084406	40.7084406	40.7084406
Sweepers/Scrubbers	Sweepers/Scrubbers-0175	0175	83.5620445	83.5620445	83.5620445	83.562045	83.5620445	83.5620445	83.5620445	83.5620445	83.5620445	83.5620445	83.5620445
Sweepers/Scrubbers	Sweepers/Scrubbers-0250	0250	106.4307137	106.4307137	106.4307137	106.43071	106.430714	106.4307137	106.430714	106.430714	106.430714	106.430714	106.430714
Sweepers/Scrubbers	Sweepers/Scrubbers-0500	0500	158.1502142	158.1502142	158.1502142	158.15021	158.150214	158.1502142	158.150214	158.150214	158.150214	158.150214	158.150214
Sweepers/Scrubbers	Sweepers/Scrubbers-1000	1000	443.3434103	443.3434103	443.3434103	443.34341	443.34341	443.3434103	443.34341	443.34341	443.34341	443.34341	443.34341
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes-0050	0050	17.63280064	17.65355771	17.68154661	17.697197	17.7029185	17.70486995	17.6996641	17.7106548	17.6772348	17.6684499	17.6601026
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes-0120	0120	35.4800431	35.45251106	35.39037674	35.374985	35.3338618	35.29056424	35.2496441	35.209564	35.1970277	35.18978	35.2342728
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes-0175	0175	60.59587188	60.57050215	60.54098416	60.54973	60.420343	60.35444485	60.311454	60.2949074	60.2833193	60.2766969	60.3720249
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes-0250	0250	86.13098834	86.14523661	86.1246392	86.071369	86.0633646	86.07081567	86.1359499	86.169527	86.1220456	86.1068102	86.0178332
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes-0500	0500	135.8220092	135.7730805	135.4892414	135.54337	135.559116	135.0955904	134.207176	134.529451	134.473842	134.708311	134.845647
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes-0750	0750	239.6006154	239.5377864	240.490887	240.49158	240.403465	240.331677	240.319876	240.185621	239.280176	239.318247	240.273188
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes-1000	1000	372.3677335	372.3412252	372.3116601	372.27848	372.240969	372.1982317	372.149089	372.091984	372.024811	371.944652	371.847335
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes-9999	9999	849.3702368	849.3702368	849.3702368	849.37024	849.370237	849.3702368	849.370237	849.370237	849.370237	849.370237	849.370237
Trenchers	Trenchers-0050	0050	25.64764155	25.65356075	25.64890545	25.640966	25.6501417	25.65167477	25.64566	25.63424	25.6233126	25.6175387	25.6173967
Trenchers	Trenchers-0120	0120	47.72171945	47.69588486	47.71180132	47.703836	47.6998632	47.66294697	47.614433	47.6209678	47.6651664	47.6921161	47.7017978
Trenchers	Trenchers-0175	0175	82.2019769	82.20418348	82.20418348	82.204183	82.2041835	82.20418348	82.2041835	82.2102206	82.2100449	82.2098613	82.2033965
Trenchers	Trenchers-0250	0250	126.5975431	126.2543214	126.2338559	126.22697	126.219636	126.2117926	126.430909	126.278682	126.28372	126.380603	126.382002
Trenchers	Trenchers-0500	0500	206.630116	206.6451831	205.5737267	205.49343	206.022099	206.2087566	206.401035	206.568829	206.110661	206.084755	206.089544
Trenchers	Trenchers-0750	0750	359.1103546	359.1529811	359.1651312	359.17789	359.191313	359.1583443	360.157935	358.555938	357.53237	357.436554	358.767718
Trenchers	Trenchers-1000	1000	495.9012549	495.9012549	495.9012549	495.90125	495.901255	495.9012549	495.901255	495.901255	495.901255	495.901255	495.901255

CO EMISSION FACTORS

Equipment Type		HorsepowerBin	CO Grams/Hr										
			2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Aerial Lifts	Aerial Lifts-0050	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	Aerial Lifts-0120	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	Aerial Lifts-0175	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	Aerial Lifts-0250	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	Aerial Lifts-0500	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	Bore/Drill Rigs-0050	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	Bore/Drill Rigs-0120	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	Bore/Drill Rigs-0175	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	Bore/Drill Rigs-0250	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	Bore/Drill Rigs-0500	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	Bore/Drill Rigs-0750	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	Bore/Drill Rigs-1000	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	Bore/Drill Rigs-9999	9999	760.5	755.9	752.0	749.0	747.0	745.7	745.0	744.8	744.9	744.8	744.8
Cranes	Cranes-0050	0050	135.0	131.0	127.2	123.6	120.3	117.2	114.5	112.0	109.8	107.7	106.0
Cranes	Cranes-0120	0120	165.4	163.9	162.6	161.3	160.1	159.0	158.0	157.0	156.2	155.4	154.7
Cranes	Cranes-0175	0175	219.2	218.5	217.8	217.2	216.8	216.3	216.0	215.7	215.5	215.3	215.2
Cranes	Cranes-0250	0250	140.7	133.6	127.7	123.0	119.4	116.6	114.3	112.3	110.6	109.1	107.8
Cranes	Cranes-0500	0500	258.1	240.0	224.3	211.4	200.9	192.3	185.2	179.1	174.0	169.8	166.4
Cranes	Cranes-0750	0750	434.5	403.9	377.6	355.8	338.1	323.7	311.7	301.4	292.8	285.8	280.0
Cranes	Cranes-1000	1000	1030.0	958.3	893.5	835.0	782.8	737.3	699.1	668.2	644.1	625.5	610.4
Cranes	Cranes-9999	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	Crawler Tractors-0050	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	Crawler Tractors-0120	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	Crawler Tractors-0175	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	Crawler Tractors-0250	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	Crawler Tractors-0500	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	Crawler Tractors-0750	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	Crawler Tractors-1000	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	Crawler Tractors-9999	9999	1320.3	1228.0	1146.7	1075.9	1015.0	963.3	916.8	875.2	838.3	805.6	776.6
Excavators	Excavators-0050	0050	132.9	128.7	124.9	121.6	118.8	116.4	114.2	112.4	110.9	109.7	108.8
Excavators	Excavators-0120	0120	236.5	234.6	232.8	231.2	229.7	228.5	227.4	226.4	225.7	225.1	224.7
Excavators	Excavators-0175	0175	302.6	302.2	301.8	301.5	301.3	301.1	301.0	300.9	300.8	300.8	300.8
Excavators	Excavators-0250	0250	164.5	160.5	157.7	155.5	153.6	152.0	150.6	149.5	148.5	147.7	147.0
Excavators	Excavators-0500	0500	249.0	238.9	231.3	225.0	219.8	215.8	212.5	209.9	208.1	206.7	205.8
Excavators	Excavators-0750	0750	412.8	396.1	383.3	373.0	364.4	357.7	352.3	348.0	344.9	342.7	341.1
Excavators	Excavators-1000	1000	412.8	396.1	383.3	373.0	364.4	357.7	352.3	348.0	344.9	342.7	341.1
Excavators	Excavators-9999	9999	412.8	396.1	383.3	373.0	364.4	357.7	352.3	348.0	344.9	342.7	341.1
Forklifts	Forklifts-0050	0050	76.4	73.8	71.4	69.2	67.7	66.4	65.3	64.3	63.4	62.2	61.8
Forklifts	Forklifts-0120	0120	99.6	98.8	98.0	97.3	96.8	96.4	96.0	95.6	95.3	94.6	94.5
Forklifts	Forklifts-0175	0175	149.9	150.1	150.3	150.5	150.6	150.6	150.5	150.4	150.2	149.5	149.5
Forklifts	Forklifts-0250	0250	74.3	73.2	72.4	71.8	71.3	70.9	70.6	70.5	70.4	70.1	70.1
Forklifts	Forklifts-0500	0500	101.6	100.1	98.9	98.2	97.5	97.0	96.6	96.4	96.3	96.0	96.0
Forklifts	Forklifts-1000	1000	101.6	100.1	98.9	98.2	97.5	97.0	96.6	96.4	96.3	96.0	96.0
Graders	Graders-0050	0050	152.4	147.8	143.5	139.6	136.0	132.8	129.9	127.4	125.1	123.2	121.5
Graders	Graders-0120	0120	242.6	240.6	238.7	237.0	235.5	234.1	232.8	231.7	230.6	229.7	228.9
Graders	Graders-0175	0175	333.6	332.9	332.2	331.7	331.2	330.9	330.5	330.3	330.0	329.8	329.6
Graders	Graders-0250	0250	204.4	196.3	189.4	183.4	178.4	174.4	171.2	168.9	166.9	165.3	163.9
Graders	Graders-0500	0500	301.0	285.1	271.7	260.2	250.4	242.2	235.4	229.9	225.1	220.9	217.4
Graders	Graders-1000	1000	301.0	285.1	271.7	260.2	250.4	242.2	235.4	229.9	225.1	220.9	217.4
Graders	Graders-9999	9999	301.0	285.1	271.7	260.2	250.4	242.2	235.4	229.9	225.1	220.9	217.4
Off-Highway Tractors	Off-Highway Tractors-0050	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	Off-Highway Tractors-0120	0120	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	Off-Highway Tractors-0175	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	Off-Highway Tractors-0250	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	Off-Highway Tractors-0500	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	Off-Highway Tractors-0750	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	Off-Highway Tractors-1000	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	Off-Highway Tractors-9999	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	Off-Highway Trucks-0050	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	Off-Highway Trucks-0120	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	Off-Highway Trucks-0175	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	Off-Highway Trucks-0250	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	Off-Highway Trucks-0500	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	Off-Highway Trucks-0750	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	Off-Highway Trucks-1000	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	Off-Highway Trucks-9999	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	her Construction Equipment-0050	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	her Construction Equipment-0120	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	her Construction Equipment-0175	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	her Construction Equipment-0250	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	her Construction Equipment-0500	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	her Construction Equipment-0750	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	her Construction Equipment-1000	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	her Construction Equipment-9999	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	eneral Industrial Equipment-0050	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	eneral Industrial Equipment-0120	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	eneral Industrial Equipment-0175	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	eneral Industrial Equipment-0250	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	eneral Industrial Equipment-0500	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	eneral Industrial Equipment-0750	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	eneral Industrial Equipment-1000	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	eneral Industrial Equipment-9999	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	aterial Handling Equipment-0050	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	aterial Handling Equipment-0120	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	aterial Handling Equipment-0175	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	aterial Handling Equipment-0250	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	aterial Handling Equipment-0500	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	aterial Handling Equipment-0750	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	aterial Handling Equipment-1000	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	aterial Handling Equipment-9999	9999	1099.6	1002.6	914.8	839.6	792.9	762.6	740.3	723.2	709.1	694.0	684.0
Pavers	Pavers-0050	0050	166.7	162.7	158.8	155.0	151.3	147.8	144.4	141.3	138.4	135.7	133.2
Pavers	Pavers-0120	0120	231.4	229.1	227.1	225.1	223.4	221.8	220.3	219.0	217.7	216.6	215.5
Pavers	Pavers-0175	0175	355.0	352.7	350.9	349.3	347.9	346.8	345.9	345.1	344.4	343.8	343.2
Pavers	Pavers-0250	0250	288.6	275.7	264.0	253.2	243.4	234.6	226.7	219.7	213.6	208.4	204.0
Pavers	Pavers-0500	0500	451.7	419.8	392.2	367.9	346.7	328.2	312.2	298.1	285.9	275.1	265.8
Pavers	Pavers-0750	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	Paving Equipment-0050	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	Paving Equipment-0120	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	Paving Equipment-0175	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	Paving Equipment-0250	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	Paving Equipment-0500	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	Paving Equipment-0750	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	Paving Equipment-1000	1000	179.0	170.6	163.0	156.0	149.7	144.1	139.1	134.8	131.2	128.1	125.6
Rollers	Rollers-0050	0050	135.7	131.9	128.2	124.7	121.4	118.3	115.4	112.7	110.4	108.2	106.4
Rollers	Rollers-0120	0120	185.7	184.1	182.6	181.2	179.9	178.7	177.6	176.5	175.5	174.6	173.9
Rollers	Rollers-0175	0175	281.9	280.9	280.1	279.4	278.8	278.2	277.8	277.4	277.1	276.8	276.6
Rollers	Rollers-0250	0250	185.1	176.2	168.5	162.1	157.0	153.0	149.8	147.3	145.1	143.1	141.5
Rollers	Rollers-0500	0500	306.2	286.3	268.7	253.6	241.1	230.8	222.2	215.0	208.8	203.5	199.0
Rollers	Rollers-0750	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	Rough Terrain Forklifts-0050	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	Rough Terrain Forklifts-0120	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	Rough Terrain Forklifts-0175	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	Rough Terrain Forklifts-0250	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	Rough Terrain Forklifts-0500	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	Rough Terrain Forklifts-0750	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	Rubber Tired Dozers-0050	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	Rubber Tired Dozers-0120	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	Rubber Tired Dozers-0175	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	Rubber Tired Dozers-0250	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	Rubber Tired Dozers-0500	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	Rubber Tired Dozers-0750	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	Rubber Tired Loaders-0050	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	Rubber Tired Loaders-0120	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	Rubber Tired Loaders-0175	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	Rubber Tired Loaders-0250	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	Rubber Tired Loaders-0500	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	Rubber Tired Loaders-0750	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	Rubber Tired Loaders-1000	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	Rubber Tired Loaders-9999	9999	889.1	836.1	788.5	745.5	707.0	672.8	643.0	617.8	597.2	581.0	567.7
Scrapers	Scrapers-0050	0050	317.7	314.6	311.8	309.3	307.0	304.9	303.0	301.2	299.6	298.1	296.8
Scrapers	Scrapers-0120	0120	317.7	314.6	311.8	309.3	307.0	304.9	303.0	301.2	299.6	298.1	296.8
Scrapers	Scrapers-0175	0175	415.0	412.7	410.8	409.2	407.8	406.7	405.8	405.0	404.3	403.6	403.1
Scrapers	Scrapers-0250	0250	303.8	290.6	278.6	267.8	257.9	249.1	241.3	234.5	228.6	223.7	219.6
Scrapers	Scrapers-0500	0500	589.7	549.4	515.0	484.7	458.3	435.4	415.5	398.3	383.3	370.3	359.0
Scrapers	Scrapers-0750	0750	1019.6	949.8	890.2	837.8	792.1	752.5	718.1	688.2	662.3	639.8	620.3
Scrapers	Scrapers-1000	1000	1019.6	949.8	890.2	837.8	792.1	752.5	718.1	688.2	662.3	639.8	620.3
Scrapers	Scrapers-9999	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	Skid Steer Loaders-0050	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	Skid Steer Loaders-0120	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	Skid Steer Loaders-0175	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	Skid Steer Loaders-0250	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	Skid Steer Loaders-0500	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	Skid Steer Loaders-0750	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	Skid Steer Loaders-1000	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	Surfacing Equipment-0050	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	Surfacing Equipment-0120	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	Surfacing Equipment-0175	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	Surfacing Equipment-0250	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	Surfacing Equipment-0500	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	Surfacing Equipment-0750	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	Surfacing Equipment-1000	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	Surfacing Equipment-9999	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	Sweepers/Scrubbers-0050	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	Sweepers/Scrubbers-0120	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	Sweepers/Scrubbers-0175	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	Sweepers/Scrubbers-0250	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	Sweepers/Scrubbers-0500	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	Sweepers/Scrubbers-1000	1000	156.1	153.4	151.0	149.1	147.7	146.6	146.0	145.4	144.9	144.1	144.0
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes-0050	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	Tractors/Loaders/Backhoes-0120	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	Tractors/Loaders/Backhoes-0175	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	Tractors/Loaders/Backhoes-0250	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	Tractors/Loaders/Backhoes-0500	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	Tractors/Loaders/Backhoes-0750	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	Tractors/Loaders/Backhoes-1000	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	Tractors/Loaders/Backhoes-9999	9999	524.6	506.1	492.6	481.9	473.4	466.3	460.3	455.6	451.6	448.5	446.1
Trenchers	Trenchers-0050	0050	189.2	185.0	180.8	176.7	172.7	168.9	165.2	161.6	158.3	155.2	152.2
Trenchers	Trenchers-0120	0120	214.4	212.2	210.2	208.4	206.8	205.2	203.8	202.5	201.3	200.2	199.2
Trenchers	Trenchers-0175	0175	394.0	391.2	388.8	386.7	385.0	383.5	382.3	381.2	380.3	379.6	378.9
Trenchers	Trenchers-0250	0250	336.4	321.5	307.7	295.2	283.8	273.4	264.0	255.5	248.0	241.5	235.8
Trenchers	Trenchers-0500	0500	635.6	590.2	550.0	514.7	484.3	457.3	433.6	412.9	394.9	379.2	365.5
Trenchers	Trenchers-0750	0750	1199.4	1113.6	1037.6	971.0	913.6	862.6	817.9	778.8	744.7	715.1	689.3
Trenchers	Trenchers-1000	1000	1199.4	1113.6	1037.6	971.0	913.6	862.6	817.9	778.8	744.7	715.1	689.3

SO2 EMISSION FACTORS

Equipment Type		HorsepowerBin	SO2 Grams/Hr										
			2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Aerial Lifts	Aerial Lifts-0050	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	Aerial Lifts-0120	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	Aerial Lifts-0175	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	Aerial Lifts-0250	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	Aerial Lifts-0500	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	Bore/Drill Rigs-0050	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	Bore/Drill Rigs-0120	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	Bore/Drill Rigs-0175	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	Bore/Drill Rigs-0250	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	Bore/Drill Rigs-0500	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	Bore/Drill Rigs-0750	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	Bore/Drill Rigs-1000	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	Bore/Drill Rigs-9999	9999	4.22986140	4.22986225	4.22986001	4.22986216	4.22986033	4.22986108	4.22986030	4.22986088	4.22986074	4.22986192	4.22985962
Cranes	Cranes-0050	0050	0.13584044	0.13584051	0.13584044	0.13584050	0.13584042	0.13584044	0.13584045	0.13584046	0.13584049	0.13584044	0.13584048
Cranes	Cranes-0120	0120	0.26659124	0.26659131	0.26659130	0.26659123	0.26659126	0.26659130	0.26659133	0.26659132	0.26659126	0.26659131	0.26659120
Cranes	Cranes-0175	0175	0.40968590	0.40968602	0.40968589	0.40968585	0.40968592	0.40968585	0.40968598	0.40968592	0.40968587	0.40968593	0.40968577
Cranes	Cranes-0250	0250	0.57191044	0.57191054	0.57191050	0.57191035	0.57191040	0.57191055	0.57191042	0.57191049	0.57191057	0.57191033	0.57191029
Cranes	Cranes-0500	0500	0.80111933	0.80111910	0.80111880	0.80111890	0.80111937	0.80111894	0.80111941	0.80111945	0.80111928	0.80112000	0.80111885
Cranes	Cranes-0750	0750	1.38086914	1.38086914	1.38086927	1.38086890	1.38086921	1.38086898	1.38086897	1.38086883	1.38086923	1.38086880	1.38086926
Cranes	Cranes-1000	1000	2.90179087	2.90178998	2.90179240	2.90179027	2.90179051	2.90178995	2.90178998	2.90179092	2.90179059	2.90179026	2.90178968
Cranes	Cranes-9999	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	Crawler Tractors-0050	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	Crawler Tractors-0120	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	Crawler Tractors-0175	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	Crawler Tractors-0250	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	Crawler Tractors-0500	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	Crawler Tractors-0750	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	Crawler Tractors-1000	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	Crawler Tractors-9999	9999	2.99875981	2.99875732	2.99875731	2.99875889	2.99875716	2.99875774	2.99875875	2.99875746	2.99875821	2.99875802	2.99875937
Excavators	Excavators-0050	0050	0.14656662	0.14656667	0.14656655	0.14656663	0.14656660	0.14656659	0.14656656	0.14656658	0.14656665	0.14656664	0.14656666
Excavators	Excavators-0120	0120	0.39138711	0.39138724	0.39138712	0.39138725	0.39138719	0.39138716	0.39138725	0.39138720	0.39138716	0.39138699	0.39138725
Excavators	Excavators-0175	0175	0.57223018	0.57223009	0.57223021	0.57223042	0.57223032	0.57223025	0.57223047	0.57223025	0.57223019	0.57223024	0.57223032
Excavators	Excavators-0250	0250	0.80914081	0.80914120	0.80914116	0.80914062	0.80914108	0.80914068	0.80914074	0.80914108	0.80914062	0.80914095	0.80914111
Excavators	Excavators-0500	0500	1.03969237	1.03969198	1.03969199	1.03969329	1.03969345	1.03969191	1.03969244	1.03969185	1.03969211	1.03969188	1.03969260
Excavators	Excavators-0750	0750	1.76531297	1.76531318	1.76531285	1.76531280	1.76531380	1.76531352	1.76531370	1.76531283	1.76531396	1.76531438	1.76531325
Excavators	Excavators-1000	1000	1.76531297	1.76531318	1.76531285	1.76531280	1.76531380	1.76531352	1.76531370	1.76531283	1.76531396	1.76531438	1.76531325
Excavators	Excavators-9999	9999	1.76531297	1.76531318	1.76531285	1.76531280	1.76531380	1.76531352	1.76531370	1.76531283	1.76531396	1.76531438	1.76531325
Forklifts	Forklifts-0050	0050	0.08595638	0.08595637	0.08595640	0.08595639	0.08595639	0.08595636	0.08595641	0.08595636	0.08595639	0.08595633	0.08595635
Forklifts	Forklifts-0120	0120	0.16599458	0.16599455	0.16599458	0.16599454	0.16599457	0.16599456	0.16599462	0.16599453	0.16599454	0.16599458	0.16599456
Forklifts	Forklifts-0175	0175	0.28582751	0.28582746	0.28582738	0.28582748	0.28582733	0.28582727	0.28582724	0.28582725	0.28582727	0.28582726	0.28582732
Forklifts	Forklifts-0250	0250	0.39325244	0.39325233	0.39325243	0.39325235	0.39325252	0.39325239	0.39325259	0.39325252	0.39325241	0.39325246	0.39325238
Forklifts	Forklifts-0500	0500	0.49365744	0.49365715	0.49365747	0.49365748	0.49365736	0.49365724	0.49365726	0.49365722	0.49365741	0.49365743	0.49365719
Forklifts	Forklifts-1000	1000	0.49365744	0.49365715	0.49365747	0.49365748	0.49365736	0.49365724	0.49365726	0.49365722	0.49365741	0.49365743	0.49365719
Graders	Graders-0050	0050	0.16133350	0.16133350	0.16133352	0.16133348	0.16133349	0.16133348	0.16133350	0.16133347	0.16133352	0.16133346	0.16133350
Graders	Graders-0120	0120	0.39852022	0.39852033	0.39852031	0.39852020	0.39852016	0.39852051	0.39852005	0.39852040	0.39852034	0.39852022	0.39852022
Graders	Graders-0175	0175	0.63188946	0.63188955	0.63188976	0.63188940	0.63188961	0.63188960	0.63188925	0.63188924	0.63188981	0.63188967	0.63188986
Graders	Graders-0250	0250	0.87762423	0.87762434	0.87762419	0.87762428	0.87762454	0.87762432	0.87762425	0.87762413	0.87762435	0.87762410	0.87762437
Graders	Graders-0500	0500	1.02078311	1.02078273	1.02078302	1.02078260	1.02078308	1.02078267	1.02078307	1.02078283	1.02078260	1.02078254	1.02078294
Graders	Graders-1000	1000	1.02078311	1.02078273	1.02078302	1.02078260	1.02078308	1.02078267	1.02078307	1.02078283	1.02078260	1.02078254	1.02078294
Graders	Graders-9999	9999	1.02078311	1.02078273	1.02078302	1.02078260	1.02078308	1.02078267	1.02078307	1.02078283	1.02078260	1.02078254	1.02078294
Off-Highway Tractors	Off-Highway Tractors-0050	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	Off-Highway Tractors-0120	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	Off-Highway Tractors-0175	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	Off-Highway Tractors-0250	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	Off-Highway Tractors-0500	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	Off-Highway Tractors-0750	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	Off-Highway Tractors-1000	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	Off-Highway Tractors-9999	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	Off-Highway Trucks-0050	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	Off-Highway Trucks-0120	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	Off-Highway Trucks-0175	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	Off-Highway Trucks-0250	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	Off-Highway Trucks-0500	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	Off-Highway Trucks-0750	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	Off-Highway Trucks-1000	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	Off-Highway Trucks-9999	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	ther Construction Equipment-0050	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	ther Construction Equipment-0120	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	ther Construction Equipment-0175	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	ther Construction Equipment-0250	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	ther Construction Equipment-0500	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	ther Construction Equipment-0750	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	ther Construction Equipment-1000	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	ther Construction Equipment-9999	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	eneral Industrial Equipment-0050	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	eneral Industrial Equipment-0120	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	eneral Industrial Equipment-0175	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	eneral Industrial Equipment-0250	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	eneral Industrial Equipment-0500	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	eneral Industrial Equipment-0750	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	eneral Industrial Equipment-1000	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	eneral Industrial Equipment-9999	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	aterial Handling Equipment-0050	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	aterial Handling Equipment-0120	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	aterial Handling Equipment-0175	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	aterial Handling Equipment-0250	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	aterial Handling Equipment-0500	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	aterial Handling Equipment-0750	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	aterial Handling Equipment-1000	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	aterial Handling Equipment-9999	9999	3.29763073	3.29762955	3.29763053	3.29763132	3.29763003	3.29762972	3.29763159	3.29762952	3.29763174	3.29763061	3.29763159
Pavers	Pavers-0050	0050	0.16397830	0.16397830	0.16397831	0.16397828	0.16397834	0.16397831	0.16397834	0.16397829	0.16397830	0.16397833	0.16397830
Pavers	Pavers-0120	0120	0.36785462	0.36785448	0.36785461	0.36785474	0.36785460	0.36785488	0.36785477	0.36785456	0.36785464	0.36785459	0.36785468
Pavers	Pavers-0175	0175	0.65414184	0.65414183	0.65414215	0.65414205	0.65414173	0.65414192	0.65414179	0.65414175	0.65414166	0.65414216	0.65414210
Pavers	Pavers-0250	0250	0.99112368	0.99112360	0.99112407	0.99112387	0.99112446	0.99112441	0.99112357	0.99112402	0.99112415	0.99112368	0.99112379
Pavers	Pavers-0500	0500	1.03751705	1.03751677	1.03751711	1.03751711	1.03751725	1.03751708	1.03751689	1.03751698	1.03751731	1.03751723	1.03751698
Pavers	Pavers-0750	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	Paving Equipment-0050	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	Paving Equipment-0120	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	Paving Equipment-0175	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	Paving Equipment-0250	0250	0.62357685	0.62357687	0.62357681	0.62357650	0.62357668	0.62357693	0.62357666	0.62357675	0.62357669	0.62357702	0.62357679
Paving Equipment	Paving Equipment-0500	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	Paving Equipment-0750	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	Paving Equipment-1000	1000	0.62357685	0.62357687	0.62357681	0.62357650	0.62357668	0.62357693	0.62357666	0.62357675	0.62357669	0.62357702	0.62357679
Rollers	Rollers-0050	0050	0.15222361	0.15222356	0.15222357	0.15222355	0.15222356	0.15222358	0.15222353	0.15222356	0.15222362	0.15222355	0.15222365
Rollers	Rollers-0120	0120	0.31358972	0.31358970	0.31358966	0.31358956	0.31358964	0.31358979	0.31358985	0.31358965	0.31358965	0.31358964	0.31358953
Rollers	Rollers-0175	0175	0.55144863	0.55144854	0.55144851	0.55144867	0.55144847	0.55144873	0.55144870	0.55144864	0.55144865	0.55144871	0.55144870
Rollers	Rollers-0250	0250	0.78062195	0.78062193	0.78062184	0.78062204	0.78062187	0.78062213	0.78062200	0.78062201	0.78062201	0.78062197	0.78062196
Rollers	Rollers-0500	0500	0.97459668	0.97459645	0.97459644	0.97459633	0.97459644	0.97459627	0.97459662	0.97459652	0.97459657	0.97459654	0.97459656
Rollers	Rollers-0750	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	Rough Terrain Forklifts-0050	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	Rough Terrain Forklifts-0120	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	Rough Terrain Forklifts-0175	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	Rough Terrain Forklifts-0250	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	Rough Terrain Forklifts-0500	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	Rough Terrain Forklifts-0750	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	Rubber Tired Dozers-0050	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	Rubber Tired Dozers-0120	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	Rubber Tired Dozers-0175	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	Rubber Tired Dozers-0250	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	Rubber Tired Dozers-0500	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	Rubber Tired Dozers-0750	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	Rubber Tired Loaders-0050	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	Rubber Tired Loaders-0120	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	Rubber Tired Loaders-0175	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	Rubber Tired Loaders-0250	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	Rubber Tired Loaders-0500	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	Rubber Tired Loaders-0750	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	Rubber Tired Loaders-1000	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	Rubber Tired Loaders-9999	9999	2.70608228	2.70608233	2.70608273	2.70608321	2.70608192	2.70608284	2.70608199	2.70608273	2.70608220	2.70608137	2.70608209
Scrapers	Scrapers-0050	0050	2.70608228	2.70608233	2.70608273	2.70608321	2.70608192	2.70608284	2.70608199	2.70608273	2.70608220	2.70608137	2.70608209
Scrapers	Scrapers-0120	0120	0.49918354	0.49918377	0.49918374	0.49918368	0.49918373	0.49918375	0.49918358	0.49918342	0.49918373	0.49918374	0.49918389
Scrapers	Scrapers-0175	0175	0.75504456	0.75504446	0.75504461	0.75504435	0.75504513	0.75504459	0.75504475	0.75504469	0.75504459	0.75504455	0.75504488
Scrapers	Scrapers-0250	0250	1.06811174	1.06811235	1.06811170	1.06811211	1.06811201	1.06811131	1.06811179	1.06811188	1.06811204	1.06811186	1.06811150
Scrapers	Scrapers-0500	0500	1.42976521	1.42976516	1.42976531	1.42976584	1.42976538	1.42976530	1.42976557	1.42976527	1.42976549	1.42976503	1.42976563
Scrapers	Scrapers-0750	0750	2.53020273	2.53020278	2.53020404	2.53020326	2.53020361	2.53020246	2.53020318	2.53020400	2.53020184	2.53020350	2.53020240
Scrapers	Scrapers-1000	1000	2.53020273	2.53020278	2.53020404	2.53020326	2.53020361	2.53020246	2.53020318	2.53020400	2.53020184	2.53020350	2.53020240
Scrapers	Scrapers-9999	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	Skid Steer Loaders-0050	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	Skid Steer Loaders-0120	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	Skid Steer Loaders-0175	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	Skid Steer Loaders-0250	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	Skid Steer Loaders-0500	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	Skid Steer Loaders-0750	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	Skid Steer Loaders-1000	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	Surfacing Equipment-0050	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	Surfacing Equipment-0120	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	Surfacing Equipment-0175	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	Surfacing Equipment-0250	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	Surfacing Equipment-0500	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	Surfacing Equipment-0750	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	Surfacing Equipment-1000	1000	1.58137723	1.58137688	1.58137621	1.58137717	1.58137610	1.58137722	1.58137673	1.58137650	1.58137690	1.58137625	1.58137683
Surfacing Equipment	Surfacing Equipment-9999	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	Sweepers/Scrubbers-0050	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	Sweepers/Scrubbers-0120	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	Sweepers/Scrubbers-0175	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	Sweepers/Scrubbers-0250	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	Sweepers/Scrubbers-0500	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	Sweepers/Scrubbers-1000	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	Tractors/Loaders/Backhoes-0050	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	Tractors/Loaders/Backhoes-0120	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	Tractors/Loaders/Backhoes-0175	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	Tractors/Loaders/Backhoes-0250	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	Tractors/Loaders/Backhoes-0500	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	Tractors/Loaders/Backhoes-0750	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	Tractors/Loaders/Backhoes-1000	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	Tractors/Loaders/Backhoes-9999	9999	2.63766793	2.63766806	2.63766914	2.63766827	2.63766940	2.63766747	2.63766683	2.63766695	2.63766962	2.63766784	2.63766862
Trenchers	Trenchers-0050	0050	0.19285082	0.19285080	0.19285082	0.19285089	0.19285086	0.19285073	0.19285085	0.19285087	0.19285085	0.19285080	0.19285085
Trenchers	Trenchers-0120	0120	0.34498877	0.34498869	0.34498868	0.34498869	0.34498877	0.34498871	0.34498868	0.34498867	0.34498865	0.34498876	0.34498868
Trenchers	Trenchers-0175	0175	0.73375170	0.73375149	0.73375148	0.73375147	0.73375150	0.73375146	0.73375137	0.73375129	0.73375124	0.73375171	0.73375150
Trenchers	Trenchers-0250	0250	1.13659584	1.13659531	1.13659501	1.13659508	1.13659513	1.13659603	1.13659593	1.13659480	1.13659527	1.13659558	1.13659595
Trenchers	Trenchers-0500	0500	1.38475050	1.38475007	1.38475002	1.38475088	1.38475045	1.38474994	1.38475002	1.38475020	1.38475050	1.38475091	1.38475076
Trenchers	Trenchers-0750	0750	2.67419719	2.67419652	2.67419898	2.67419734	2.67419870	2.67419871	2.67419825	2.67419692	2.67419782	2.67419796	2.67419826
Trenchers	Trenchers-1000	1000	2.67419719	2.67419652	2.67419898	2.67419734	2.67419870	2.67419871	2.67419825	2.67419692	2.67419782	2.67419796	2.67419826

MOBILE EMISSIONS

Workers is average of LDA & LDT

2012										
Category	*Speed*	*TOG*	*CO*	*Nox*	*CO2*	*SO2*	*PM10*	*PM2.5*	*Gas*	*Diesel*
		g/mi	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*mpg*	*mpg*
Workers	5	0.419	4.874	0.462	1059.796	0.010	0.108	0.088	8.341	28.634
	20	0.152	3.235	0.320	513.058	0.005	0.050	0.034	17.246	28.634
	30	0.099	2.667	0.279	380.995	0.004	0.039	0.024	23.256	28.634
	35	0.085	2.468	0.268	347.063	0.004	0.036	0.021	25.549	28.634
	40	0.077	2.313	0.263	328.033	0.004	0.035	0.019	27.051	28.634
	45	0.073	2.200	0.262	321.678	0.003	0.034	0.019	27.602	28.634
	50	0.073	2.127	0.266	327.274	0.004	0.034	0.019	27.142	28.634
	55	0.077	2.099	0.277	345.457	0.004	0.034	0.019	25.719	28.634
	60	0.083	2.129	0.293	378.352	0.004	0.035	0.020	23.482	28.634
MDT	5	0.644	6.768	1.108	1676.871	0.016	0.137	0.113	5.117	19.524
	20	0.229	3.880	0.769	778.112	0.008	0.061	0.043	11.033	19.524
	30	0.146	3.087	0.687	574.324	0.006	0.046	0.029	15.178	19.524
	35	0.124	2.842	0.673	523.119	0.005	0.043	0.026	16.780	19.524
	40	0.111	2.669	0.675	494.757	0.005	0.040	0.024	17.827	19.524
	45	0.104	2.561	0.692	485.599	0.005	0.039	0.023	18.196	19.524
	50	0.102	2.517	0.728	494.517	0.005	0.039	0.023	17.843	19.524
	55	0.104	2.548	0.784	522.649	0.005	0.039	0.023	16.811	19.524
	60	0.112	2.673	0.868	573.661	0.006	0.041	0.024	15.221	19.524
HDT	5	6.617	19.240	28.407	3309.567	0.032	1.850	1.669	3.376	3.443
	20	1.037	7.192	12.654	1959.290	0.019	0.642	0.558	9.724	5.037
	30	0.674	5.044	11.597	1745.274	0.017	0.480	0.409	14.957	5.533
	35	0.558	4.359	11.294	1668.777	0.016	0.435	0.368	17.082	5.753
	40	0.482	3.877	11.137	1611.035	0.015	0.415	0.349	18.465	5.940
	45	0.443	3.580	11.130	1571.565	0.015	0.417	0.351	18.892	6.081
	50	0.442	3.463	11.282	1550.236	0.015	0.443	0.375	18.294	6.167
	55	0.477	3.530	11.609	1547.239	0.015	0.491	0.419	16.768	6.191
	60	0.549	3.799	12.137	1563.132	0.015	0.562	0.485	14.546	6.152

2013										
Category	*Speed*	*TOG*	*CO*	*Nox*	*CO2*	*SO2*	*PM10*	*PM2.5*	*Gas*	*Diesel*
		g/mi	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*mpg*	*mpg*
Workers	5	0.366	4.329	0.415	1059.165	0.010	0.108	0.088	8.361	28.674
	20	0.132	2.911	0.286	512.568	0.005	0.050	0.034	17.291	28.674
	30	0.085	2.405	0.249	380.538	0.004	0.039	0.023	23.318	28.674
	35	0.074	2.224	0.239	346.615	0.004	0.036	0.021	25.618	28.674
	40	0.066	2.083	0.234	327.590	0.004	0.035	0.019	27.123	28.674
	45	0.063	1.975	0.233	321.237	0.003	0.033	0.019	27.675	28.674
	50	0.063	1.902	0.237	326.831	0.004	0.033	0.019	27.213	28.674
	55	0.066	1.867	0.246	345.009	0.004	0.034	0.019	25.785	28.674
	60	0.072	1.879	0.260	377.896	0.004	0.035	0.020	23.541	28.674
MDT	5	0.595	6.254	1.028	1678.443	0.016	0.140	0.116	5.120	19.528
	20	0.211	3.628	0.712	778.330	0.008	0.062	0.044	11.041	19.528
	30	0.134	2.895	0.636	574.267	0.006	0.047	0.030	15.191	19.528
	35	0.115	2.665	0.623	522.995	0.005	0.043	0.026	16.794	19.528
	40	0.102	2.500	0.625	494.597	0.005	0.041	0.024	17.841	19.528
	45	0.096	2.394	0.641	485.428	0.005	0.039	0.023	18.211	19.528
	50	0.094	2.347	0.674	494.359	0.005	0.039	0.023	17.857	19.528
	55	0.096	2.365	0.726	522.530	0.005	0.040	0.023	16.825	19.528
	60	0.103	2.469	0.804	573.611	0.006	0.041	0.025	15.233	19.528
HDT	5	6.068	17.705	25.717	3307.035	0.032	1.633	1.470	3.392	3.447
	20	0.951	6.488	11.490	1957.827	0.019	0.578	0.499	9.771	5.038
	30	0.621	4.580	10.478	1743.939	0.017	0.436	0.368	15.028	5.534
	35	0.516	3.976	10.180	1667.523	0.016	0.398	0.334	17.162	5.754
	40	0.445	3.555	10.019	1609.857	0.015	0.381	0.318	18.551	5.941
	45	0.409	3.302	9.998	1570.454	0.015	0.386	0.322	18.979	6.082
	50	0.406	3.209	10.125	1549.180	0.015	0.411	0.345	18.378	6.168
	55	0.436	3.282	10.413	1546.228	0.015	0.456	0.387	16.844	6.192
	60	0.498	3.536	10.887	1562.163	0.015	0.522	0.447	14.611	6.152

2014										
Category	*Speed*	*TOG*	*CO*	*Nox*	*CO2*	*SO2*	*PM10*	*PM2.5*	*Gas*	*Diesel*
		g/mi	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*mpg*	*mpg*
Workers	5	0.320	3.842	0.373	1058.669	0.010	0.108	0.088	8.379	28.709
	20	0.114	2.616	0.256	512.148	0.005	0.049	0.034	17.331	28.709
	30	0.074	2.166	0.222	380.137	0.004	0.039	0.023	23.374	28.709
	35	0.063	2.003	0.213	346.218	0.004	0.036	0.021	25.680	28.709
	40	0.057	1.872	0.208	327.196	0.004	0.034	0.019	27.188	28.709
	45	0.054	1.771	0.208	320.844	0.003	0.033	0.019	27.742	28.709
	50	0.054	1.699	0.211	326.437	0.004	0.033	0.019	27.277	28.709
	55	0.056	1.659	0.219	344.613	0.004	0.034	0.019	25.844	28.709
	60	0.061	1.656	0.231	377.495	0.004	0.035	0.020	23.594	28.709
MDT	5	0.549	5.789	0.953	1679.652	0.016	0.142	0.118	5.124	19.528
	20	0.195	3.395	0.660	778.518	0.008	0.062	0.044	11.049	19.528
	30	0.123	2.716	0.589	574.223	0.006	0.047	0.030	15.202	19.528
	35	0.105	2.500	0.577	522.893	0.005	0.043	0.027	16.807	19.528
	40	0.094	2.344	0.578	494.463	0.005	0.041	0.025	17.855	19.528
	45	0.088	2.240	0.594	485.284	0.005	0.040	0.023	18.224	19.528
	50	0.086	2.190	0.624	494.224	0.005	0.039	0.023	17.871	19.528
	55	0.088	2.198	0.672	522.427	0.005	0.040	0.024	16.837	19.528
	60	0.095	2.282	0.744	573.566	0.006	0.041	0.025	15.244	19.528
HDT	5	5.502	16.116	23.046	3305.107	0.032	1.423	1.277	3.409	3.449
	20	0.862	5.787	10.334	1956.705	0.019	0.516	0.442	9.817	5.040
	30	0.568	4.114	9.371	1742.912	0.017	0.393	0.329	15.098	5.535
	35	0.472	3.590	9.083	1666.557	0.016	0.361	0.300	17.241	5.755
	40	0.408	3.229	8.921	1608.951	0.015	0.349	0.288	18.636	5.941
	45	0.374	3.016	8.888	1569.597	0.015	0.354	0.293	19.065	6.082
	50	0.369	2.946	8.990	1548.366	0.015	0.378	0.315	18.460	6.168
	55	0.394	3.023	9.242	1545.448	0.015	0.420	0.353	16.918	6.192
	60	0.446	3.260	9.664	1561.416	0.015	0.480	0.408	14.675	6.153

2015										
Category	*Speed*	*TOG*	*CO*	*Nox*	*CO2*	*SO2*	*PM10*	*PM2.5*	*Gas*	*Diesel*
		g/mi	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*mpg*	*mpg*
Workers	5	0.280	3.418	0.334	1057.906	0.010	0.108	0.087	8.398	28.740
	20	0.099	2.357	0.230	511.612	0.005	0.049	0.034	17.374	28.740
	30	0.064	1.955	0.198	379.655	0.004	0.039	0.023	23.433	28.740
	35	0.055	1.808	0.190	345.750	0.004	0.036	0.021	25.744	28.740
	40	0.049	1.688	0.185	326.736	0.004	0.034	0.019	27.257	28.740
	45	0.047	1.593	0.185	320.387	0.003	0.033	0.019	27.811	28.740
	50	0.047	1.522	0.188	325.977	0.004	0.033	0.019	27.344	28.740
	55	0.048	1.477	0.194	344.146	0.004	0.034	0.019	25.906	28.740
	60	0.052	1.464	0.206	377.014	0.004	0.035	0.020	23.650	28.740
MDT	5	0.506	5.354	0.881	1681.088	0.016	0.144	0.120	5.127	19.527
	20	0.179	3.175	0.610	778.738	0.008	0.063	0.045	11.056	19.527
	30	0.113	2.546	0.544	574.183	0.006	0.047	0.031	15.213	19.527
	35	0.097	2.344	0.533	522.790	0.005	0.044	0.027	16.819	19.527
	40	0.086	2.195	0.534	494.325	0.005	0.041	0.025	17.868	19.527
	45	0.081	2.094	0.548	485.135	0.005	0.040	0.024	18.237	19.527
	50	0.079	2.041	0.576	494.087	0.005	0.040	0.023	17.883	19.527
	55	0.081	2.041	0.621	522.326	0.005	0.040	0.024	16.849	19.527
	60	0.087	2.108	0.687	573.531	0.006	0.042	0.025	15.254	19.527
HDT	5	4.946	14.605	20.483	3305.136	0.032	1.227	1.096	3.422	3.449
	20	0.777	5.137	9.223	1956.352	0.019	0.457	0.388	9.856	5.039
	30	0.515	3.681	8.314	1742.479	0.017	0.353	0.292	15.157	5.535
	35	0.430	3.231	8.037	1666.113	0.016	0.327	0.268	17.308	5.755
	40	0.372	2.924	7.876	1608.503	0.015	0.317	0.259	18.707	5.941
	45	0.340	2.747	7.832	1569.154	0.015	0.324	0.265	19.138	6.082
	50	0.334	2.697	7.913	1547.933	0.015	0.346	0.286	18.530	6.168
	55	0.353	2.777	8.131	1545.033	0.015	0.384	0.321	16.982	6.192
	60	0.397	2.998	8.503	1561.029	0.015	0.438	0.370	14.730	6.153

2016										
Category	*Speed*	*TOG*	*CO*	*Nox*	*CO2*	*SO2*	*PM10*	*PM2.5*	*Gas*	*Diesel*
		g/mi	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*mpg*	*mpg*
Workers	5	0.247	3.060	0.302	1057.323	0.010	0.107	0.087	8.414	28.776
	20	0.087	2.135	0.206	511.176	0.005	0.049	0.033	17.410	28.776
	30	0.055	1.775	0.178	379.255	0.004	0.038	0.023	23.483	28.776
	35	0.047	1.640	0.171	345.359	0.004	0.036	0.021	25.800	28.776
	40	0.043	1.529	0.166	326.350	0.004	0.034	0.019	27.315	28.776
	45	0.040	1.440	0.165	320.002	0.003	0.033	0.018	27.870	28.776
	50	0.040	1.371	0.168	325.592	0.004	0.033	0.018	27.401	28.776
	55	0.042	1.324	0.174	343.755	0.004	0.034	0.019	25.960	28.776
	60	0.045	1.302	0.184	376.614	0.004	0.035	0.020	23.697	28.776
MDT	5	0.465	4.951	0.812	1682.845	0.016	0.146	0.122	5.129	19.523
	20	0.164	2.967	0.562	779.013	0.008	0.063	0.045	11.063	19.523
	30	0.104	2.385	0.501	574.158	0.006	0.048	0.031	15.223	19.523
	35	0.089	2.196	0.490	522.693	0.005	0.044	0.027	16.831	19.523
	40	0.079	2.055	0.491	494.189	0.005	0.041	0.025	17.880	19.523
	45	0.074	1.957	0.504	484.987	0.005	0.040	0.024	18.250	19.523
	50	0.072	1.902	0.530	493.954	0.005	0.040	0.023	17.896	19.523
	55	0.074	1.894	0.571	522.234	0.005	0.040	0.024	16.860	19.523
	60	0.080	1.946	0.632	573.515	0.006	0.042	0.025	15.264	19.523
HDT	5	4.418	13.212	18.092	3307.187	0.032	1.049	0.932	3.434	3.445
	20	0.696	4.553	8.188	1956.826	0.019	0.405	0.340	9.889	5.037
	30	0.466	3.289	7.335	1742.702	0.017	0.317	0.259	15.207	5.533
	35	0.390	2.904	7.070	1666.247	0.016	0.295	0.239	17.364	5.754
	40	0.338	2.645	6.911	1608.571	0.015	0.288	0.233	18.768	5.940
	45	0.308	2.501	6.861	1569.178	0.015	0.295	0.239	19.199	6.082
	50	0.301	2.469	6.924	1547.934	0.015	0.316	0.258	18.589	6.168
	55	0.315	2.550	7.111	1545.033	0.015	0.350	0.289	17.035	6.192
	60	0.351	2.755	7.439	1561.050	0.015	0.398	0.333	14.775	6.152
2017										
Category	*Speed*	*TOG*	*CO*	*Nox*	*CO2*	*SO2*	*PM10*	*PM2.5*	*Gas*	*Diesel*
		g/mi	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*mpg*	*mpg*
Workers	5	0.216	2.734	0.272	1056.818	0.010	0.107	0.087	8.429	28.808
	20	0.075	1.934	0.186	510.795	0.005	0.049	0.033	17.442	28.808
	30	0.048	1.611	0.160	378.903	0.004	0.038	0.023	23.527	28.808
	35	0.041	1.488	0.153	345.015	0.004	0.036	0.021	25.848	28.808
	40	0.036	1.386	0.149	326.011	0.004	0.034	0.019	27.367	28.808
	45	0.035	1.302	0.148	319.664	0.003	0.033	0.018	27.921	28.808
	50	0.034	1.234	0.150	325.252	0.004	0.033	0.018	27.451	28.808
	55	0.036	1.185	0.155	343.412	0.004	0.034	0.019	26.007	28.808
	60	0.039	1.155	0.164	376.264	0.004	0.035	0.020	23.739	28.808
MDT	5	0.428	4.587	0.747	1684.788	0.016	0.147	0.123	5.131	19.517
	20	0.151	2.777	0.517	779.325	0.008	0.063	0.045	11.069	19.517
	30	0.095	2.238	0.461	574.147	0.006	0.048	0.031	15.233	19.517
	35	0.081	2.060	0.451	522.604	0.005	0.044	0.027	16.842	19.517
	40	0.072	1.926	0.452	494.059	0.005	0.041	0.025	17.892	19.517
	45	0.068	1.832	0.463	484.845	0.005	0.040	0.024	18.262	19.517
	50	0.066	1.776	0.487	493.826	0.005	0.040	0.023	17.907	19.517
	55	0.068	1.762	0.525	522.152	0.005	0.040	0.024	16.870	19.517
	60	0.073	1.802	0.581	573.514	0.006	0.042	0.025	15.273	19.517
HDT	5	3.924	11.909	15.890	3310.492	0.032	0.890	0.786	3.444	3.439
	20	0.621	4.020	7.232	1957.893	0.019	0.357	0.296	9.918	5.034
	30	0.420	2.930	6.436	1743.426	0.017	0.284	0.228	15.251	5.531
	35	0.353	2.602	6.185	1666.838	0.016	0.266	0.212	17.414	5.752
	40	0.306	2.386	6.031	1609.057	0.015	0.261	0.208	18.821	5.939
	45	0.278	2.271	5.976	1569.589	0.015	0.268	0.214	19.253	6.080
	50	0.270	2.253	6.023	1548.299	0.015	0.287	0.231	18.641	6.167
	55	0.279	2.335	6.184	1545.381	0.015	0.318	0.259	17.082	6.191
	60	0.308	2.525	6.472	1561.409	0.015	0.360	0.298	14.816	6.151

2018										
Category	*Speed*	*TOG*	*CO*	*Nox*	*CO2*	*SO2*	*PM10*	*PM2.5*	*Gas*	*Diesel*
		g/mi	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*mpg*	*mpg*
Workers	5	0.192	2.464	0.247	1055.997	0.010	0.107	0.087	8.445	28.827
	20	0.066	1.763	0.168	510.275	0.005	0.049	0.033	17.477	28.827
	30	0.041	1.472	0.144	378.458	0.004	0.038	0.023	23.576	28.827
	35	0.036	1.360	0.138	344.588	0.004	0.036	0.021	25.902	28.827
	40	0.032	1.265	0.134	325.594	0.004	0.034	0.019	27.423	28.827
	45	0.030	1.185	0.133	319.251	0.003	0.033	0.018	27.979	28.827
	50	0.029	1.120	0.135	324.836	0.004	0.033	0.018	27.506	28.827
	55	0.031	1.069	0.139	342.985	0.004	0.033	0.019	26.058	28.827
	60	0.033	1.034	0.147	375.819	0.004	0.035	0.020	23.785	28.827
MDT	5	0.393	4.255	0.687	1686.589	0.016	0.147	0.123	5.132	19.511
	20	0.138	2.602	0.475	779.608	0.008	0.064	0.046	11.074	19.511
	30	0.087	2.102	0.423	574.132	0.006	0.048	0.031	15.242	19.511
	35	0.074	1.935	0.414	522.519	0.005	0.044	0.027	16.852	19.511
	40	0.066	1.808	0.415	493.936	0.005	0.041	0.025	17.903	19.511
	45	0.062	1.717	0.426	484.711	0.005	0.040	0.024	18.273	19.511
	50	0.061	1.661	0.447	493.707	0.005	0.040	0.023	17.918	19.511
	55	0.062	1.642	0.482	522.073	0.005	0.040	0.024	16.879	19.511
	60	0.067	1.672	0.534	573.511	0.006	0.042	0.025	15.280	19.511
HDT	5	3.471	10.726	13.901	3314.654	0.032	0.750	0.658	3.453	3.431
	20	0.553	3.547	6.366	1959.355	0.019	0.315	0.257	9.943	5.030
	30	0.377	2.608	5.627	1744.481	0.017	0.254	0.201	15.289	5.528
	35	0.318	2.332	5.391	1667.730	0.016	0.240	0.188	17.458	5.750
	40	0.276	2.153	5.242	1609.819	0.015	0.237	0.185	18.868	5.937
	45	0.250	2.062	5.184	1570.254	0.015	0.244	0.192	19.300	6.079
	50	0.241	2.056	5.219	1548.902	0.015	0.261	0.207	18.686	6.165
	55	0.247	2.137	5.356	1545.956	0.015	0.288	0.232	17.123	6.190
	60	0.269	2.313	5.609	1561.989	0.015	0.324	0.266	14.851	6.150

2019										
Category	*Speed*	*TOG*	*CO*	*Nox*	*CO2*	*SO2*	*PM10*	*PM2.5*	*Gas*	*Diesel*
		g/mi	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*mpg*	*mpg*
Workers	5	0.173	2.252	0.225	1055.321	0.010	0.107	0.087	8.458	28.845
	20	0.059	1.625	0.153	509.843	0.005	0.049	0.033	17.507	28.845
	30	0.037	1.359	0.131	378.084	0.004	0.038	0.023	23.616	28.845
	35	0.032	1.254	0.125	344.230	0.004	0.035	0.021	25.947	28.845
	40	0.028	1.166	0.122	325.244	0.004	0.034	0.019	27.471	28.845
	45	0.027	1.091	0.121	318.904	0.003	0.033	0.018	28.027	28.845
	50	0.026	1.028	0.122	324.487	0.004	0.033	0.018	27.554	28.845
	55	0.027	0.979	0.127	342.628	0.004	0.033	0.019	26.101	28.845
	60	0.029	0.941	0.133	375.447	0.004	0.035	0.020	23.824	28.845
MDT	5	0.359	3.922	0.630	1688.310	0.016	0.148	0.124	5.133	19.504
	20	0.126	2.429	0.436	779.885	0.008	0.064	0.046	11.079	19.504
	30	0.079	1.967	0.388	574.130	0.006	0.048	0.031	15.250	19.504
	35	0.067	1.811	0.380	522.450	0.005	0.044	0.027	16.862	19.504
	40	0.060	1.690	0.381	493.833	0.005	0.041	0.025	17.914	19.504
	45	0.056	1.602	0.390	484.598	0.005	0.040	0.024	18.284	19.504
	50	0.055	1.544	0.410	493.607	0.005	0.040	0.023	17.928	19.504
	55	0.056	1.520	0.442	522.012	0.005	0.040	0.024	16.889	19.504
	60	0.060	1.537	0.489	573.521	0.006	0.042	0.025	15.288	19.504
HDT	5	3.065	9.674	12.151	3319.944	0.032	0.630	0.547	3.460	3.422
	20	0.491	3.134	5.602	1961.314	0.019	0.278	0.223	9.965	5.026
	30	0.339	2.326	4.915	1745.944	0.017	0.228	0.177	15.321	5.525
	35	0.287	2.093	4.693	1668.988	0.016	0.217	0.167	17.494	5.747
	40	0.249	1.946	4.551	1610.911	0.015	0.215	0.166	18.907	5.935
	45	0.226	1.876	4.490	1571.222	0.015	0.222	0.172	19.340	6.077
	50	0.216	1.880	4.514	1549.789	0.015	0.237	0.186	18.724	6.164
	55	0.219	1.960	4.631	1546.803	0.015	0.261	0.207	17.157	6.188
	60	0.235	2.124	4.853	1562.833	0.015	0.293	0.237	14.881	6.148

2020										
Category	*Speed*	*TOG*	*CO*	*Nox*	*CO2*	*SO2*	*PM10*	*PM2.5*	*Gas*	*Diesel*
		g/mi	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*mpg*	*mpg*
Workers	5	0.159	2.075	0.206	1054.758	0.010	0.107	0.087	8.470	28.868
	20	0.054	1.507	0.140	509.478	0.005	0.049	0.033	17.532	28.868
	30	0.034	1.261	0.120	377.767	0.004	0.038	0.023	23.652	28.868
	35	0.029	1.165	0.115	343.925	0.004	0.035	0.021	25.986	28.868
	40	0.026	1.082	0.111	324.946	0.004	0.034	0.019	27.512	28.868
	45	0.024	1.011	0.110	318.609	0.003	0.033	0.018	28.069	28.868
	50	0.024	0.952	0.112	324.189	0.003	0.033	0.018	27.594	28.868
	55	0.024	0.903	0.115	342.324	0.004	0.033	0.019	26.139	28.868
	60	0.027	0.865	0.121	375.131	0.004	0.035	0.020	23.858	28.868
MDT	5	0.328	3.623	0.581	1689.646	0.016	0.148	0.124	5.135	19.498
	20	0.114	2.272	0.402	780.098	0.008	0.064	0.046	11.084	19.498
	30	0.072	1.845	0.358	574.117	0.006	0.048	0.031	15.258	19.498
	35	0.061	1.698	0.35	522.384	0.005	0.044	0.027	16.871	19.498
	40	0.055	1.584	0.35	493.737	0.005	0.041	0.025	17.924	19.498
	45	0.051	1.498	0.359	484.494	0.005	0.040	0.024	18.294	19.498
	50	0.05	1.439	0.377	493.513	0.005	0.040	0.023	17.937	19.498
	55	0.051	1.41	0.406	521.95	0.005	0.040	0.024	16.897	19.498
	60	0.055	1.417	0.45	573.516	0.006	0.042	0.025	15.295	19.498
HDT	5	2.731	8.82	10.72	3324.917	0.032	0.533	0.458	3.466	3.413
	20	0.441	2.801	4.977	1963.136	0.019	0.248	0.196	9.981	5.021
	30	0.307	2.098	4.334	1747.296	0.017	0.207	0.158	15.347	5.522
	35	0.261	1.9	4.124	1670.147	0.016	0.199	0.150	17.523	5.745
	40	0.227	1.778	3.986	1611.914	0.015	0.198	0.150	18.937	5.933
	45	0.205	1.725	3.924	1572.108	0.015	0.205	0.156	19.371	6.076
	50	0.195	1.737	3.939	1550.599	0.015	0.218	0.168	18.754	6.162
	55	0.195	1.816	4.04	1547.577	0.015	0.239	0.187	17.184	6.187
	60	0.207	1.97	4.235	1563.607	0.015	0.267	0.213	14.904	6.147

2021										
Category	*Speed*	*TOG*	*CO*	*Nox*	*CO2*	*SO2*	*PM10*	*PM2.5*	*Gas*	*Diesel*
		g/mi	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*mpg*	*mpg*
Workers	5	0.148	1.925	0.190	1054.263	0.010	0.107	0.087	8.480	28.888
	20	0.050	1.405	0.129	509.157	0.005	0.049	0.033	17.555	28.888
	30	0.031	1.178	0.110	377.488	0.004	0.038	0.023	23.683	28.888
	35	0.027	1.087	0.105	343.657	0.004	0.035	0.021	26.020	28.888
	40	0.024	1.009	0.102	324.684	0.004	0.034	0.019	27.549	28.888
	45	0.022	0.943	0.102	318.349	0.003	0.033	0.018	28.105	28.888
	50	0.022	0.886	0.102	323.927	0.003	0.033	0.018	27.630	28.888
	55	0.023	0.839	0.105	342.056	0.004	0.033	0.019	26.172	28.888
	60	0.024	0.801	0.111	374.852	0.004	0.035	0.020	23.887	28.888
MDT	5	0.294	3.28	0.534	1690.999	0.016	0.149	0.124	5.136	19.494
	20	0.102	2.098	0.368	780.273	0.008	0.064	0.046	11.089	19.494
	30	0.064	1.71	0.328	574.069	0.006	0.048	0.031	15.266	19.494
	35	0.054	1.573	0.32	522.283	0.005	0.044	0.027	16.88	19.494
	40	0.048	1.464	0.32	493.609	0.005	0.041	0.025	17.934	19.494
	45	0.045	1.379	0.328	484.358	0.005	0.040	0.024	18.305	19.494
	50	0.044	1.318	0.345	493.388	0.005	0.040	0.023	17.947	19.494
	55	0.045	1.28	0.371	521.856	0.005	0.040	0.024	16.906	19.494
	60	0.048	1.27	0.411	573.479	0.006	0.042	0.025	15.303	19.494
HDT	5	2.46	8.131	9.572	3329.458	0.032	0.456	0.387	3.471	3.405
	20	0.4	2.535	4.475	1964.813	0.019	0.225	0.174	9.995	5.017
	30	0.282	1.915	3.866	1748.546	0.017	0.191	0.143	15.368	5.519
	35	0.24	1.745	3.666	1671.222	0.016	0.184	0.137	17.547	5.742
	40	0.21	1.644	3.533	1612.846	0.015	0.184	0.137	18.963	5.931
	45	0.189	1.604	3.469	1572.934	0.015	0.191	0.143	19.396	6.074
	50	0.178	1.622	3.477	1551.355	0.015	0.203	0.154	18.778	6.161
	55	0.176	1.701	3.563	1548.298	0.015	0.222	0.171	17.207	6.186
	60	0.184	1.846	3.738	1564.327	0.015	0.246	0.194	14.923	6.145

2022										
Category	*Speed*	*TOG*	*CO*	*Nox*	*CO2*	*SO2*	*PM10*	*PM2.5*	*Gas*	*Diesel*
		g/mi	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*mpg*	*mpg*
Workers	5	0.138	1.790	0.175	1053.792	0.010	0.107	0.087	8.490	28.908
	20	0.046	1.314	0.119	508.863	0.005	0.049	0.033	17.575	28.908
	30	0.029	1.103	0.102	377.237	0.004	0.038	0.023	23.711	28.908
	35	0.025	1.018	0.097	343.416	0.004	0.035	0.021	26.051	28.908
	40	0.022	0.945	0.094	324.450	0.004	0.034	0.019	27.581	28.908
	45	0.021	0.882	0.094	318.116	0.003	0.033	0.018	28.138	28.908
	50	0.020	0.828	0.094	323.693	0.003	0.033	0.018	27.661	28.908
	55	0.021	0.782	0.097	341.816	0.004	0.033	0.019	26.201	28.908
	60	0.023	0.744	0.102	374.602	0.004	0.035	0.020	23.914	28.908
MDT	5	0.262	2.967	0.49	1692.49	0.016	0.149	0.125	5.137	19.49
	20	0.09	1.938	0.337	780.464	0.008	0.064	0.046	11.094	19.49
	30	0.056	1.586	0.299	574.026	0.006	0.048	0.031	15.274	19.49
	35	0.047	1.458	0.292	522.188	0.005	0.044	0.027	16.889	19.49
	40	0.042	1.355	0.292	493.486	0.005	0.041	0.025	17.944	19.49
	45	0.039	1.271	0.299	484.227	0.005	0.040	0.024	18.315	19.49
	50	0.038	1.206	0.314	493.269	0.005	0.040	0.023	17.957	19.49
	55	0.039	1.16	0.339	521.769	0.005	0.040	0.024	16.915	19.49
	60	0.041	1.135	0.375	573.452	0.006	0.042	0.025	15.31	19.49
HDT	5	2.243	7.589	8.667	3332.392	0.032	0.395	0.331	3.475	3.4
	20	0.367	2.327	4.078	1965.879	0.019	0.207	0.157	10.007	5.015
	30	0.261	1.772	3.498	1749.333	0.017	0.178	0.131	15.386	5.517
	35	0.224	1.624	3.304	1671.894	0.016	0.173	0.126	17.567	5.741
	40	0.195	1.538	3.175	1613.426	0.015	0.173	0.127	18.984	5.93
	45	0.176	1.508	3.109	1573.446	0.015	0.180	0.132	19.418	6.073
	50	0.164	1.532	3.112	1551.822	0.015	0.191	0.143	18.799	6.16
	55	0.161	1.609	3.187	1548.744	0.015	0.208	0.159	17.225	6.185
	60	0.166	1.748	3.344	1564.773	0.015	0.230	0.179	14.939	6.145
2023										
Category	*Speed*	*TOG*	*CO*	*Nox*	*CO2*	*SO2*	*PM10*	*PM2.5*	*Gas*	*Diesel*
		g/mi	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*mpg*	*mpg*
Workers	5	0.129	1.670	0.162	1053.382	0.010	0.108	0.087	8.498	28.940
	20	0.043	1.234	0.110	508.602	0.005	0.049	0.033	17.593	28.940
	30	0.027	1.036	0.094	377.011	0.004	0.038	0.023	23.736	28.940
	35	0.023	0.957	0.090	343.200	0.004	0.035	0.021	26.079	28.940
	40	0.020	0.887	0.087	324.239	0.004	0.034	0.019	27.610	28.940
	45	0.019	0.827	0.086	317.907	0.003	0.033	0.018	28.167	28.940
	50	0.019	0.776	0.087	323.482	0.003	0.033	0.018	27.690	28.940
	55	0.019	0.731	0.089	341.600	0.004	0.033	0.019	26.228	28.940
	60	0.021	0.693	0.094	374.377	0.004	0.035	0.020	23.938	28.940
MDT	5	0.243	2.776	0.453	1693.824	0.016	0.149	0.125	5.137	19.487
	20	0.083	1.836	0.312	780.635	0.008	0.064	0.046	11.097	19.487
	30	0.052	1.507	0.276	573.988	0.006	0.048	0.031	15.28	19.487
	35	0.044	1.385	0.27	522.103	0.005	0.044	0.027	16.896	19.487
	40	0.039	1.286	0.27	493.376	0.005	0.041	0.025	17.952	19.487
	45	0.036	1.204	0.276	484.111	0.005	0.040	0.024	18.323	19.487
	50	0.035	1.139	0.29	493.163	0.005	0.040	0.023	17.964	19.487
	55	0.036	1.091	0.312	521.693	0.005	0.040	0.024	16.921	19.487
	60	0.038	1.06	0.345	573.429	0.006	0.042	0.025	15.315	19.487
HDT	5	2.071	7.164	7.949	0.010	0.032	0.348	0.287	3.478	3.398
	20	0.342	2.166	3.762	0.005	0.019	0.192	0.144	10.016	5.013
	30	0.245	1.661	3.205	0.004	0.017	0.167	0.121	15.399	5.516
	35	0.211	1.529	3.018	0.004	0.016	0.163	0.118	17.582	5.74
	40	0.184	1.456	2.891	0.004	0.015	0.165	0.119	19.001	5.929
	45	0.165	1.434	2.825	0.003	0.015	0.171	0.124	19.435	6.073
	50	0.154	1.461	2.822	0.003	0.015	0.181	0.134	18.815	6.16
	55	0.149	1.538	2.889	0.004	0.015	0.197	0.148	17.24	6.184
	60	0.152	1.671	3.032	0.004	0.015	0.217	0.167	14.951	6.144

2024										
Category	*Speed*	*TOG*	*CO*	*Nox*	*CO2*	*SO2*	*PM10*	*PM2.5*	*Gas*	*Diesel*
		g/mi	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*mpg*	*mpg*
Workers	5	0.121	1.569	0.150	1053.005	0.010	0.108	0.087	8.505	28.975
	20	0.041	1.164	0.103	508.365	0.005	0.049	0.033	17.609	28.975
	30	0.025	0.979	0.088	376.808	0.004	0.038	0.023	23.759	28.975
	35	0.021	0.904	0.083	343.006	0.004	0.035	0.021	26.104	28.975
	40	0.019	0.838	0.081	324.050	0.004	0.034	0.019	27.636	28.975
	45	0.018	0.781	0.080	317.720	0.003	0.033	0.018	28.194	28.975
	50	0.018	0.731	0.080	323.293	0.003	0.033	0.018	27.715	28.975
	55	0.018	0.688	0.083	341.407	0.004	0.033	0.019	26.252	28.975
	60	0.020	0.651	0.087	374.175	0.004	0.035	0.020	23.959	28.975
MDT	5	0.226	2.61	0.419	1695.176	0.016	0.149	0.125	5.138	19.482
	20	0.077	1.747	0.288	780.817	0.008	0.063	0.045	11.1	19.482
	30	0.048	1.437	0.256	573.961	0.006	0.047	0.031	15.285	19.482
	35	0.041	1.321	0.249	522.029	0.005	0.044	0.027	16.903	19.482
	40	0.036	1.225	0.249	493.277	0.005	0.041	0.025	17.959	19.482
	45	0.033	1.146	0.255	484.006	0.005	0.040	0.024	18.33	19.482
	50	0.032	1.081	0.267	493.069	0.005	0.040	0.023	17.971	19.482
	55	0.033	1.031	0.288	521.627	0.005	0.040	0.024	16.927	19.482
	60	0.035	0.996	0.318	573.417	0.006	0.042	0.025	15.32	19.482
HDT	5	1.933	6.816	7.379	3334.224	0.032	0.311	0.253	3.481	3.397
	20	0.321	2.036	3.51	1966.425	0.019	0.181	0.133	10.024	5.013
	30	0.232	1.571	2.972	1749.68	0.017	0.159	0.114	15.412	5.516
	35	0.2	1.452	2.79	1672.166	0.016	0.156	0.111	17.596	5.74
	40	0.175	1.389	2.665	1613.64	0.015	0.158	0.112	19.016	5.929
	45	0.157	1.373	2.598	1573.618	0.015	0.163	0.118	19.45	6.073
	50	0.145	1.402	2.592	1551.97	0.015	0.173	0.127	18.829	6.16
	55	0.14	1.479	2.651	1548.885	0.015	0.188	0.140	17.253	6.184
	60	0.141	1.607	2.783	1564.924	0.015	0.206	0.157	14.962	6.144
2025										
Category	*Speed*	*TOG*	*CO*	*Nox*	*CO2*	*SO2*	*PM10*	*PM2.5*	*Gas*	*Diesel*
		g/mi	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*g/mi*	*mpg*	*mpg*
Workers	5	0.115	1.483	0.140	1052.720	0.010	0.108	0.088	8.512	29.006
	20	0.038	1.105	0.096	508.172	0.005	0.049	0.033	17.624	29.006
	30	0.024	0.930	0.082	376.638	0.004	0.038	0.023	23.778	29.006
	35	0.020	0.858	0.078	342.842	0.004	0.035	0.021	26.125	29.006
	40	0.018	0.796	0.075	323.888	0.004	0.034	0.019	27.659	29.006
	45	0.017	0.742	0.074	317.559	0.003	0.033	0.018	28.217	29.006
	50	0.017	0.694	0.075	323.132	0.003	0.033	0.018	27.737	29.006
	55	0.017	0.652	0.077	341.242	0.004	0.033	0.019	26.272	29.006
	60	0.019	0.616	0.081	374.005	0.004	0.035	0.020	23.977	29.006
MDT	5	0.212	2.482	0.389	1696.405	0.016	0.149	0.125	5.137	19.477
	20	0.072	1.676	0.268	780.995	0.008	0.063	0.045	11.101	19.477
	30	0.045	1.381	0.237	573.953	0.006	0.047	0.031	15.289	19.477
	35	0.038	1.27	0.232	521.979	0.005	0.043	0.027	16.908	19.477
	40	0.034	1.177	0.231	493.206	0.005	0.041	0.025	17.964	19.477
	45	0.031	1.1	0.237	483.929	0.005	0.040	0.024	18.335	19.477
	50	0.03	1.036	0.248	493	0.005	0.040	0.023	17.976	19.477
	55	0.031	0.986	0.267	521.585	0.005	0.040	0.024	16.931	19.477
	60	0.033	0.949	0.295	573.422	0.006	0.042	0.025	15.323	19.477
HDT	5	1.825	6.541	6.933	3333.745	0.032	0.282	0.227	3.484	3.398
	20	0.304	1.934	3.312	1966.14	0.019	0.172	0.125	10.031	5.013
	30	0.222	1.5	2.789	1749.417	0.017	0.153	0.108	15.422	5.516
	35	0.192	1.392	2.611	1671.918	0.016	0.150	0.106	17.608	5.74
	40	0.168	1.335	2.488	1613.407	0.015	0.152	0.107	19.028	5.929
	45	0.15	1.324	2.42	1573.398	0.015	0.158	0.112	19.462	6.073
	50	0.138	1.356	2.411	1551.761	0.015	0.167	0.121	18.841	6.16
	55	0.132	1.431	2.464	1548.685	0.015	0.180	0.133	17.264	6.184
	60	0.132	1.556	2.586	1564.731	0.015	0.197	0.149	14.972	6.144

Appendix B

Operational Emissions

B. Operational Emissions Appendix

B.1 Summary of Operational Emissions - 2035

B.2 Station Operational Emissions - 2035
- B.2-1 Fresno Station Emissions Summary - 2035
- B.2-3 Kings-Tulare Regional Station Emissions Summary - 2035
- B.2-5 Bakersfield Station Emissions Summary - 2035

B.3 Regional Emissions By Activity - 2035
- B.3-1 Regional VMT and Change in Emissions - 2035
- B.3-2 Regional Aircraft Travel and Change in Emissions - 2035
- B.3-3 Regional Electricity and Change in Emissions - 2035

B.4 Maintenance Facility Operational Emissions - 2035
- B.4-1 MOWF Operational Emissions - 2035
- B.4-2 HMF Onsite Operational Emissions - 2035
- B.4-4 HMF Offsite Operational Emissions- 2035

B.5 Train Wake Fugitive Dust Emissions - 2035

B.6 URBEMIS2007 Output Files
- B.6-1 Fresno Station Operational URBEMIS Output File
- B.6-2 Kings-Tulare Regional Station Operational URBEMIS Output File
- B.6-3 Bakersfield Station Operational URBEMIS Output File

B.7 EMFAC2007 Output Files
- B.7-1 EMFAC Output File Fresno County 2009 and 2035
- B.7-5 EMFAC Output File Fresno County 2035 Busses
- B.7-7 EMFAC Output File Kings County 2009 and 2035
- B.7-11 EMFAC Output File Kings County 2035 Busses
- B.7-13 EMFAC Output File Kern County 2009 and 2035
- B.7-17 EMFAC Output File Kern County 2035 Busses
- B.7-19 EMFAC Output San Joaquin Valley APCD 2017
- B.7-21 EMFAC Output San Joaquin Valley APCD 2035

Appendix B

B.1 Summary of Operational Emissions - 2035

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_2
Indirect Emissions							
Changes in VMT emissions	-37	-1,483	-142	-101	-40	-10	-962,898
Changes in airplane emissions	-4.3	-39	-53	-0.42	-0.42	-3.7	-9,682
Changes in power plant emissions	10.1	104	70	14.5	13.4	8.5	274,886
Direct Emissions							
Station operation	1.4	102	9.0	5.9	3.4	0.6	59,455
HMF onsite emissions	0.56	9.0	3.5	0.13	0.12	0.47	18,563
HMF offsite mobile source emissions	0.21	12	1.6	0.70	0.40	0.07	7,094
MOWF offsite emissions	0.05	4	0.3	0.2	0.1	0.02	2,198
Fugitive dust from train operations	N/A	N/A	N/A	29	4.3	N/A	N/A
Total	**-29**	**-1,293**	**-111**	**-51**	**-18**	**-4.2**	**-610,383**

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_2
Indirect Emissions							
Changes in VMT emissions	-26	-1,195	-100	-70	-30	-7	-675,630
Changes in airplane emissions	-2.9	-26	-35	-0.28	-0.28	-2.4	-6,486
Changes in power plant emissions	6.7	69	47	9.7	8.9	5.8	183,386
Direct Emissions							
Station operation	1.4	102	9.0	5.9	3.4	0.6	59,455
HMF onsite emissions	0.56	9.0	3.5	0.13	0.12	0.47	18,563
HMF offsite mobile source emissions	0.21	12	1.6	0.70	0.40	0.07	7,094
MOWF offsite emissions	0.05	4	0.3	0.2	0.1	0.02	2,198
Fugitive dust from train operations	N/A	N/A	N/A	29	4.3	N/A	N/A
Total	**-20**	**-1,026**	**-74**	**-25**	**-13**	**-2.0**	**-411,419**

1. 50% and 83% Scenarios refer to the price of a high speed train ticket costing 50% and 83% of an airfare ticket, respectively.

Appendix B

B.2 Station Operational Emissions - 2035

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	0.004	0.333	0.026	0.002	0.019	0.011	193	0.004
Passengers by Shuttle / Bus [4]	23	40	0.003	0.089	0.142	0.002	0.014	0.007	187	0.003
Passengers by Car [5]	4,300	40	0.519	40.639	3.131	0.242	2.353	1.349	23,627	0.433
2035 Total	**--**	**--**	**0.53**	**41.06**	**3.30**	**0.25**	**2.39**	**1.37**	**24,006.99**	**0.44**

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 (Technical Memorandum: Station Area Parking Guidance, created by Bryan Porter and Nick Brand, 06/09/2010). Each bus is expected to hold 30 people (Lightbody, James/AECOM. Personal communication with Andrea White/CH2M HILL. July 22, 2010).

5. 4,300 passenger arrive by vehicle (kiss and ride, vehicle, rental cars or taxis). (Technical Memorandum: Station Area Parking Guidance, created by Bryan Porter and Nick Brand, 06/09/2010)

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	0.008	0.587	0.045	0.004	0.034	0.020	341.418	0.006
Shuttle / Bus [3]	0.009	0.238	0.377	0.005	0.037	0.019	497.421	0.008

Notes:
1. Emission factors are from EMFAC2007 (Version 2.3) for passenger vehicles (50% LDA-All and 50% of the average of LDT1-All and LDT2-All) and urban buses (UBUS-CAT) traveling at 35 mph. All buses and shuttles coming to the Fresno station in 2035 will be natural gas powered. 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. 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
2035 Total	**0.020**	**0.260**	**0.150**	**0.000**	**0.000**	**0.000**	**177**

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]	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.

2035 Total Operational Emissions

Emission Source	Emissions (tpy) [1]								
	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2	CH4	N2O
Operational VMT	0.527	41.061	3.299	0.246	2.386	1.368	24,006.987	0.439	--
Area Source	0.020	0.260	0.150	0.000	0.000	0.000	176.630	--	--
Indirect Electricity	--	--	--	--	--	--	346	0.014	0.003
Total	**0.547**	**41.321**	**3.449**	**0.246**	**2.386**	**1.368**	**24,530**	**0.453**	**0.003**

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	0.137	0.012	0.001	0.008	0.004	70	0.001
Passengers by Shuttle / Bus [4]	10	40	0.001	0.043	0.075	0.001	0.006	0.003	80	0.001
Passengers by Car [5]	1,700	40	0.219	17.168	1.518	0.089	0.951	0.561	8,802	0.171
2035 Total	**--**	**--**	**0.222**	**17.348**	**1.605**	**0.090**	**0.964**	**0.569**	**8,952**	**0.174**

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 (Technical Memorandum: Station Area Parking Guidance, created by Bryan Porter and Nick Brand, 06/09/2010). Each bus is expected to hold 30 people (Lightbody, James/AECOM. Personal communication with Andrea White/CH2M HILL. July 22, 2010).

5. 1,700 passenger arrive by vehicle (kiss and ride, vehicle, rental cars or taxis). (Technical Memorandum: Station Area Parking Guidance, created by Bryan Porter and Nick Brand, 06/09/2010)

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	0.008	0.628	0.056	0.003	0.035	0.021	321.724	0.006
Shuttle / Bus [3]	0.009	0.265	0.463	0.005	0.038	0.020	497.421	0.008

Notes:

1. Emission factors are from EMFAC2007 (Version 2.3) for passenger vehicles (50% LDA-All and 50% of the average of LDT1-All and LDT2-All) and urban buses (UBUS-CAT) traveling at 35 mph. All buses and shuttles coming to the KTR station in 2035 will be natural gas powered. 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. 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
2035 Total	**0.020**	**0.260**	**0.150**	**0.000**	**0.000**	**0.000**	**177**

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.

2035 Total Operational Emissions

Emission Source	Emissions (tpy) [1]								
	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2	CH4	N2O
Operational VMT	0.222	17.348	1.605	0.090	0.964	0.569	8,952.472	0.174	--
Area Source	0.020	0.260	0.150	0.000	0.000	0.000	176.630	--	--
Indirect Electricity	--	--	--	--	--	--	185	0.008	0.002
Total	**0.242**	**17.608**	**1.755**	**0.090**	**0.964**	**0.569**	**9,313.655**	**0.181**	**0.002**

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	0.360	0.029	0.002	0.021	0.012	211	0.004
Passengers by Shuttle / Bus [4]	30	40	0.004	0.124	0.213	0.002	0.018	0.010	240	0.004
Passengers by Car [5]	4,500	40	0.543	42.239	3.386	0.253	2.462	1.412	24,725	0.453
2035 Total	**--**	**--**	**0.552**	**42.724**	**3.627**	**0.258**	**2.502**	**1.434**	**25,177**	**0.460**

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 (Technical Memorandum: Station Area Parking Guidance, created by Bryan Porter and Nick Brand, 06/09/2010). Each bus is expected to hold 30 people (Lightbody, James/AECOM. Personal communication with Andrea White/CH2M HILL. July 22, 2010).

5. 4,500 passenger arrive by vehicle (kiss and ride, vehicle, rental cars or taxis). (Technical Memorandum: Station Area Parking Guidance, created by Bryan Porter and Nick Brand, 06/09/2010)

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	0.008	0.583	0.047	0.004	0.034	0.020	341.414	0.006
Shuttle / Bus [3]	0.009	0.257	0.441	0.005	0.038	0.020	497.421	0.008

Notes:

1. Emission factors are from EMFAC2007 (Version 2.3) for passenger vehicles (50% LDA-All and 50% of the average of LDT1-All and LDT2-All) and urban buses (UBUS-CAT) traveling at 35 mph. All buses and shuttles coming to the Bakersfield station in 2035 will be natural gas powered. 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. 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
2035 Total	**0.020**	**0.260**	**0.150**	**0.000**	**0.000**	**0.000**	**177**

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.

2035 Total Operational Emissions

Emission Source	Emissions (tpy) [1]								
	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2	CH4	N2O
Operational VMT	0.552	42.724	3.627	0.258	2.502	1.434	25,176.566	0.460	--
Area Source	0.020	0.260	0.150	0.000	0.000	0.000	176.630	--	--
Indirect Electricity	--	--	--	--	--	--	258	0.011	0.002
Total	**0.572**	**42.984**	**3.777**	**0.258**	**2.502**	**1.434**	**25,611.571**	**0.471**	**0.002**

Appendix B

B.3 Regional Emissions by Activity - 2035

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	27,368,000	24,364,000	-0.03	-1.40	-0.13	-0.10	-0.03	-953	-0.01	-12.38	-512.03	-47.91	-35.03	-11.25	-347,915	-3.63
Kern	39,240,000	35,149,000	-0.05	-2.25	-0.21	-0.15	-0.06	-1334	-0.01	-19.91	-821.74	-77.05	-53.95	-23.05	-486,884	-4.94
Kings	3,137,000	2,663,000	-0.01	-0.22	-0.02	-0.02	-0.01	-180	0.00	-2.54	-79.16	-8.74	-6.17	-2.67	-65,646	-1.11
Tulare	10,112,000	9,649,000	-0.01	-0.19	-0.02	-0.02	-0.01	-171	0.00	-2.18	-70.47	-8.53	-6.03	-2.61	-62,453	-0.56
Regional Total	**79,857,000**	**71,825,000**	**-0.101**	**-4.06**	**-0.39**	**-0.28**	**-0.11**	**-2638**	**-0.03**	**-37.01**	**-1,483.41**	**-142.24**	**-101.18**	**-39.57**	**-962,898**	**-10.23**

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	25,366,000	-0.03	-1.22	-0.10	-0.07	-0.03	-688	-0.01	-9.41	-444.58	-36.90	-26.06	-11.28	-251,063	-2.42
Kern	39,240,000	36,513,000	-0.04	-1.71	-0.14	-0.10	-0.04	-946	-0.01	-13.27	-623.67	-51.36	-35.96	-15.36	-345,211	-3.29
Kings	3,137,000	2,821,000	0.00	-0.17	-0.02	-0.01	0.00	-111	0.00	-1.48	-62.76	-5.82	-4.11	-1.78	-40,507	-0.43
Tulare	10,112,000	9,803,000	0.00	-0.18	-0.02	-0.01	0.00	-106	0.00	-1.45	-63.95	-5.70	-4.02	-1.74	-38,849	-0.37
Regional Total	**79,857,000**	**74,503,000**	**-0.070**	**-3.27**	**-0.27**	**-0.19**	**-0.08**	**-1851**	**-0.02**	**-25.62**	**-1,194.95**	**-99.78**	**-70.16**	**-30.16**	**-675,630**	**-6.52**

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	-0.01166667	-0.10675	-0.14291667	-0.00114829	-0.00114304	-26.2885	-0.01	-4.29666667	-39.3145	-52.6341667	-0.42289942	-0.42096592	-9,682	-3.65

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	-0.00833333	-0.07625	-0.10208333	-0.00082021	-0.00081646	-18.7775	-0.01	-2.87833333	-26.33675	-35.2595833	-0.28329996	-0.28200471	-6,486	-2.45

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	8.32	0.20	2.07	1.39	0.29	0.27	5,483.18	0.17	73.51	755.08	507.61	105.62	97.49	2,001,362	62.05
Regional [2]	1.14	0.03	0.28	0.19	0.04	0.04	753.11	0.02	10.10	103.71	69.72	14.51	13.39	274,886	8.52

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	8.32	0.13	1.38	0.93	0.19	0.18	3,658.03	0.12	49.04	503.74	338.65	70.46	65.04	1,335,180	42.14
Regional [2]	1.14	0.02	0.19	0.13	0.03	0.02	502.43	0.02	6.74	69.19	46.51	9.68	8.93	183,386	5.79

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.

Appendix B

B.4 Maintenance Facility Operational Emissions - 2035

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	0.05	3.75	0.30	0.02	0.22	0.13	2197.81	0.04
Total Emissions	**0.05**	**3.75**	**0.30**	**0.02**	**0.22**	**0.13**	**2197.81**	**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	0.58	0.05	0.00	0.03	0.02	341.41	0.01

Notes:
1. The MOWF will be located at the Shafter-West HMF site, which is in Kern County. Emission factors are from EMFAC2007 (Version 2.3) 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
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**	**18563**

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	0.145	11.288	0.797	0.068	0.657	0.377	6,593	0.121
Deliveries	20	120	0.065	0.513	0.779	0.005	0.042	0.024	501	0.003
2035 Total	**--**	**--**	**0.210**	**11.801**	**1.575**	**0.072**	**0.698**	**0.400**	**7,094**	**0.124**

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]	0.008	0.585	0.041	0.004	0.034	0.020	341.399	0.006
Delivery Truck [1]	0.067	0.532	0.807	0.005	0.043	0.025	519.115	0.003

Notes:
1. Emission factors are from EMFAC2007 (Version 2.3) for passenger vehicles (50% LDA-All and 50% of the average of LDT1-All and LDT2-All) and delivery trucks (average of LHD1-DSL and LHD2-DSL) traveling at 35 mph.
2. Emission factors for PM_{10} and $PM_{2.5}$ include contributions from exhaust, brake-wear, and tire-wear.

Appendix B

B.5 Train Wake Fugitive Dust Emissions - 2035

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		

$P = 58(u^* - ut^*)^2 + 25(u^* - ut^*)$

P = 0 for u* < ut*

ut* = 0.19 m/s

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

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)

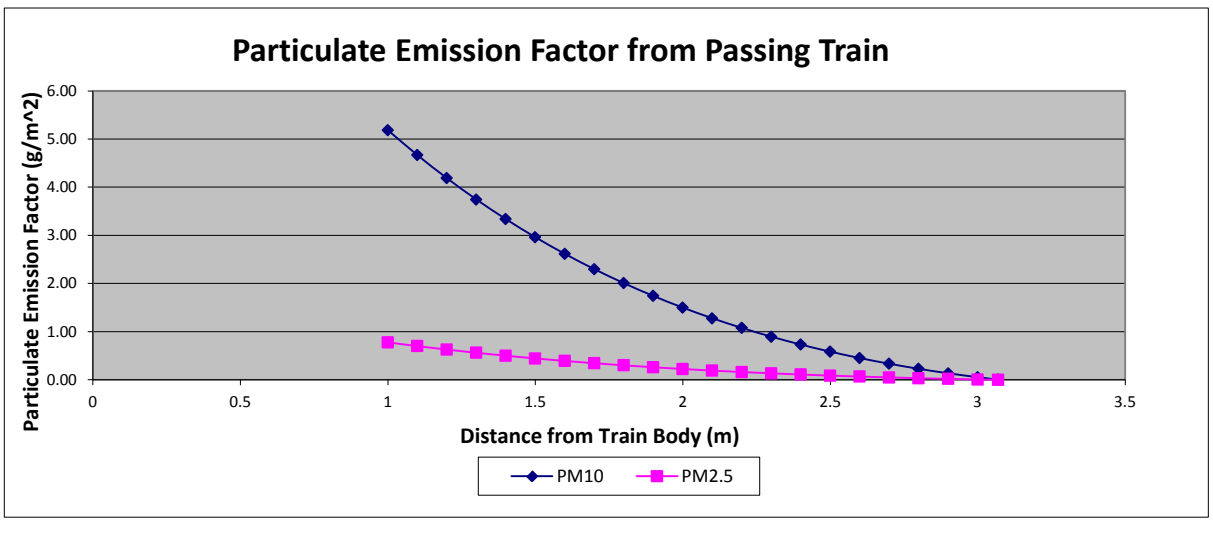
zo = surface roughness height (cm), assume 0.01 cm for the at grade right of way

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)



Appendix B

B.6 URBEMIS2007 Output Files

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 B

B.7 EMFAC2007 Output Files

Title : 2009 and 2035 Fresno station
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/06/08 11:38:54
Scen Year: 2009 -- All model years in the range 1965 to 2009 selected
Season : Annual
Area : Fresno
****
Year: 2009 -- Model Years 1965 to 2009 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average Fresno County Average

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	4.836	0.05	0.167	0.087	4.97	0.061	0.072	0.16	4.836	0.083	0.143	0.124	0.142	0.1145	6.354	0.095	0.069	0.155	2.81	0.235	0.139

Pollutant Name: Methane Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0.296	0.025	0.008	0.027	0.301	0.026	0.003	0.03	0.296	0.034	0.007	0.036	0.033	0.03	0.353	0.041	0.003	0.044	0.218	0.033	0.006

Pollutant Name: Carbon Monoxide Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	53.064	2.373	0.638	2.759	53.412	2.955	0.48	3.845	51.708	3.587	0.628	3.992	3.9185	3.33875	95.291	3.5	0.466	4.373	70.474	3.28	0.647

Pollutant Name: Oxides of Nitrogen Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	4.557	0.233	1.173	0.267	4.522	0.285	1.184	0.415	4.406	0.515	1.14	0.549	0.482	0.3745	7.35	0.6	1.193	0.666	2.376	0.905	3.949

Pollutant Name: Carbon Dioxide Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	427.432	310.77	361.91	311.75	427.95	385.516	346.915	384.444	428.294	385.557	356.12	385.85	385.147	348.4485	536.741	529.011	347.171	528.611	497.421	497.421	521.82

Pollutant Name: Sulfur Dioxide Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0.005	0.003	0.003	0.003	0.005	0.004	0.003	0.004	0.005	0.004	0.003	0.004	0.004	0.0035	0.007	0.005	0.003	0.005	0.006	0.005	0.005

Pollutant Name: PM10 Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0.027	0.01	0.127	0.01	0.026	0.01	0.047	0.012	0.027	0.023	0.105	0.023	0.0175	0.01375	0.027	0.021	0.045	0.021	0.015	0.006	0.038

Pollutant Name: PM10 - Tire Wear Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.012	0.012	0.012

Pollutant Name: PM10 - Brake Wear Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013

Pollutant Name: PM2.5 Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0.02	0.009	0.117	0.009	0.02	0.009	0.044	0.011	0.02	0.021	0.097	0.021	0.016	0.0125	0.021	0.019	0.042	0.02	0.011	0.005	0.035

Pollutant Name: PM2.5 - Tire Wear Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003

Pollutant Name: PM2.5 - Brake Wear Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005

Title : 2009 and 2035 Fresno station
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/06/08 11:38:54
Scen Year: 2035 -- All model years in the range 1991 to 2035 selected
Season : Annual
Area : Fresno
****
Year: 2035 -- Model Years 1991 to 2035 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average Fresno County Average

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0	0.006	0.052	0.006	0	0.006	0.054	0.006	0	0.012	0.065	0.012	0.009	0.0075	0	0.016	0.049	0.016	0	0.007	0.07

Pollutant Name: Methane Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0	0.005	0.002	0.005	0	0.005	0.002	0.005	0	0.01	0.003	0.01	0.0075	0.00625	0	0.012	0.002	0.012	0	0.005	0.003

Pollutant Name: Carbon Monoxide Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0	0.466	0.417	0.466	0	0.524	0.424	0.523	0	0.894	0.464	0.894	0.7085	0.58725	0	1.192	0.409	1.192	0	0.158	0.549

Pollutant Name: Oxides of Nitrogen Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0	0.034	1.218	0.034	0	0.038	1.214	0.04	0	0.073	1.189	0.073	0.0565	0.04525	0	0.088	1.223	0.088	0	0.132	0.894

Pollutant Name: Carbon Dioxide Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0	299.861	345.72	299.862	0	378.702	345.72	378.654	0	387.294	345.72	387.294	382.974	341.418	0	526.824	345.72	526.802	0	497.421	519.009

Pollutant Name: Sulfur Dioxide Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0	0.003	0.003	0.003	0	0.004	0.003	0.004	0	0.004	0.003	0.004	0.004	0.0035	0	0.005	0.003	0.005	0	0.005	0.005

Pollutant Name: PM10 Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0	0.009	0.032	0.009	0	0.011	0.033	0.011	0	0.023	0.041	0.023	0.017	0.013	0	0.024	0.03	0.024	0	0.007	0.019

Pollutant Name: PM10 - Tire Wear Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0	0.008	0.008	0.008	0	0.008	0.008	0.008	0	0.008	0.008	0.008	0.008	0.008	0	0.008	0.008	0.008	0	0.012	0.012

Pollutant Name: PM10 - Brake Wear Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0	0.013	0.013	0.013	0	0.013	0.013	0.013	0	0.013	0.013	0.013	0.013	0.013	0	0.013	0.013	0.013	0	0.013	0.013

Pollutant Name: PM2.5 Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0	0.009	0.029	0.009	0	0.01	0.031	0.01	0	0.022	0.038	0.022	0.016	0.0125	0	0.022	0.028	0.022	0	0.006	0.017

Pollutant Name: PM2.5 - Tire Wear Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0	0.002	0.002	0.002	0	0.002	0.002	0.002	0	0.002	0.002	0.002	0.002	0.002	0	0.002	0.002	0.002	0	0.003	0.003

Pollutant Name: PM2.5 - Brake Wear Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0	0.005	0.005	0.005	0	0.005	0.005	0.005	0	0.005	0.005	0.005	0.005	0.005	0	0.005	0.005	0.005	0	0.005	0.005

Title : 2035 Fresno station - Busses; Shuttles
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/06/08 11:40:12
Scen Year: 2035 -- All model years in the range 2023 to 2035 selected
Season : Annual
Area : Fresno
****
Year: 2035 -- Model Years 2023 to 2035 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average Fresno County Average

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases Temperature: 65F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.009	0.022	0.014	0	0	0	0	0

Pollutant Name: Methane Temperature: 65F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.008	0.001	0.005	0	0	0	0	0

Pollutant Name: Carbon Monoxide Temperature: 65F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.238	0.609	0.379	0	0	0	0	0

Pollutant Name: Oxides of Nitrogen Temperature: 65F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.377	0.484	0.417	0	0	0	0	0

Pollutant Name: Carbon Dioxide Temperature: 65F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	497.421	2151.028	1126.019	0	0	0	0	0

Pollutant Name: Sulfur Dioxide Temperature: 65F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.005	0.021	0.011	0	0	0	0	0

Pollutant Name: PM10 Temperature: 65F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.012	0.026	0.017	0	0	0	0	0

Pollutant Name: PM10 - Tire Wear Temperature: 65F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.012	0.008	0.01	0	0	0	0	0

Pollutant Name: PM10 - Brake Wear Temperature: 65F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.013	0.013	0.013	0	0	0	0	0

Pollutant Name: PM2.5 Temperature: 65F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.011	0.024	0.016	0	0	0	0	0

Pollutant Name: PM2.5 - Tire Wear Temperature: 65F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.003	0.002	0.003	0	0	0	0	0

Pollutant Name: PM2.5 - Brake Wear Temperature: 65F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.005	0.005	0.005	0	0	0	0	0

Title : 2009 and 2035 KTR station
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/06/08 11:40:43
Scen Year: 2009 -- All model years in the range 1965 to 2009 selected
Season : Annual
Area : Kings
****
Year: 2009 -- Model Years 1965 to 2009 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average Kings County Average

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases Temperature: 62F Relative Humidity: 41%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	LDT	LDA LDT	MDV	MDV	MDV	MDV	LHD1	LHD1	LHD1	LHD1
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	ALL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
35	5.195	0.078	0.153	0.12	5.275	0.129	0.072	0.241	5.156	0.123	0.128	0.172	0.146	0.133	6.574	0.108	0.064	0.157	2.906	0.107	0.136	0.124

Pollutant Name: Methane Temperature: 62F Relative Humidity: 41%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	LDT	LDA LDT	MDV	MDV	MDV	MDV	LHD1	LHD1	LHD1	LHD1
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	ALL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
35	0.309	0.03	0.007	0.032	0.312	0.038	0.003	0.042	0.308	0.038	0.006	0.04	0.036	0.034	0.361	0.04	0.003	0.042	0.222	0.018	0.006	0.015

Pollutant Name: Carbon Monoxide Temperature: 62F Relative Humidity: 41%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	LDT	LDA LDT	MDV	MDV	MDV	MDV	LHD1	LHD1	LHD1	LHD1
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	ALL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
35	56.834	2.942	0.619	3.377	57.287	4.683	0.479	5.591	56.311	4.247	0.577	4.751	4.064	3.7205	108.008	3.486	0.459	4.269	73.591	1.475	0.639	1.452

Pollutant Name: Oxides of Nitrogen Temperature: 62F Relative Humidity: 41%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	LDT	LDA LDT	MDV	MDV	MDV	MDV	LHD1	LHD1	LHD1	LHD1
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	ALL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
35	4.775	0.32	1.178	0.358	4.69	0.527	1.195	0.665	4.635	0.686	1.183	0.727	0.5425	0.45025	7.719	0.65	1.202	0.706	2.454	0.507	3.874	1.499

Pollutant Name: Carbon Dioxide Temperature: 62F Relative Humidity: 41%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	LDT	LDA LDT	MDV	MDV	MDV	MDV	LHD1	LHD1	LHD1	LHD1
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	ALL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
35	427.432	310.854	359.443	311.898	428.198	385.022	346.85	383.46	428.354	385.761	356.1	386.09	348.994	330.446	524.845	528.463	346.833	527.777	497.421	497.421	520.441	504.164

Pollutant Name: Sulfur Dioxide Temperature: 62F Relative Humidity: 41%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	LDT	LDA LDT	MDV	MDV	MDV	MDV	LHD1	LHD1	LHD1	LHD1
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	ALL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
35	0.005	0.003	0.003	0.003	0.005	0.004	0.003	0.004	0.005	0.004	0.003	0.004	0.0035	0.00325	0.007	0.005	0.003	0.005	0.006	0.005	0.005	0.005

Pollutant Name: PM10 Temperature: 62F Relative Humidity: 41%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	LDT	LDA LDT	MDV	MDV	MDV	MDV	LHD1	LHD1	LHD1	LHD1
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	ALL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
35	0.027	0.011	0.115	0.011	0.026	0.012	0.047	0.015	0.027	0.024	0.095	0.024	0.0175	0.01425	0.027	0.02	0.043	0.021	0.015	0.004	0.036	0.014

Pollutant Name: PM10 - Tire Wear Temperature: 62F Relative Humidity: 41%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	LDT	LDA LDT	MDV	MDV	MDV	MDV	LHD1	LHD1	LHD1	LHD1

MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	ALL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
35	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.012	0.012	0.012	0.012
Pollutant Name: PM10 - Brake Wear				Temperature: 62F		Relative Humidity: 41%																
Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	LDT	LDA LDT	MDV	MDV	MDV	MDV	LHD1	LHD1	LHD1	LHD1
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	ALL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
35	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
Pollutant Name: PM2.5				Temperature: 62F		Relative Humidity: 41%																
Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	LDT	LDA LDT	MDV	MDV	MDV	MDV	LHD1	LHD1	LHD1	LHD1
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	ALL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
35	0.02	0.01	0.106	0.01	0.02	0.011	0.043	0.014	0.02	0.022	0.087	0.022	0.016	0.013	0.021	0.019	0.039	0.019	0.011	0.004	0.033	0.013
Pollutant Name: PM2.5 - Tire Wear				Temperature: 62F		Relative Humidity: 41%																
Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	LDT	LDA LDT	MDV	MDV	MDV	MDV	LHD1	LHD1	LHD1	LHD1
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	ALL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
35	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003
Pollutant Name: PM2.5 - Brake Wear				Temperature: 62F		Relative Humidity: 41%																
Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	LDT	LDA LDT	MDV	MDV	MDV	MDV	LHD1	LHD1	LHD1	LHD1
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	ALL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
35	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005

Title : 2009 and 2035 KTR station
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/06/08 11:40:43
Scen Year: 2035 -- All model years in the range 1991 to 2035 selected
Season : Annual
Area : Kings
****
Year: 2035 -- Model Years 1991 to 2035 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average Kings County Average

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases Temperature: 62F Relative Humidity: 41%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	LDT	LDA LDT	MDV	MDV	MDV	MDV	LHD1	LHD1	LHD1	LHD1
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	ALL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
35	0	0.006	0.052	0.006	0	0.008	0.053	0.008	0	0.014	0.055	0.014	0.01	0.008	0	0.017	0.049	0.017	0	0.006	0.073	0.019

Pollutant Name: Methane Temperature: 62F Relative Humidity: 41%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	LDT	LDA LDT	MDV	MDV	MDV	MDV	LHD1	LHD1	LHD1	LHD1
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	ALL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
35	0	0.005	0.002	0.005	0	0.006	0.002	0.006	0	0.01	0.003	0.01	0.0075	0.00625	0	0.012	0.002	0.012	0	0.004	0.003	0.004

Pollutant Name: Carbon Monoxide Temperature: 62F Relative Humidity: 41%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	LDT	LDA LDT	MDV	MDV	MDV	MDV	LHD1	LHD1	LHD1	LHD1
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	ALL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
35	0	0.507	0.417	0.507	0	0.593	0.424	0.592	0	0.989	0.429	0.989	0.748	0.6275	0	1.263	0.408	1.263	0	0.128	0.583	0.216

Pollutant Name: Oxides of Nitrogen Temperature: 62F Relative Humidity: 41%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	LDT	LDA LDT	MDV	MDV	MDV	MDV	LHD1	LHD1	LHD1	LHD1
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	ALL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
35	0	0.042	1.229	0.042	0	0.05	1.225	0.053	0	0.096	1.222	0.096	0.069	0.0555	0	0.109	1.235	0.109	0	0.12	0.911	0.272

Pollutant Name: Carbon Dioxide Temperature: 62F Relative Humidity: 41%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	LDT	LDA LDT	MDV	MDV	MDV	MDV	LHD1	LHD1	LHD1	LHD1
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	ALL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
35	0	299.868	345.72	299.869	0	378.757	345.72	378.68	0	387.289	345.72	387.287	343.578	321.7235	0	526.824	345.72	526.789	0	497.421	519.005	501.587

Pollutant Name: Sulfur Dioxide Temperature: 62F Relative Humidity: 41%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	LDT	LDA LDT	MDV	MDV	MDV	MDV	LHD1	LHD1	LHD1	LHD1
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	ALL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
35	0	0.003	0.003	0.003	0	0.004	0.003	0.004	0	0.004	0.003	0.004	0.0035	0.00325	0	0.005	0.003	0.005	0	0.005	0.005	0.005

Pollutant Name: PM10 Temperature: 62F Relative Humidity: 41%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	LDT	LDA LDT	MDV	MDV	MDV	MDV	LHD1	LHD1	LHD1	LHD1
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	ALL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
35	0	0.01	0.032	0.01	0	0.011	0.033	0.011	0	0.025	0.034	0.025	0.0175	0.01375	0	0.026	0.03	0.026	0	0.007	0.02	0.01

Pollutant Name: PM10 - Tire Wear Temperature: 62F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL
35	0	0.008	0.008	0.008	0	0.008	0.008	0.008	0	0.008	0.008	0.008	0.008	0.008	0	0.008	0.008	0.008	0	0.012	0.012	0.012

Pollutant Name: PM10 - Brake Wear Temperature: 62F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL
35	0	0.013	0.013	0.013	0	0.013	0.013	0.013	0	0.013	0.013	0.013	0.013	0.013	0	0.013	0.013	0.013	0	0.013	0.013	0.013

Pollutant Name: PM2.5 Temperature: 62F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL
35	0	0.01	0.029	0.01	0	0.011	0.031	0.011	0	0.024	0.032	0.024	0.017	0.0135	0	0.024	0.028	0.024	0	0.007	0.018	0.009

Pollutant Name: PM2.5 - Tire Wear Temperature: 62F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL
35	0	0.002	0.002	0.002	0	0.002	0.002	0.002	0	0.002	0.002	0.002	0.002	0.002	0	0.002	0.002	0.002	0	0.003	0.003	0.003

Pollutant Name: PM2.5 - Brake Wear Temperature: 62F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL
35	0	0.005	0.005	0.005	0	0.005	0.005	0.005	0	0.005	0.005	0.005	0.005	0.005	0	0.005	0.005	0.005	0	0.005	0.005	0.005

Title : 2035 Kings station - Busses; Shuttles
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/06/08 11:42:58
Scen Year: 2035 -- All model years in the range 2023 to 2035 selected
Season : Annual
Area : Kings
****
Year: 2035 -- Model Years 2023 to 2035 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average Kings County Average

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases Temperature: 62F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.009	0.022	0.014	0	0	0	0	0

Pollutant Name: Methane Temperature: 62F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.008	0.001	0.005	0	0	0	0	0

Pollutant Name: Carbon Monoxide Temperature: 62F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.265	0.609	0.396	0	0	0	0	0

Pollutant Name: Oxides of Nitrogen Temperature: 62F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.463	0.489	0.473	0	0	0	0	0

Pollutant Name: Carbon Dioxide Temperature: 62F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	497.421	2151.028	1127.372	0	0	0	0	0

Pollutant Name: Sulfur Dioxide Temperature: 62F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.005	0.021	0.011	0	0	0	0	0

Pollutant Name: PM10 Temperature: 62F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.013	0.026	0.018	0	0	0	0	0

Pollutant Name: PM10 - Tire Wear Temperature: 62F Relative Humidity: 41%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	UBUS	UBUS	UBUS	UBUS	MCY	MCY	MCY	MCY	SBUS
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.012	0.008	0.01	0	0	0	0	0

Pollutant Name: PM10 - Brake Wear Temperature: 62F Relative Humidity: 41%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	UBUS	UBUS	UBUS	UBUS	MCY	MCY	MCY	MCY	SBUS
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.013	0.013	0.013	0	0	0	0	0

Pollutant Name: PM2.5 Temperature: 62F Relative Humidity: 41%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	UBUS	UBUS	UBUS	UBUS	MCY	MCY	MCY	MCY	SBUS
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.012	0.024	0.017	0	0	0	0	0

Pollutant Name: PM2.5 - Tire Wear Temperature: 62F Relative Humidity: 41%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	UBUS	UBUS	UBUS	UBUS	MCY	MCY	MCY	MCY	SBUS
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.003	0.002	0.003	0	0	0	0	0

Pollutant Name: PM2.5 - Brake Wear Temperature: 62F Relative Humidity: 41%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	UBUS	UBUS	UBUS	UBUS	MCY	MCY	MCY	MCY	SBUS
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.005	0.005	0.005	0	0	0	0	0

Title : 2009 and 2035 Bakersfield station
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/06/08 12:47:59
Scen Year: 2009 -- All model years in the range 1965 to 2009 selected
Season : Annual
Area : Kern (SJV)
****
Year: 2009 -- Model Years 1965 to 2009 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

Kern (SJV) Kern (SJV) Kern (SJV)

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	4.92	0.048	0.156	0.085	5.069	0.049	0.066	0.134	4.915	0.071	0.107	0.101	0.1175	0.10125	6.586	0.087	0.064	0.136	2.851

Pollutant Name: Methane Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	0.299	0.024	0.007	0.026	0.305	0.023	0.003	0.026	0.299	0.03	0.005	0.032	0.029	0.0275	0.362	0.039	0.003	0.041	0.22

Pollutant Name: Carbon Monoxide Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	54.062	2.35	0.619	2.744	54.56	2.592	0.46	3.328	53.048	3.212	0.534	3.519	3.4235	3.08375	97.079	3.304	0.448	3.996	71.626

Pollutant Name: Oxides of Nitrogen Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	4.753	0.238	1.197	0.274	4.735	0.256	1.219	0.389	4.621	0.476	1.207	0.504	0.4465	0.36025	7.649	0.585	1.228	0.64	2.477

Pollutant Name: Carbon Dioxide Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	427.431	310.527	361.563	311.505	427.83	385.733	346.61	384.053	428.233	385.816	352.513	386.003	385.028	348.2665	537.939	528.719	347.233	528.167	497.421

Pollutant Name: Sulfur Dioxide Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	0.005	0.003	0.003	0.003	0.005	0.004	0.003	0.004	0.005	0.004	0.003	0.004	0.004	0.0035	0.007	0.005	0.003	0.005	0.006

Pollutant Name: PM10 Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	0.027	0.01	0.12	0.01	0.026	0.01	0.043	0.012	0.027	0.022	0.076	0.022	0.017	0.0135	0.027	0.021	0.042	0.021	0.015

Pollutant Name: PM10 - Tire Wear Temperature: 64F Relative Humidity: 33%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	LDT	LDA LDT	MDV	MDV	MDV	MDV	LHD1
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	ALL	ALL	NCAT	CAT	DSL	ALL	NCAT
35	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.012

Pollutant Name: PM10 - Brake Wear Temperature: 64F Relative Humidity: 33%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	LDT	LDA LDT	MDV	MDV	MDV	MDV	LHD1
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	ALL	ALL	NCAT	CAT	DSL	ALL	NCAT
35	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013

Pollutant Name: PM2.5 Temperature: 64F Relative Humidity: 33%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	LDT	LDA LDT	MDV	MDV	MDV	MDV	LHD1
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	ALL	ALL	NCAT	CAT	DSL	ALL	NCAT
35	0.02	0.009	0.11	0.009	0.02	0.009	0.039	0.011	0.02	0.02	0.07	0.02	0.0155	0.01225	0.021	0.02	0.039	0.02	0.011

Pollutant Name: PM2.5 - Tire Wear Temperature: 64F Relative Humidity: 33%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	LDT	LDA LDT	MDV	MDV	MDV	MDV	LHD1
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	ALL	ALL	NCAT	CAT	DSL	ALL	NCAT
35	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003

Pollutant Name: PM2.5 - Brake Wear Temperature: 64F Relative Humidity: 33%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	LDT	LDA LDT	MDV	MDV	MDV	MDV	LHD1
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	ALL	ALL	NCAT	CAT	DSL	ALL	NCAT
35	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005

Title : 2009 and 2035 Bakersfield station
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/06/08 12:47:59
Scen Year: 2035 -- All model years in the range 1991 to 2035 selected
Season : Annual
Area : Kern (SJV)
****
Year: 2035 -- Model Years 1991 to 2035 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

Kern (SJV) Kern (SJV) Kern (SJV)

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	0	0.006	0.05	0.006	0	0.006	0.052	0.006	0	0.012	0.056	0.012	0.009	0.0075	0	0.015	0.049	0.015	0

Pollutant Name: Methane Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	0	0.005	0.002	0.005	0	0.005	0.002	0.005	0	0.01	0.003	0.01	0.0075	0.00625	0	0.012	0.002	0.012	0

Pollutant Name: Carbon Monoxide Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	0	0.469	0.411	0.469	0	0.516	0.419	0.516	0	0.879	0.432	0.879	0.6975	0.58325	0	1.201	0.409	1.201	0

Pollutant Name: Oxides of Nitrogen Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	0	0.036	1.246	0.036	0	0.039	1.241	0.041	0	0.074	1.233	0.074	0.0575	0.04675	0	0.091	1.247	0.091	0

Pollutant Name: Carbon Dioxide Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	0	299.866	345.72	299.866	0	378.677	345.72	378.619	0	387.306	345.72	387.305	382.962	341.414	0	526.827	345.72	526.798	0

Pollutant Name: Sulfur Dioxide Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	0	0.003	0.003	0.003	0	0.004	0.003	0.004	0	0.004	0.003	0.004	0.004	0.0035	0	0.005	0.003	0.005	0

Pollutant Name: PM10 Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	0	0.009	0.031	0.009	0	0.011	0.032	0.011	0	0.023	0.035	0.023	0.017	0.013	0	0.025	0.03	0.025	0

Pollutant Name: PM10 - Tire Wear Temperature: 64F Relative Humidity: 33%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	LDT	LDA LDT	MDV	MDV	MDV	MDV	LHD1
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	ALL	ALL	NCAT	CAT	DSL	ALL	NCAT
35	0	0.008	0.008	0.008	0	0.008	0.008	0.008	0	0.008	0.008	0.008	0.008	0.008	0	0.008	0.008	0.008	0

Pollutant Name: PM10 - Brake Wear Temperature: 64F Relative Humidity: 33%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	LDT	LDA LDT	MDV	MDV	MDV	MDV	LHD1
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	ALL	ALL	NCAT	CAT	DSL	ALL	NCAT
35	0	0.013	0.013	0.013	0	0.013	0.013	0.013	0	0.013	0.013	0.013	0.013	0.013	0	0.013	0.013	0.013	0

Pollutant Name: PM2.5 Temperature: 64F Relative Humidity: 33%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	LDT	LDA LDT	MDV	MDV	MDV	MDV	LHD1
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	ALL	ALL	NCAT	CAT	DSL	ALL	NCAT
35	0	0.009	0.028	0.009	0	0.01	0.03	0.01	0	0.022	0.032	0.022	0.016	0.0125	0	0.023	0.028	0.023	0

Pollutant Name: PM2.5 - Tire Wear Temperature: 64F Relative Humidity: 33%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	LDT	LDA LDT	MDV	MDV	MDV	MDV	LHD1
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	ALL	ALL	NCAT	CAT	DSL	ALL	NCAT
35	0	0.002	0.002	0.002	0	0.002	0.002	0.002	0	0.002	0.002	0.002	0.002	0.002	0	0.002	0.002	0.002	0

Pollutant Name: PM2.5 - Brake Wear Temperature: 64F Relative Humidity: 33%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	LDT	LDA LDT	MDV	MDV	MDV	MDV	LHD1
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	ALL	ALL	NCAT	CAT	DSL	ALL	NCAT
35	0	0.005	0.005	0.005	0	0.005	0.005	0.005	0	0.005	0.005	0.005	0.005	0.005	0	0.005	0.005	0.005	0

Title : 2035 Bakersfield station - Busses; Shuttles
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/06/08 12:50:36
Scen Year: 2035 -- All model years in the range 2023 to 2035 selected
Season : Annual
Area : Kern (SJV)
****
Year: 2035 -- Model Years 2023 to 2035 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

Kern (SJV) Kern (SJV) Kern (SJV)

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases Temperature: 64F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT	SBUS CAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0.009	0.022	0.014	0	0	0	0	0	0

Pollutant Name: Methane Temperature: 64F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT	SBUS CAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0.008	0.001	0.005	0	0	0	0	0	0

Pollutant Name: Carbon Monoxide Temperature: 64F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT	SBUS CAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0.257	0.609	0.39	0	0	0	0	0	0

Pollutant Name: Oxides of Nitrogen Temperature: 64F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT	SBUS CAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0.441	0.494	0.461	0	0	0	0	0	0

Pollutant Name: Carbon Dioxide Temperature: 64F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT	SBUS CAT
35	0	0	0	0	0	0	0	0	0	0	0	0	497.421	2151.028	1124.79	0	0	0	0	0	0

Pollutant Name: Sulfur Dioxide Temperature: 64F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT	SBUS CAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0.005	0.021	0.011	0	0	0	0	0	0

Pollutant Name: PM10 Temperature: 64F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT	SBUS CAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0.013	0.026	0.018	0	0	0	0	0	0

Pollutant Name: PM10 - Tire Wear Temperature: 64F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT	SBUS CAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0.012	0.008	0.01	0	0	0	0	0	0

Pollutant Name: PM10 - Brake Wear Temperature: 64F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT	SBUS CAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0.013	0.013	0.013	0	0	0	0	0	0

Pollutant Name: PM2.5 Temperature: 64F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT	SBUS CAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0.012	0.024	0.016	0	0	0	0	0	0

Pollutant Name: PM2.5 - Tire Wear Temperature: 64F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT	SBUS CAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0.003	0.002	0.003	0	0	0	0	0	0

Pollutant Name: PM2.5 - Brake Wear Temperature: 64F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT	SBUS CAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0.005	0.005	0.005	0	0	0	0	0	0

C.3-3 Emission Factors for HMF Onsite Vehicles for 2035 Operational Emissions

Title : SJVAB Annual (ROG and PM10)
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/04/12 13:23:40
Scen Year: 2017 -- All model years in the range 1973 to 2017 selected
Season : Annual
Area : San Joaquin Valley Unified APCD
****
Year: 2017 -- Model Years 1973 to 2017 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average District Average San Joaquin Valley Unified APCD

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases Temperature: 67F Relative Humidity: 55%

Speed	LHD1	LHD1	LHD1	LHD1	LHD2	LHD2	LHD2	LHD2	MHD	MHD	MHD	MHD	HHD	HHD	HHD	HHD	ALL	ALL	ALL	ALL
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
10	11.603	0.367	0.312	0.365	11.603	0.247	0.359	0.306	17.453	0.767	0.369	0.458	61.617	4.501	3.147	3.166	18.324	0.619	2.643	2.329

Pollutant Name: Carbon Monoxide Temperature: 67F Relative Humidity: 55%

Speed	LHD1	LHD1	LHD1	LHD1	LHD2	LHD2	LHD2	LHD2	MHD	MHD	MHD	MHD	HHD	HHD	HHD	HHD	ALL	ALL	ALL	ALL
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
10	214.511	3.595	2.197	3.484	214.511	2.797	2.148	2.585	321.766	8.721	4.551	5.677	1596.869	95.999	6.627	7.789	375.202	9.091	6.095	6.7

Pollutant Name: Oxides of Nitrogen Temperature: 67F Relative Humidity: 55%

Speed	LHD1	LHD1	LHD1	LHD1	LHD2	LHD2	LHD2	LHD2	MHD	MHD	MHD	MHD	HHD	HHD	HHD	HHD	ALL	ALL	ALL	ALL
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
10	1.55	0.276	3.763	1.098	1.55	0.262	3.967	2.029	2.325	0.701	4.917	4.234	17.107	4.604	12.413	12.318	3.16	0.559	10.989	9.341

Pollutant Name: Carbon Dioxide Temperature: 67F Relative Humidity: 55%

Speed	LHD1	LHD1	LHD1	LHD1	LHD2	LHD2	LHD2	LHD2	MHD	MHD	MHD	MHD	HHD	HHD	HHD	HHD	ALL	ALL	ALL	ALL
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
10	1672.267	1672.267	519.874	1401.022	1672.267	1672.267	524.214	1125.064	1672.267	1672.267	1505	1532.197	1672.267	1672.267	3165.447	3147.072	1672.267	1672.267	2800.796	2622.425

Pollutant Name: Sulfur Dioxide Temperature: 67F Relative Humidity: 55%

Speed	LHD1	LHD1	LHD1	LHD1	LHD2	LHD2	LHD2	LHD2	MHD	MHD	MHD	MHD	HHD	HHD	HHD	HHD	ALL	ALL	ALL	ALL
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
10	0.02	0.016	0.005	0.013	0.02	0.016	0.005	0.011	0.021	0.016	0.014	0.015	0.042	0.018	0.03	0.03	0.022	0.016	0.027	0.025

Pollutant Name: PM10 Temperature: 67F Relative Humidity: 55%

Speed	LHD1	LHD1	LHD1	LHD1	LHD2	LHD2	LHD2	LHD2	MHD	MHD	MHD	MHD	HHD	HHD	HHD	HHD	ALL	ALL	ALL	ALL
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
10	0.066	0.029	0.075	0.04	0.066	0.027	0.078	0.051	0.066	0.034	0.423	0.36	0.066	0.059	0.585	0.578	0.066	0.031	0.532	0.453

Pollutant Name: PM10 - Tire Wear Temperature: 67F Relative Humidity: 55%

Speed	LHD1	LHD1	LHD1	LHD1	LHD2	LHD2	LHD2	LHD2	MHD	MHD	MHD	MHD	HHD	HHD	HHD	HHD	ALL	ALL	ALL	ALL
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
10	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.036	0.036	0.012	0.012	0.032	0.029

Pollutant Name: PM10 - Brake Wear Temperature: 67F Relative Humidity: 55%

Speed	LHD1	LHD1	LHD1	LHD1	LHD2	LHD2	LHD2	LHD2	MHD	MHD	MHD	MHD	HHD	HHD	HHD	HHD	ALL	ALL	ALL	ALL
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
10	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.028	0.028	0.028	0.028	0.014	0.013	0.025	0.023

Pollutant Name: PM2.5 Temperature: 67F Relative Humidity: 55%

Speed	LHD1	LHD1	LHD1	LHD1	LHD2	LHD2	LHD2	LHD2	MHD	MHD	MHD	MHD	HHD	HHD	HHD	HHD	ALL	ALL	ALL	ALL
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
10	0.05	0.027	0.069	0.037	0.05	0.025	0.072	0.047	0.05	0.032	0.389	0.331	0.05	0.055	0.538	0.532	0.05	0.028	0.49	0.417

Pollutant Name: PM2.5 - Tire Wear Temperature: 67F Relative Humidity: 55%

Speed	LHD1	LHD1	LHD1	LHD1	LHD2	LHD2	LHD2	LHD2	MHD	MHD	MHD	MHD	HHD	HHD	HHD	HHD	ALL	ALL	ALL	ALL
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
10	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.009	0.009	0.003	0.003	0.008	0.007

Pollutant Name: PM2.5 - Brake Wear Temperature: 67F Relative Humidity: 55%

Speed	LHD1	LHD1	LHD1	LHD1	LHD2	LHD2	LHD2	LHD2	MHD	MHD	MHD	MHD	HHD	HHD	HHD	HHD	ALL	ALL	ALL	ALL
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
10	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.012	0.012	0.012	0.012	0.006	0.006	0.011	0.01

Title : HMF offsite
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/06/13 10:08:46
Scen Year: 2035 -- All model years in the range 1991 to 2035 selected
Season : Annual
Area : San Joaquin Valley
****
Year: 2035 -- Model Years 1991 to 2035 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

San Joaquin Valley Basin Average Basin Average

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases Temperature: 67F Relative Humidity: 55%

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	LDT ALL	LDT LDA ALL	LHD DSL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT
35	0	0.006	0.05	0.006	0	0.006	0.053	0.006	0	0.012	0.06	0.012	0.009	0.0075	0.067	0	0.011	0.101	0.085	0	0.428

Pollutant Name: Methane Temperature: 67F Relative Humidity: 55%

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	LDT ALL	LDT LDA ALL	LHD DSL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT
35	0	0.005	0.002	0.005	0	0.005	0.002	0.005	0	0.01	0.003	0.01	0.0075	0.00625	0.003	0	0.007	0.005	0.005	0	0.106

Pollutant Name: Carbon Monoxide Temperature: 67F Relative Humidity: 55%

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	LDT ALL	LDT LDA ALL	LHD DSL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT
35	0	0.467	0.413	0.467	0	0.521	0.423	0.521	0	0.883	0.445	0.883	0.702	0.5845	0.5315	0	0.217	1.124	0.962	0	26.935

Pollutant Name: Oxides of Nitrogen Temperature: 67F Relative Humidity: 55%

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	LDT ALL	LDT LDA ALL	LHD DSL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT
35	0	0.031	1.172	0.031	0	0.035	1.166	0.037	0	0.066	1.154	0.066	0.0515	0.04125	0.8065	0	0.15	0.904	0.769	0	4.61

Pollutant Name: Carbon Dioxide Temperature: 67F Relative Humidity: 55%

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	LDT ALL	LDT LDA ALL	LHD DSL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT
35	0	299.856	345.72	299.857	0	378.641	345.72	378.583	0	387.301	345.72	387.3	382.9415	341.3993	519.1145	0	497.421	1505	1324.82	0	497.421

Pollutant Name: Sulfur Dioxide Temperature: 67F Relative Humidity: 55%

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	LDT ALL	LDT LDA ALL	LHD DSL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT
35	0	0.003	0.003	0.003	0	0.004	0.003	0.004	0	0.004	0.003	0.004	0.004	0.0035	0.005	0	0.005	0.014	0.013	0	0.005

Pollutant Name: PM10 Temperature: 67F Relative Humidity: 55%

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	LDT ALL	LDT LDA ALL	LHD DSL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT
35	0	0.009	0.031	0.009	0	0.01	0.033	0.011	0	0.023	0.037	0.023	0.017	0.013	0.018	0	0.009	0.118	0.099	0	0.014

Pollutant Name: PM10 - Tire Wear Temperature: 67F Relative Humidity: 55%

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	LDT ALL	LDT LDA ALL	LHD DSL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT
35	0	0.008	0.008	0.008	0	0.008	0.008	0.008	0	0.008	0.008	0.008	0.008	0.008	0.012	0	0.012	0.012	0.012	0	0.012

Pollutant Name: PM10 - Brake Wear Temperature: 67F Relative Humidity: 55%

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	LDT ALL	LDT LDA ALL	LHD DSL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT
35	0	0.013	0.013	0.013	0	0.013	0.013	0.013	0	0.013	0.013	0.013	0.013	0.013	0.013	0	0.013	0.013	0.013	0	0.028

Pollutant Name: PM2.5 Temperature: 67F Relative Humidity: 55%

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	LDT ALL	LDT LDA ALL	LHD DSL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT
35	0	0.009	0.029	0.009	0	0.01	0.03	0.01	0	0.022	0.034	0.022	0.016	0.0125	0.0165	0	0.008	0.109	0.091	0	0.013

Pollutant Name: PM2.5 - Tire Wear Temperature: 67F Relative Humidity: 55%

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	LDT ALL	LDT LDA ALL	LHD DSL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT
35	0	0.002	0.002	0.002	0	0.002	0.002	0.002	0	0.002	0.002	0.002	0.002	0.002	0.003	0	0.003	0.003	0.003	0	0.003

Pollutant Name: PM2.5 - Brake Wear Temperature: 67F Relative Humidity: 55%

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	LDT ALL	LDT LDA ALL	LHD DSL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT
35	0	0.005	0.005	0.005	0	0.005	0.005	0.005	0	0.005	0.005	0.005	0.005	0.005	0.005	0	0.005	0.005	0.005	0	0.012

Appendix C

Microscale CO Analysis

C. Microscale CO Analysis Appendix

C.1 Summary of Microscale CO Analysis
- C.1-1 Fresno Station Intersections Modeled CO Concentrations
- C.1-2 Bakersfield Station Intersections Modeled CO Concentrations
- C.1-3 Kings-Tulare Regional Station Modeled Intersections CO Concentrations
- C.1-4 Fresno HMF Modeled Intersections CO Concentrations
- C.1-5 Wasco HMF Modeled Intersections CO Concentrations

C.2 Fresno Station Intersection CALINE Inputs
- C.2-1 Fresno Station Van Ness St./Inyo St. CALINE Inputs
- C.2-2 Fresno Station H St./Tulare St. CALINE Inputs
- C.2-3 Fresno Station Van Ness Ave./Fresno St. CALINE Inputs
- C.2-4 Fresno Station Tulare St./F St. CALINE Inputs
- C.2-5 Fresno Station Fresno St./F St. CALINE Inputs

C.3 Bakersfield Station Intersection CALINE Inputs
- C.3-1 Bakersfield Station Union Ave./California Ave. CALINE Inputs
- C.3-2 Bakersfield Station Oak St./Truxton Ave. CALINE Inputs
- C.3-3 Bakersfield Station Oak St./SR 178 CALINE Inputs
- C.3-4 Bakersfield Station Oak St./24th St. CALINE Inputs

C.4 Kings Tulare Regional Station Intersection CALINE Inputs
- C.4-1 Kings Tulare Regional Station 8th Ave./SR 198 WB Ramps CALINE Inputs
- C.4-2 Kings Tulare Regional Station 9th Ave./SR 198 EB Ramps CALINE Inputs
- C.4-3 Kings Tulare Regional Station SR 43/Lacey Blvd. CALINE Inputs
- C.4-4 Kings Tulare Regional Station 12th Ave./Lacey Blvd. CALINE Inputs
- C.4-5 Kings Tulare Regional Station N 11th Ave./SR 198 EB Ramps/E 3rd St. CALINE Inputs
- C.4-6 Kings Tulare Regional Station S 10th Ave./E 3rd St. CALINE Inputs

C.5 Fresno HMF Intersection CALINE Inputs
- C.5-1 Fresno HMF SR 99 SB Off-Ramp/ E. American Ave. CALINE Inputs
- C.5-2 Fresno HMF SR 99 NB On-Ramp/ E. American Ave. CALINE Inputs

C.6 Wacso HMF Intersection CALINE Inputs
- C.6-1 Wasco HMF SR 43/Wasco Ave. CALINE Inputs
- C.6-2 Wasco HMF Wasco Ave.-J St./6th St. CALINE Inputs

C.7 Station Parking Lot CALINE Inputs
- C.7-1 Fresno Mariposa Option Parking Lot CALINE Inputs
- C.7-6 Fresno Kern Option Parking Lot CALINE Inputs
- C.7-11 Bakersfield North Option Parking Lot CALINE Inputs
- C.7-16 Bakersfield South Option Parking Lot CALINE Inputs
- C.7-21 Bakersfield Hybrid Option Parking Lot CALINE Inputs
- C.7-31 Kings Tulare Regional Option Parking Lot CALINE Inputs
- C.7-34 Kings Tulare Regional West At-Grade Parking Lot CALINE Inputs
- C.7-38 Kings Tulare Regional West Below-Grade Parking Lot CALINE Inputs

C.8 EMFAC2007 Output Files
- C.8-1 Fresno County EMFAC2007 2025 and 2035 Output File
- C.8-3 Kern County EMFAC2007 2025 and 2035 Output File
- C.8-5 Kings County EMFAC2007 2025 and 2035 Output File

C.8-7 Fresno County EMFAC2007 2009 and 2035 Output File
C.8-8 Kern County EMFAC2007 2009 and 2035 Output File
C.8-9 Kings County EMFAC2007 2009 and 2035 Output File

C.9 Fresno Station Intersection CALINE Outputs
C.9-1 Fresno Station Van Ness St./Inyo St. 2009 Existing CALINE Output
C.9-5 Fresno Station Van Ness St./Inyo St. 2009 Existing Plus Project CALINE Output
C.9-9 Fresno Station Van Ness St./Inyo St. 2035 No Build CALINE Output
C.9-13 Fresno Station Van Ness St./Inyo St. 2035 Build CALINE Output
C.9-17 Fresno Station H St./Tulare St. 2009 Existing CALINE Output
C.9-21 Fresno Station H St./Tulare St. 2009 Existing Plus Project CALINE Output
C.9-25 Fresno Station H St./Tulare St. 2035 No Build CALINE Output
C.9-29 Fresno Station H St./Tulare St. 2035 Build CALINE Output
C.9-33 Fresno Station Van Ness Ave./Fresno St. 2009 Existing CALINE Output
C.9-37 Fresno Station Van Ness Ave./Fresno St. 2009 Existing Plus Project CALINE Output
C.9-41 Fresno Station Van Ness Ave./Fresno St. 2035 No Build CALINE Output
C.9-45 Fresno Station Van Ness Ave./Fresno St. 2035 Build CALINE Output
C.9-49 Fresno Station Tulare St./F St. 2009 Existing CALINE Output
C.9-53 Fresno Station Tulare St./F St. 2009 Existing Plus Project CALINE Output
C.9-57 Fresno Station Tulare St./F St. 2035 No Build CALINE Output
C.9-61 Fresno Station Tulare St./F St. 2035 Build CALINE Output
C.9-65 Fresno Station Fresno St./F St. 2009 Existing CALINE Output
C.9-69 Fresno Station Fresno St./F St. 2009 Existing Plus Project CALINE Output
C.9-73 Fresno Station Fresno St./F St. 2035 No Build CALINE Output
C.9-77 Fresno Station Fresno St./F St. 2035 Build CALINE Output

C.10 Bakersfield Station Intersection CALINE Outputs
C.10-1 Bakersfield Station Union Ave./California Ave. 2009 Existing CALINE Output
C.10-5 Bakersfield Station Union Ave./California Ave. 2009 Existing Plus Project CALINE Output
C.10-9 Bakersfield Station Union Ave./California Ave. 2035 No Build CALINE Output
C.10-13 Bakersfield Station Union Ave./California Ave. 2035 Build CALINE Output
C.10-17 Bakersfield Station Oak St./Truxton Ave. 2009 Existing CALINE Output
C.10-21 Bakersfield Station Oak St./Truxton Ave. 2009 Existing Plus Project CALINE Output
C.10-25 Bakersfield Station Oak St./Truxton Ave. 2035 No Build CALINE Output
C.10-29 Bakersfield Station Oak St./Truxton Ave. 2035 Build CALINE Output
C.10-33 Bakersfield Station Oak St./SR 178 2009 Existing CALINE Output
C.10-37 Bakersfield Station Oak St./SR 178 2009 Existing Plus Project CALINE Output
C.10-41 Bakersfield Station Oak St./SR 178 2035 No Build CALINE Output
C.10-45 Bakersfield Station Oak St./SR 178 2035 Build CALINE Output
C.10-49 Bakersfield Station Oak St./24th St. 2009 Existing CALINE Output
C.10-53 Bakersfield Station Oak St./24th St. 2009 Existing Plus Project CALINE Output
C.10-57 Bakersfield Station Oak St./24th St. 2035 No Build CALINE Output
C.10-61 Bakersfield Station Oak St./24th St. 2035 Build CALINE Output

C.11 Kings Tulare Regional (KTR) Station Intersection CALINE Outputs
C.11-1 KTR Station 8th Ave./SR 198 WB Ramps 2009 Existing CALINE Output
C.11-4 KTR Station 8th Ave./SR 198 WB Ramps 2009 Existing Plus Project CALINE Output
C.11-7 KTR Station 8th Ave./SR 198 WB Ramps 2035 No Build CALINE Output
C.11-10 KTR Station 8th Ave./SR 198 WB Ramps 2035 Build CALINE Output
C.11-13 KTR Station 9th Ave./SR 198 EB Ramps 2009 Existing CALINE Output
C.11-16 KTR Station 9th Ave./SR 198 EB Ramps 2009 Existing Plus Project CALINE Output
C.11-19 KTR Station 9th Ave./SR 198 EB Ramps 2035 No Build CALINE Output
C.11-22 KTR Station 9th Ave./SR 198 EB Ramps 2035 Build CALINE Output

C.11-25 KTR Station SR 43/Lacey Blvd. 2009 Existing CALINE Output
C.11-29 KTR Station SR 43/Lacey Blvd. 2009 Existing Plus Project CALINE Output
C.11-33 KTR Station SR 43/Lacey Blvd. 2035 No Build CALINE Output
C.11-37 KTR Station SR 43/Lacey Blvd. 2035 Build CALINE Output
C.11-41 KTR 12th Ave./Lacey Blvd. 2009 Existing CALINE Output
C.11-45 KTR 12th Ave./Lacey Blvd. 2009 Existing Plus Project CALINE Output
C.11-49 KTR 12th Ave./Lacey Blvd. 2035 No Build CALINE Output
C.11-53 KTR 12th Ave./Lacey Blvd. 2035 Build CALINE Output
C.11-57 KTR Station N 11th Ave./SR 198 EB Ramps/E 3rd St.2009 Existing CALINE Output
C.11-61 KTR Station N 11th Ave./SR 198 EB Ramps/E 3rd St.2009 Existing Plus Project CALINE Output
C.11-65 KTR Station N 11th Ave./SR 198 EB Ramps/E 3rd St. 2035 No Build CALINE Output
C.11-69 KTR Station N 11th Ave./SR 198 EB Ramps/E 3rd St.2035 Build CALINE Output
C.11-73 KTR Station S 10th Ave./E 3rd St. 2009 Existing CALINE Output
C.11-77 KTR Station S 10th Ave./E 3rd St. 2009 Existing Plus Project CALINE Output
C.11-81 KTR Station S 10th Ave./E 3rd St. 2035 No Build CALINE Output
C.11-85 KTR Station S 10th Ave./E 3rd St. 2035 Build CALINE Output

C.12 Fresno HMF Intersection CALINE Outputs
C.12-1 Fresno HMF SR 99 SB Off-Ramp/ E. American Ave. 2009 Existing CALINE Output
C.12-5 Fresno HMF SR 99 SB Off-Ramp/ E. American Ave. 2009 Existing Plus Project CALINE Output
C.12-9 Fresno HMF SR 99 SB Off-Ramp/ E. American Ave. 2035 No Build CALINE Output
C.12-13 Fresno HMF SR 99 SB Off-Ramp/ E. American Ave. 2035 Build CALINE Output
C.12-17 Fresno HMF SR 99 NB On-Ramp/ E. American Ave. 2009 Existing CALINE Output
C.12-20 Fresno HMF SR 99 NB On-Ramp/ E. American Ave. 2009 Existing Plus Project CALINE Output
C.12-23 Fresno HMF SR 99 NB On-Ramp/ E. American Ave. 2035 No Build CALINE Output
C.12-26 Fresno HMF SR 99 NB On-Ramp/ E. American Ave. 2035 Build CALINE Output

C.13 Wasco HMF Intersection CALINE Outputs
C.13-1 Wasco HMF SR 43/Wasco Ave. 2009 Existing CALINE Output
C.13-5 Wasco HMF SR 43/Wasco Ave. 2009 Existing Plus Project CALINE Output
C.13-9 Wasco HMF SR 43/Wasco Ave. 2035 No Build CALINE Output
C.13-13 Wasco HMF SR 43/Wasco Ave. 2035 Build CALINE Output
C.13-17 Wasco HMF Wasco Ave.-J St./6th St. 2009 Existing CALINE Output
C.13-21 Wasco HMF Wasco Ave.-J St./6th St. 2009 Existing Plus Project CALINE Output
C.13-25 Wasco HMF Wasco Ave.-J St./6th St. 2035 No Build CALINE Output
C.13-29 Wasco HMF Wasco Ave.-J St./6th St. 2035 Build CALINE Output

C.14 Station Parking Lot CALINE Outputs
C.14-1 Fresno Mariposa Option Parking Lot 1 CALINE Output
C.14-6 Fresno Mariposa Option Parking Lot 2 CALINE Output
C.14-10 Fresno Mariposa Option Parking Lot 3 CALINE Output
C.14-14 Fresno Mariposa Option Parking Lot 4 CALINE Output
C.14-17 Fresno Mariposa Option Parking Lot 5 CALINE Output
C.14-20 Fresno Mariposa Option Parking Lot 6 CALINE Output
C.14-23 Fresno Kern Option Parking Lot 1 CALINE Output
C.14-28 Fresno Kern Option Parking Lot 2 CALINE Output
C.14-32 Fresno Kern Option Parking Lot 3 CALINE Output
C.14-34 Fresno Kern Option Parking Lot 4 CALINE Output

C.14-36 Bakersfield South Option Parking Lot CALINE Output
C.14-40 Bakersfield North Option Parking Lot CALINE Output
C.14-44 Bakersfield Hybrid Option Parking Lot A CALINE Output
C.14-46 Bakersfield Hybrid Option Parking Lot B CALINE Output
C.14-48 Bakersfield Hybrid Option Parking Lot C CALINE Output
C.14-50 Bakersfield Hybrid Option Parking Lot D CALINE Output
C.14-52 Bakersfield Hybrid Option Parking Lot E CALINE Output
C.14-54 Bakersfield Hybrid Option Parking Lot F CALINE Output
C.14-56 Bakersfield Hybrid Option Parking Lot G CALINE Output
C.14-58 Kings Tulare Regional Option Parking Lot CALINE Output
C.14-62 Kings Tulare Regional West At-Grade Parking Lot CALINE Output
C.14-65 Kings Tulare Regional West At-Grade Parking Structure CALINE Output
C.14-68 Kings Tulare Regional West Below-Grade Parking Lot CALINE Output
C.14-71 Kings Tulare Regional West Below-Grade Parking Structure CALINE Output

C.15 Fresno Station Signalized Intersection CO Emission Factors
C.15-1 Fresno Tulare/F Street and F St./Fresno St. Approach and Departure Emission Factors
C.15-4 Fresno Van Ness/Inyo, H/Tulare, Van Ness/Fresno Approach and Departure Emission Factors

C.16 Bakersfield Station Signalized Intersection CO Emission Factors
C.16-1 Bakersfield Union/California Ave., Oak/Truxton, and Oak/SR 178 Approach and Departure Emission Factors

Appendix C

C.1 Summary of 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)

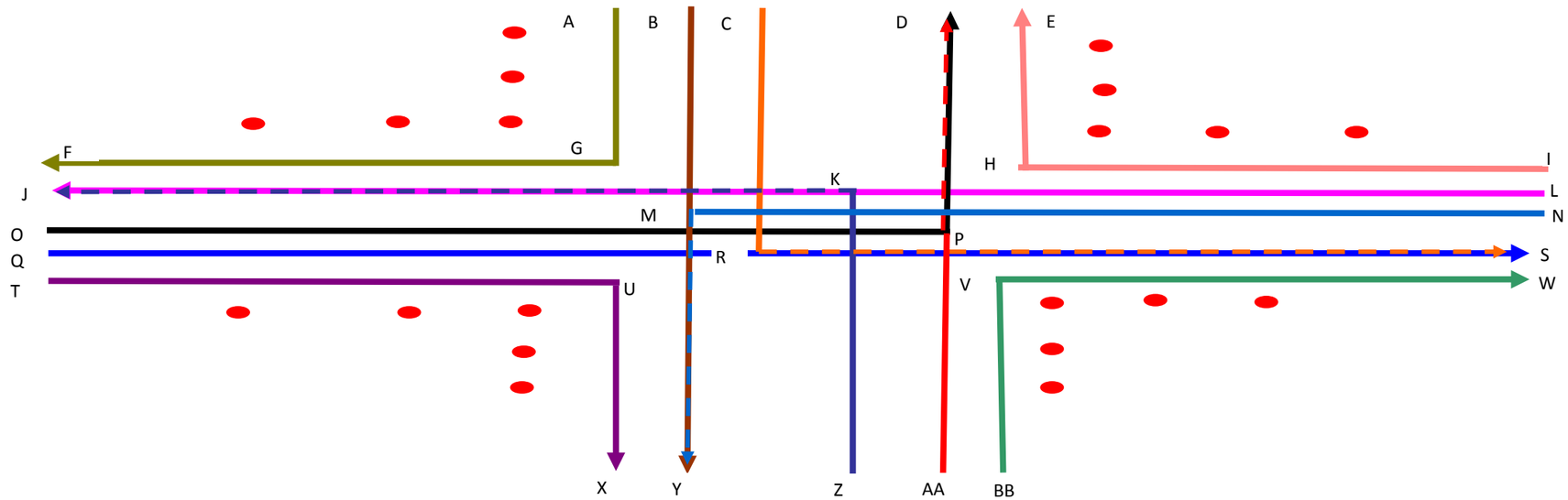
Wasco Caline4 Model Input and Result			
Intersection	**SR 43/Wasco Ave.**	**SR 43/Wasco Ave.**	**Wasco Ave.-J St./6th St.**
AM/PM	AM	PM	PM
No Build LOS	B	D	C
Build LOS	B	E	C
Existing (vph)	619	787	252
Existing + Project (vph)	820	988	294
Future No Build (vph)	1,839	2,272	783
Future Plus Project (vph)	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)

Appendix C

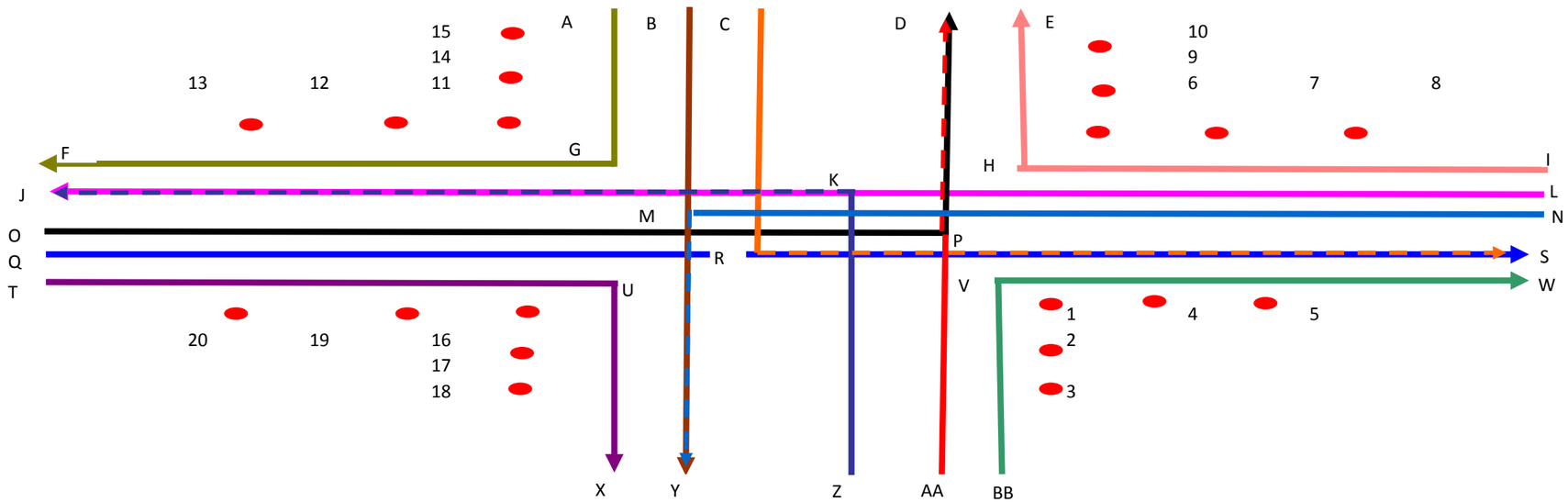
C.2 Fresno Station Intersection CALINE Inputs

Fresno - Van Ness St./Inyo Street



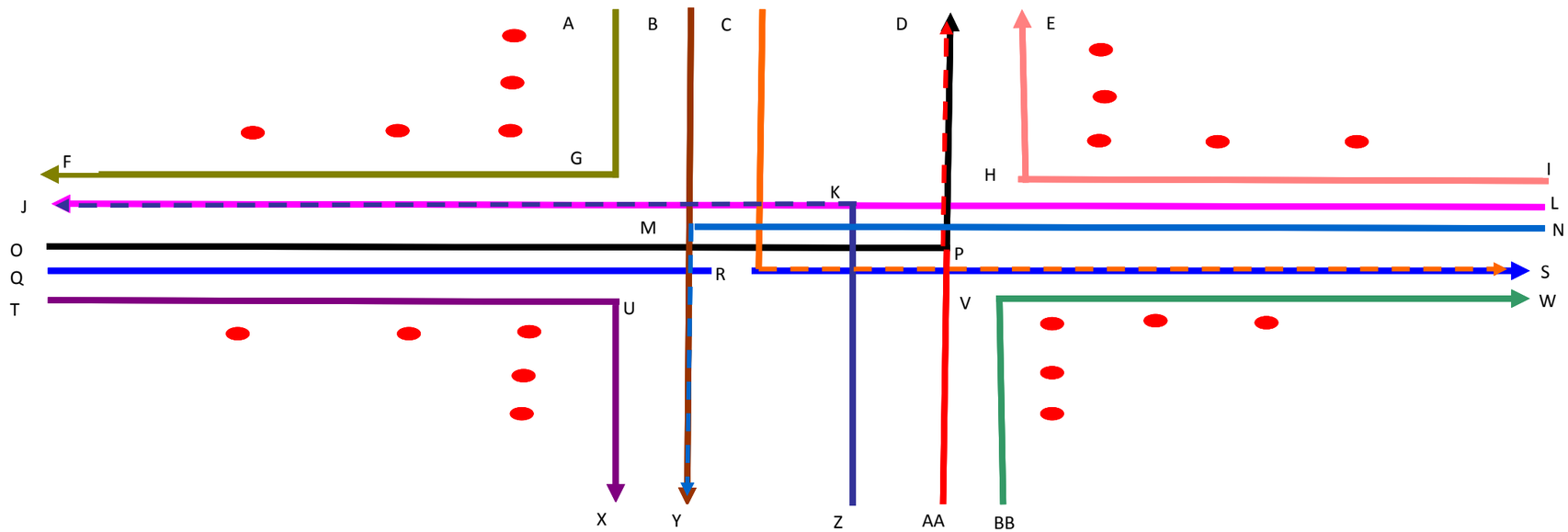
CALINE INPUT						2035				2009				Receptors		
No	Link	x1	y1	x2	y2	Rate (g/mi)	Nobuild Traffic (vph)	Rate (g/mi)	Build Traffic (vph)	Rate (g/mi)	Existing Traffic (vph)	Rate (g/mi)	Existing + Proj (vph)	Receptor No	x1	y1
1	AG	1059.11	8917.58	1123.00	8834.97	1.51	269	1.63	272	7.36	118	7.36	121	1	1085.79	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

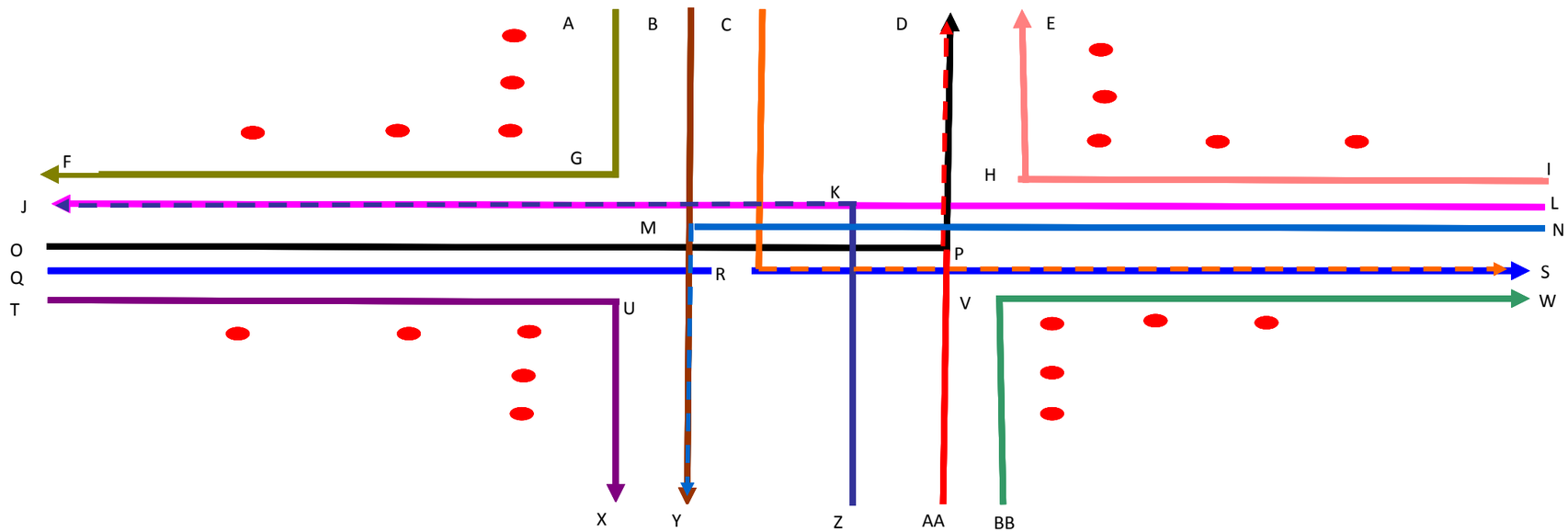
Fresno - H St./Tulare St.



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

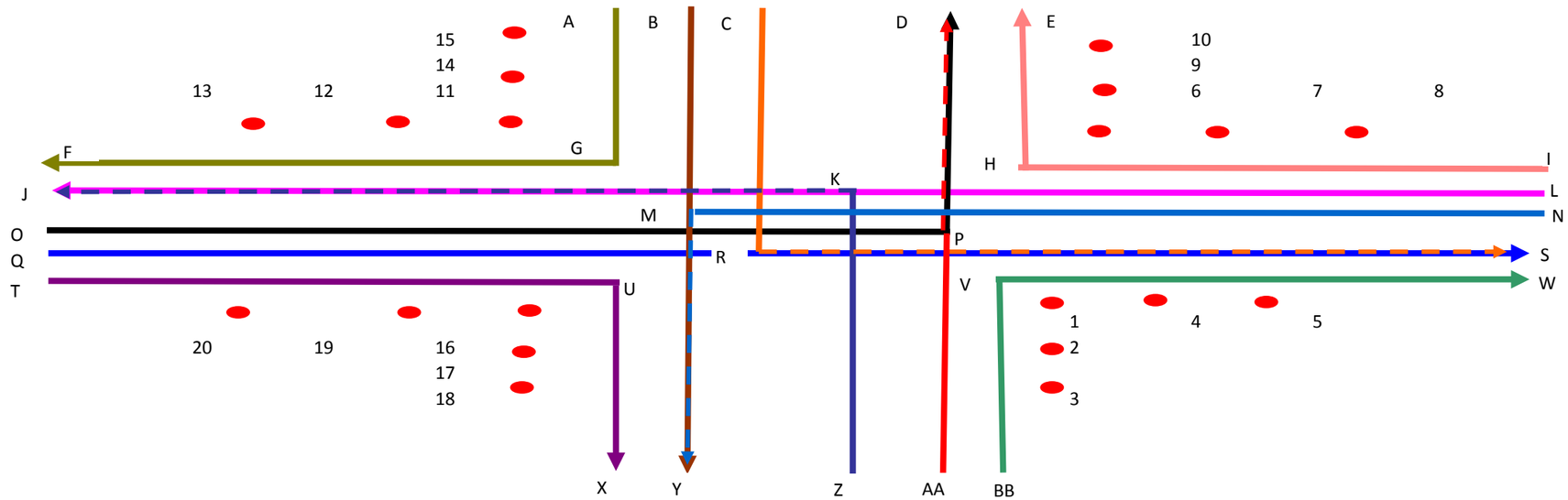
Table C-2.4
Fresno Station Van Ness Ave./Fresno St. Intersection CALINE Inputs

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

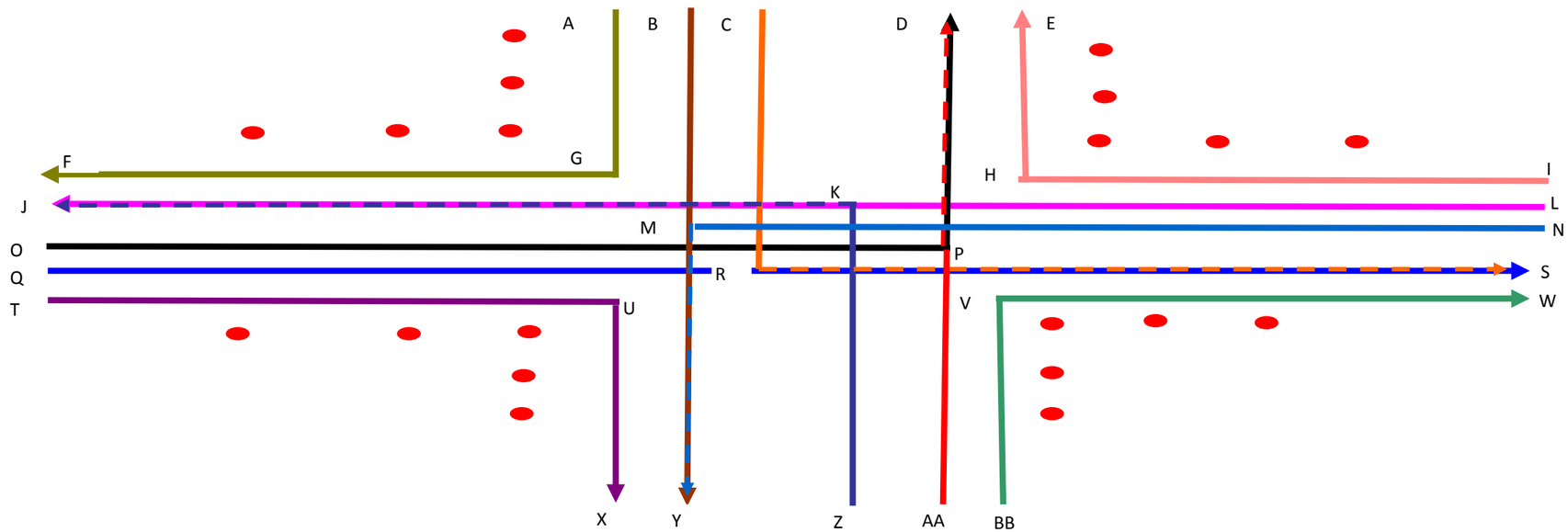


CALINE INPUT						2035				2009				Receptors		
No	Link	x1	y1	x2	y2	Rate (g/mi)	Nobuild Traffic (vph)	Rate (g/mi)	Build Traffic (vph)	Rate (g/mi)	Existing Traffic (vph)	Rate (g/mi)	Existing + Proj (vph)	Receptor No	x1	y1
1	AG	250181.53	68883.06	250211.28	68846.87	1.95	36	1.70	168	10.98	4	10.98	49	1	250243.66	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

Appendix C

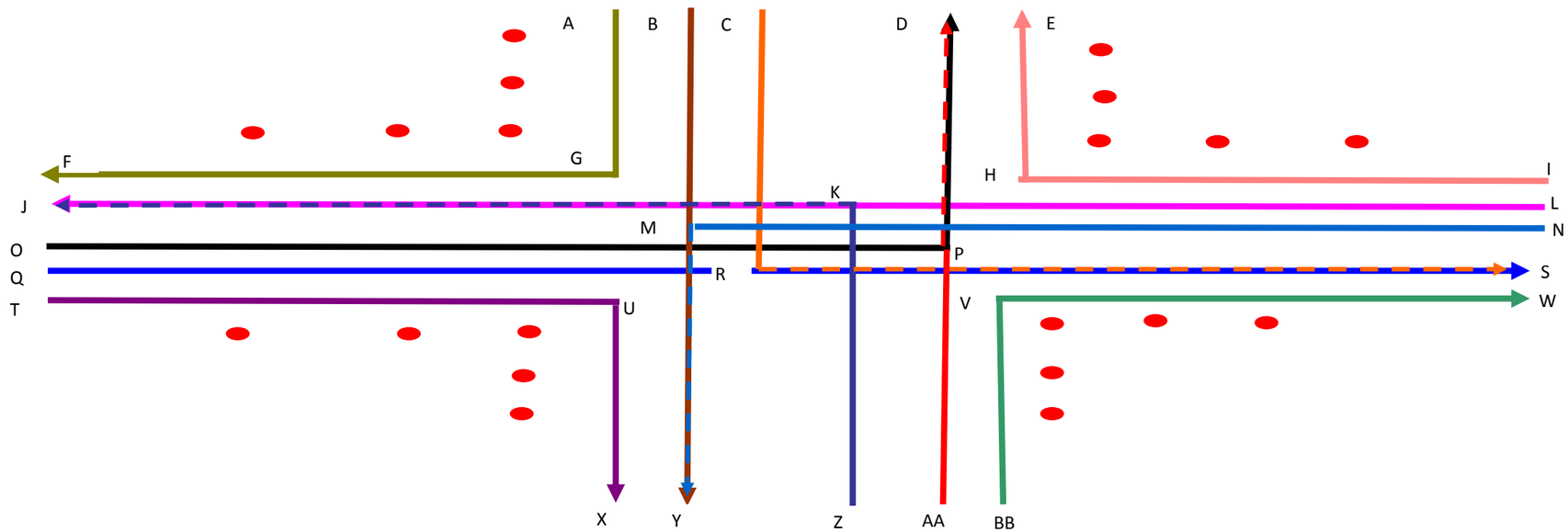
C.3 Bakersfield Station Intersection CALINE Inputs

Bakersfield - Union Ave./ California Ave.



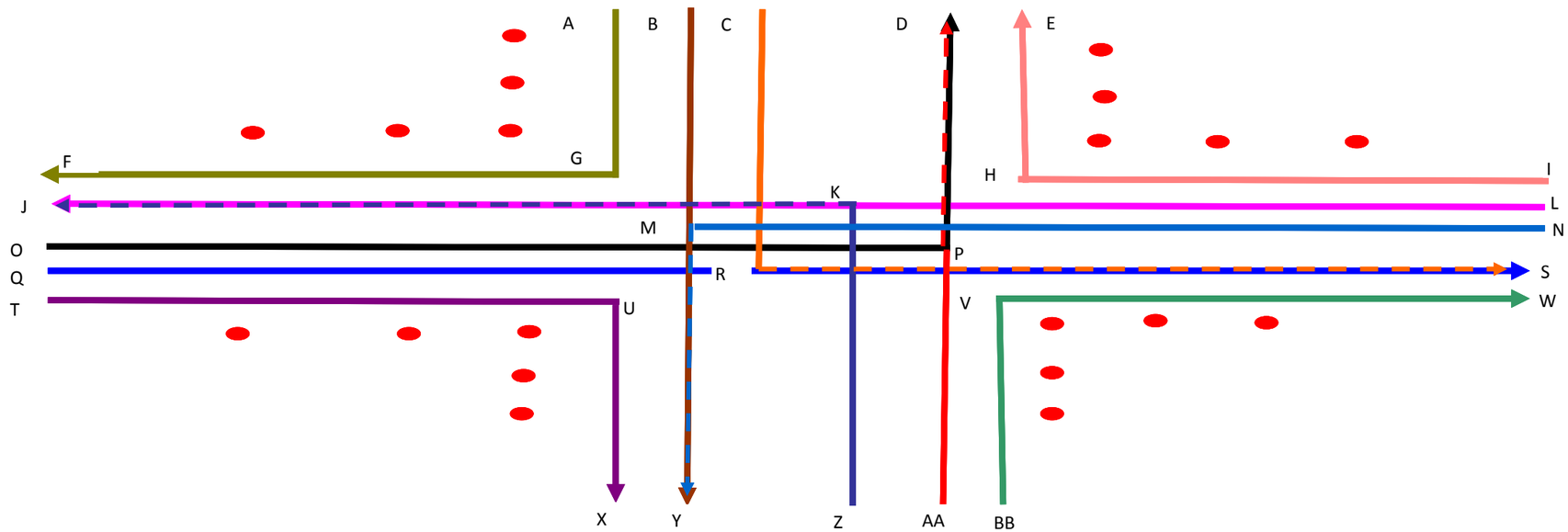
CALINE INPUT						2035				2009				Receptors		
No	Link	x1	y1	x2	y2	Rate (g/mi)	Nobuild Traffic (vph)	Rate (g/mi)	Build Traffic (vph)	Rate (g/mi)	Existing Traffic (vph)	Rate (g/mi)	Existing + Proj (vph)	No	x1	y1
1	AG	128.36	836.40	126.35	756.76	2.02	305	2.13	305	9.86	305	9.86	305	1	123.50	809.04
2	BM	136.43	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.



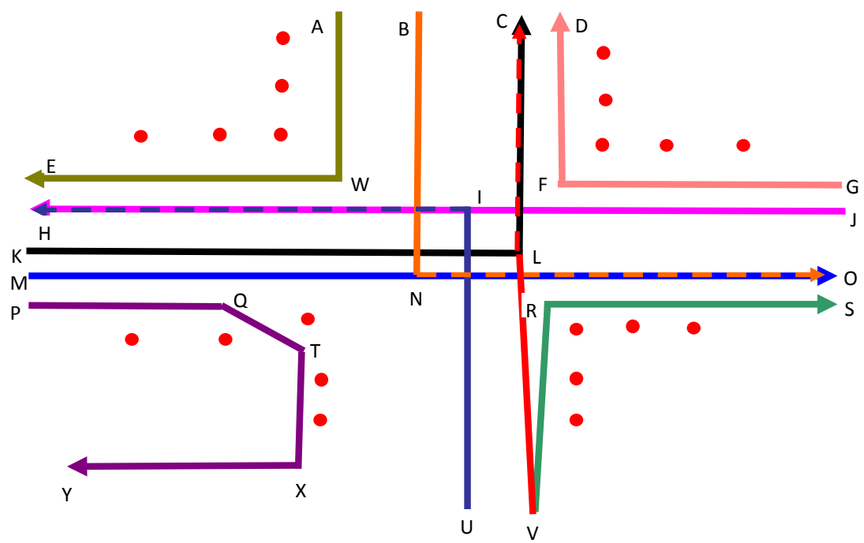
CALINE INPUT						2035				2009				Receptors		
No	Link	x1	y1	x2	y2	Rate (g/mi)	Nobuild Traffic (vph)	Rate (g/mi)	Build Traffic (vph)	Rate (g/mi)	Existing Traffic (vph)	Rate (g/mi)	Existing + Proj (vph)	No	x1	y1
1	AG	795.67	446.66	791.07	382.37	2.59	949	2.59	949	11.72	545	11.72	545	1	788.45	434.73
2	BM	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

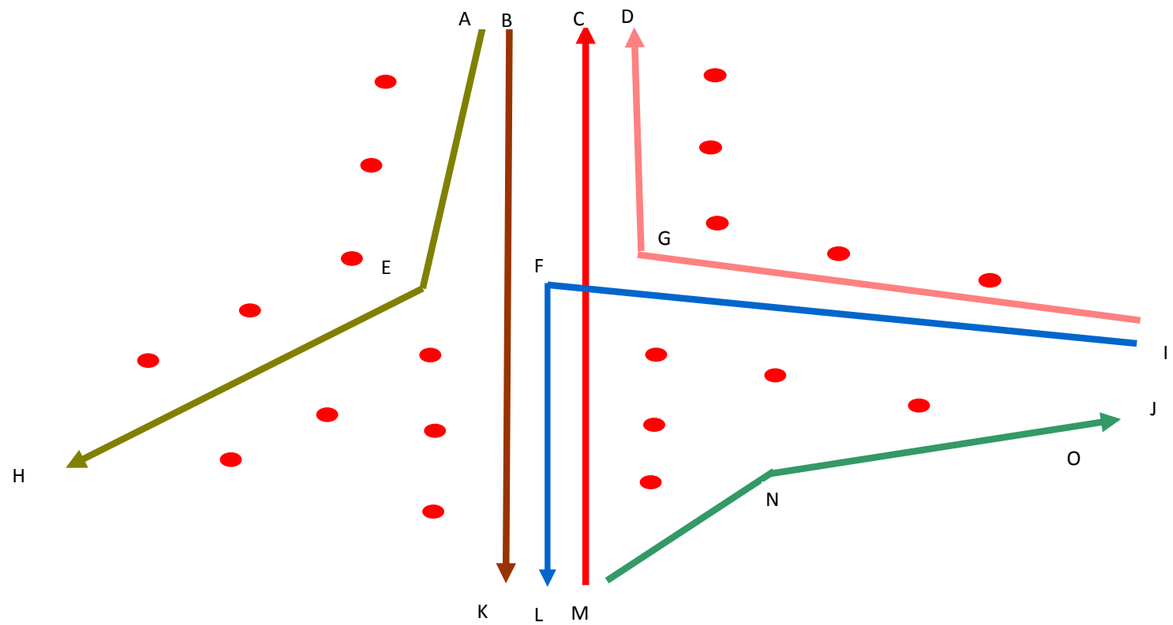


CALINE INPUT						2035			2009			Receptors		
No	Link	x1	y1	x2	y2	Rate (g/mi)	Nobuild Traffic (vph)	Build Traffic (vph)	Rate (g/mi)	Existing Traffic (vph)	Existing + Proj (vph)	No	x1	y1
1	AW	633.60	908.78	634.60	842.17	2.00	74.0	74.0	9.34	60	60	1	629.34	894.00
2	BN	636.45	908.67	639.65	821.05	2.00	55.0	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

Appendix C

C.4 Kings Tulare Regional Station Intersection CALINE Inputs

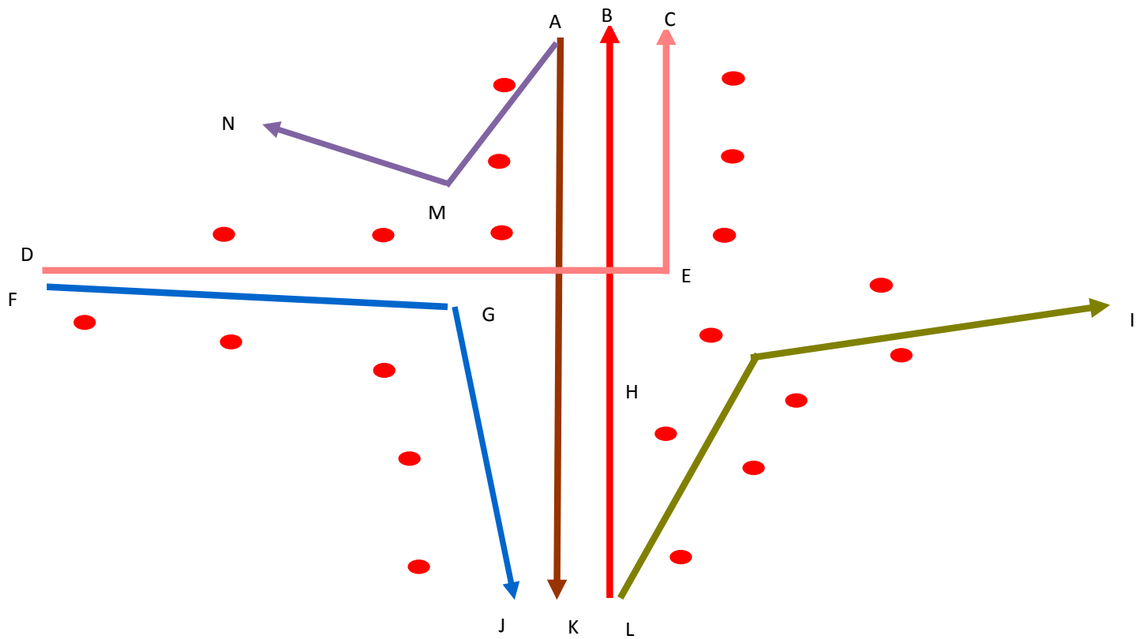
KTR 8th Ave./SR 198 WB Ramps



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

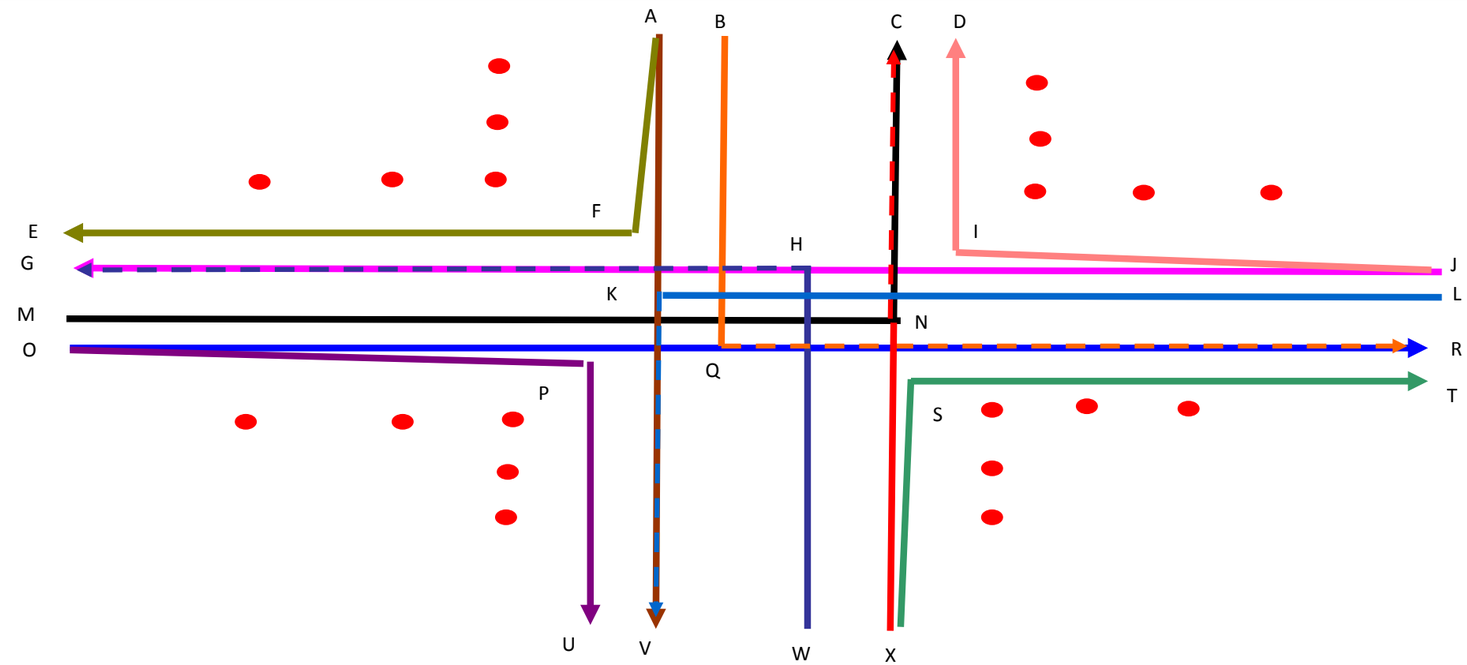
KTR 9th Ave./SR 198 EB Ramps



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

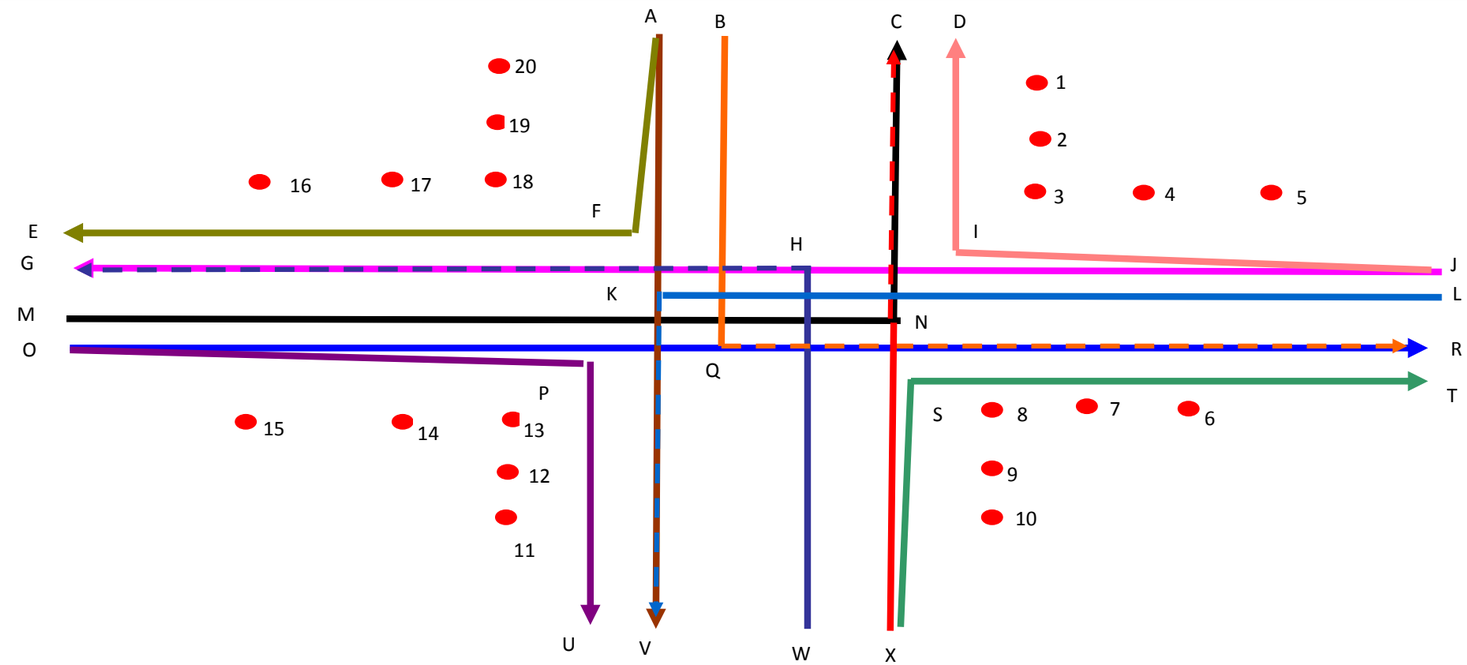
CALINE INPUT						2035			2009		
No	Link	x1	y1	x2	y2	Rate (g/mi)	Nobuild Traffic (vph)	Build Traffic (vph)	Rate (g/mi)	Existing Traffic (vph)	Existing + Proj (vph)
1	AK	521.42	1105.60	514.67	757.80	1.19	272	290	6.00	166	184
2	BL	524.76	1105.60	518.90	757.76	1.19	814	822	6.00	431	439
3	CE	528.11	1105.60	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



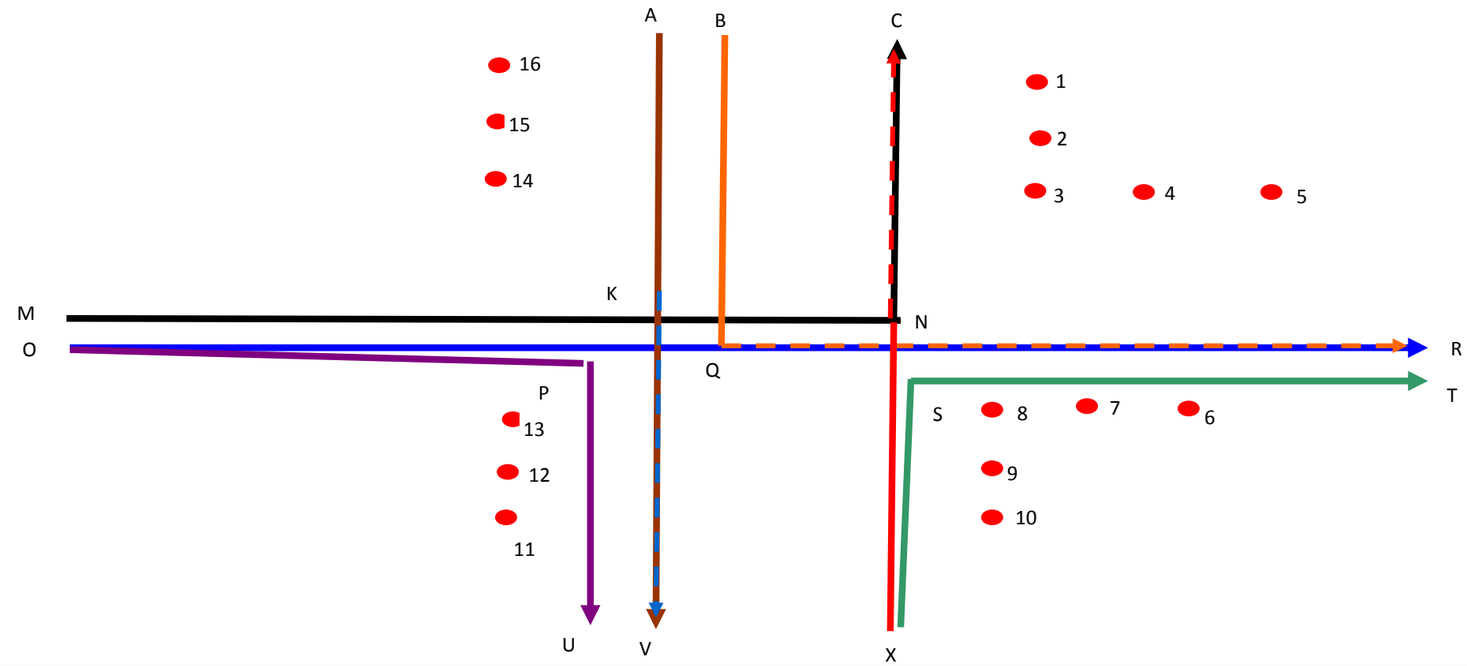
CALINE INPUT						2035			2009			Receptors		
No	Link	x1	y1	x2	y2	Rate (g/mi)	Nobuild Traffic (vph)	Build Traffic (vph)	Rate (g/mi)	Existing Traffic (vph)	Existing + Proj (vph)	No	x1	y1
1	AF	533.48	579.58	526.90	476.18	1.19	14	14	6.00	14	14	1	523.68	531.30
2	AK	533.48	579.58	531.54	468.93	1.19	513	513	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

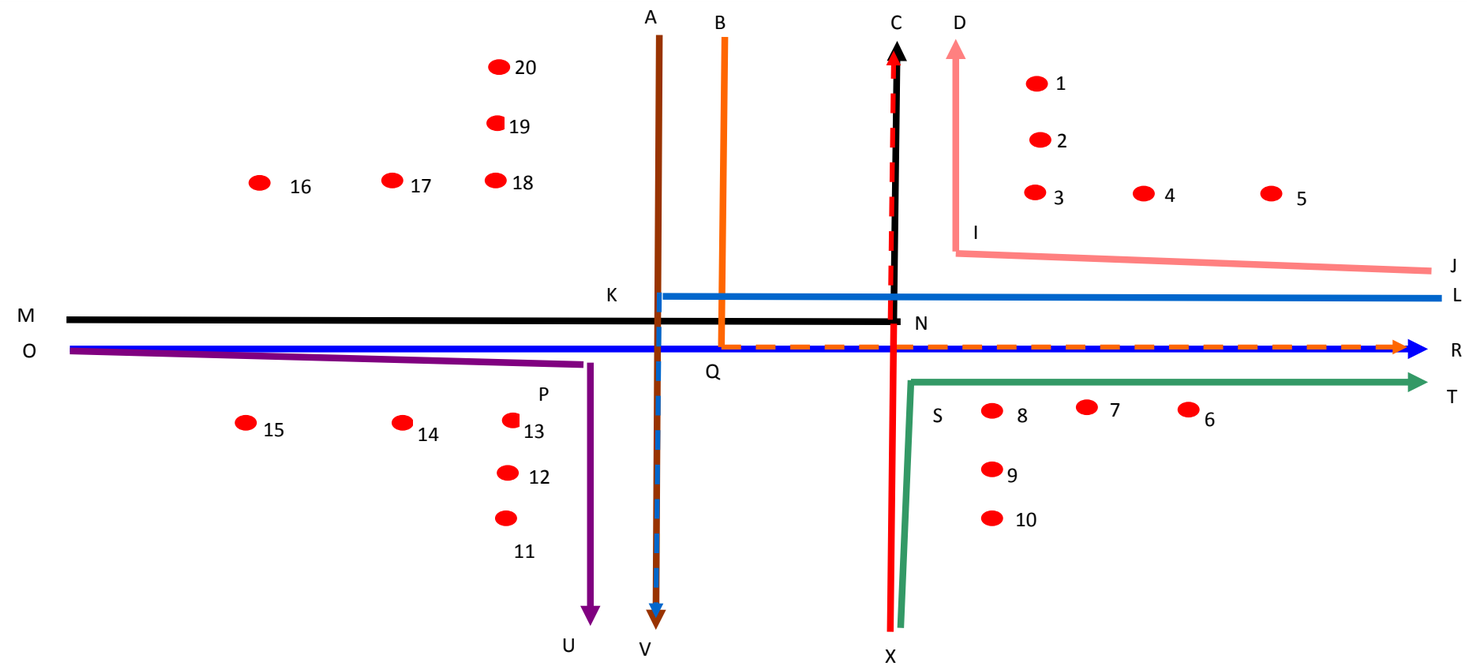
KTR N 11th Avenue/SR 198 EB Off-Ramp/E 3rd Street



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

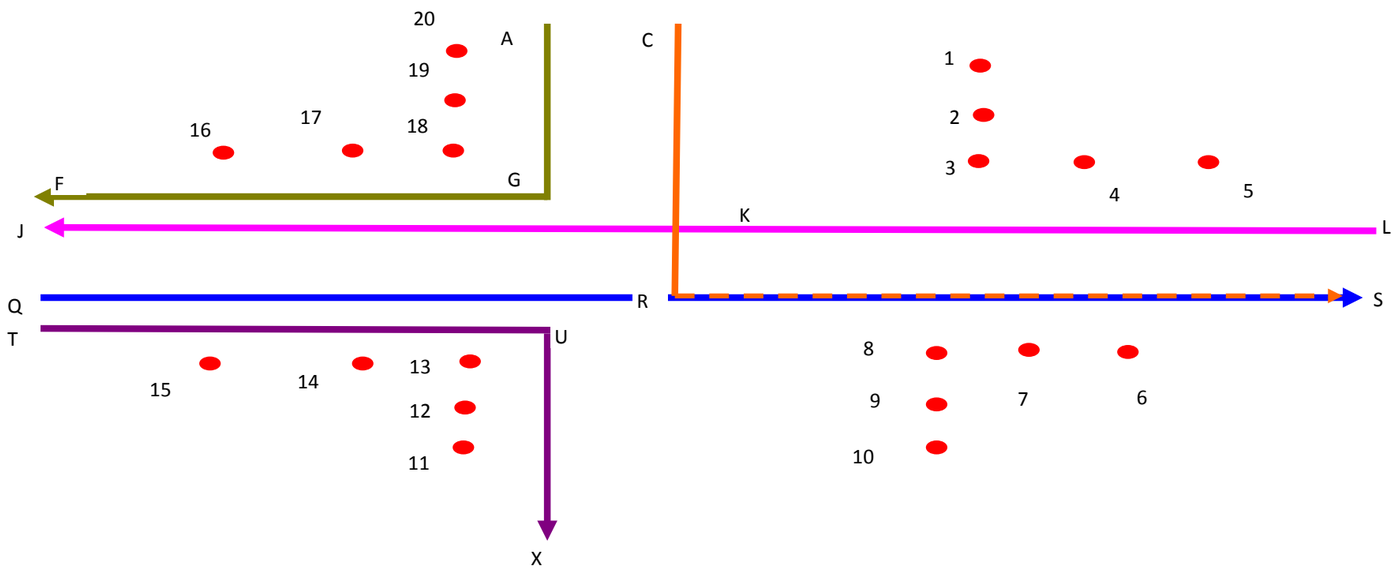


CALINE INPUT						2035			2009			Receptors		
No	Link	x1	y1	x2	y2	Rate (g/mi)	Nobuild Traffic (vph)	Build Traffic (vph)	Rate (g/mi)	Existing Traffic (vph)	Existing + Proj (vph)	No	x1	y1
1	AK	1357.82	6973.32	1408.69	6881.10	1.93	298	298	9.05	298	298	1	1391.40	6966.75
2	BQ	1362.63	6975.67	1419.63	6893.92	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

Appendix C

C.5 Fresno HMF Intersection CALINE Inputs

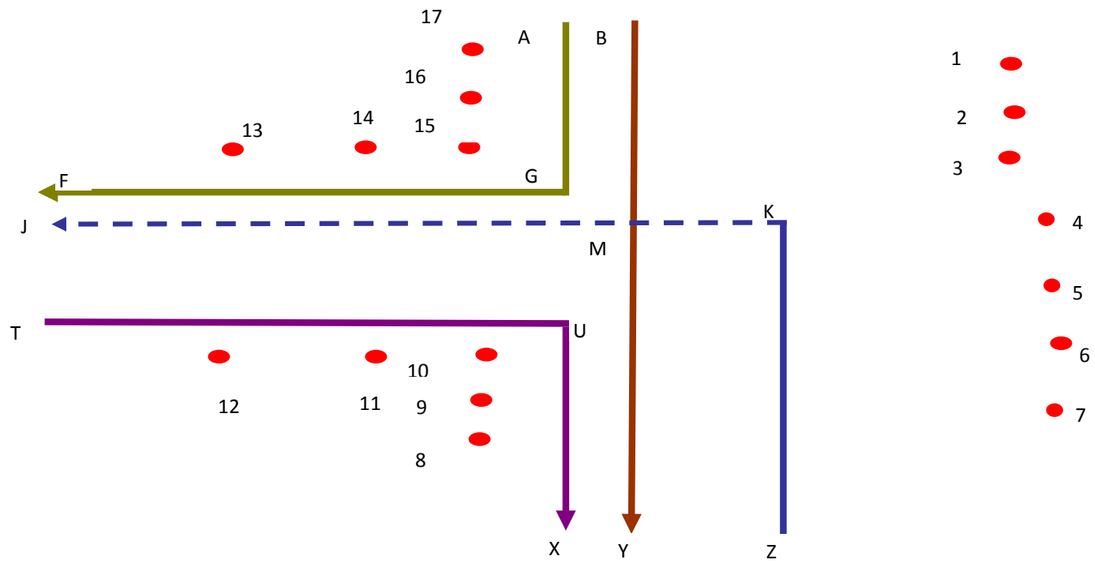
Fresno HMF SR 99 SB Off-Ramp/ E. American Ave.



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.



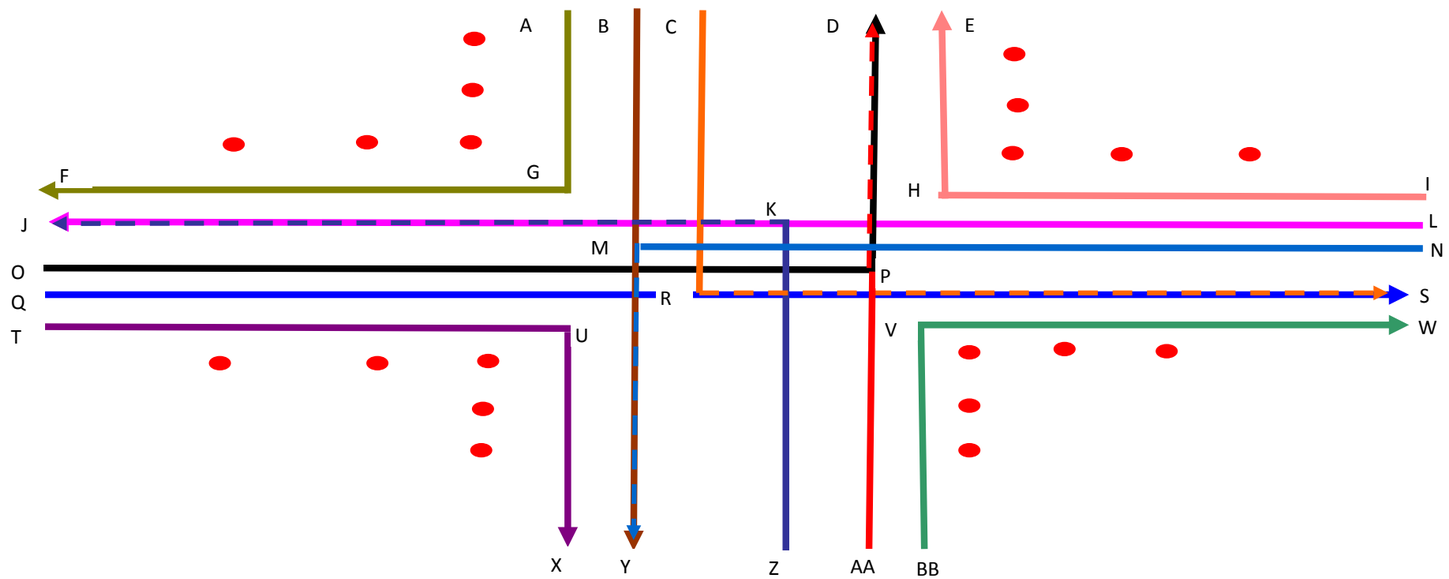
Receptors		
Receptor No	x1	y1
1	7289.21	824.18
2	7314.30	809.22
3	7337.00	795.15
4	7360.09	807.14
5	7384.12	789.96
6	7407.73	771.66
7	7430.96	753.53
8	7389.51	744.25
9	7361.94	755.76
10	7335.25	761.84
11	7309.23	757.14
12	7281.78	748.00
13	7247.88	757.06
14	7272.12	772.23
15	7295.06	785.86
16	7278.44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

Appendix C

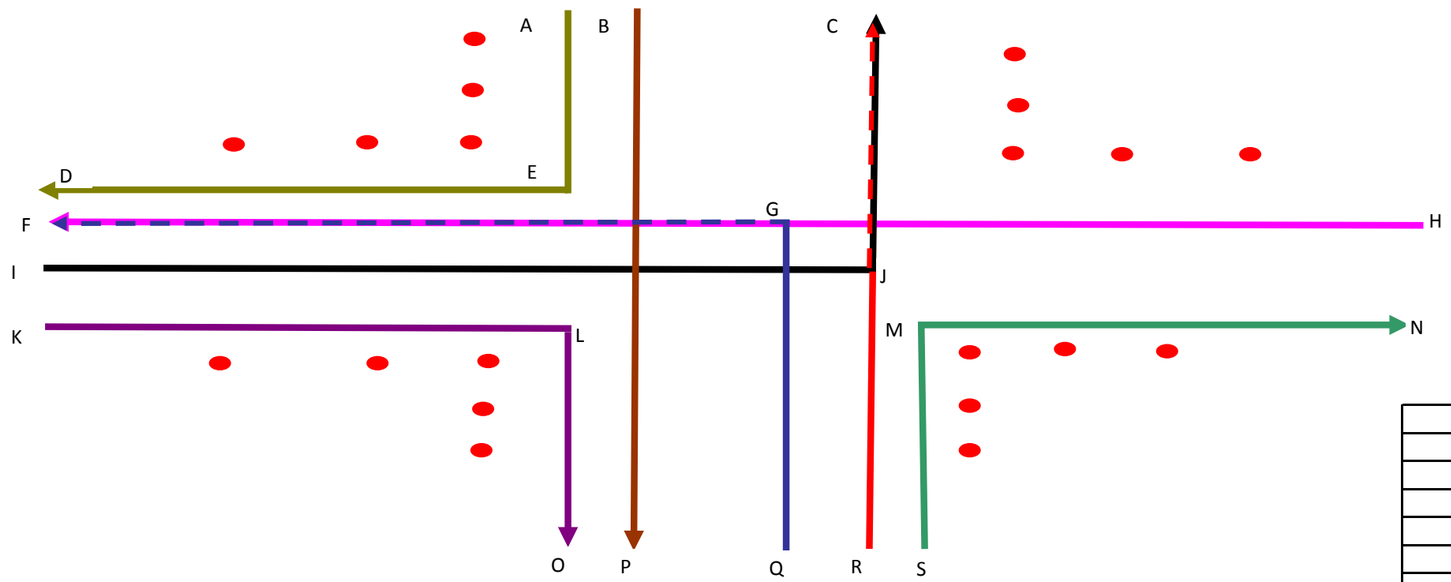
C.6 Wasco HMF Intersection CALINE Inputs

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

Appendix C

C.7 Station Parking Lot CALINE Inputs

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)

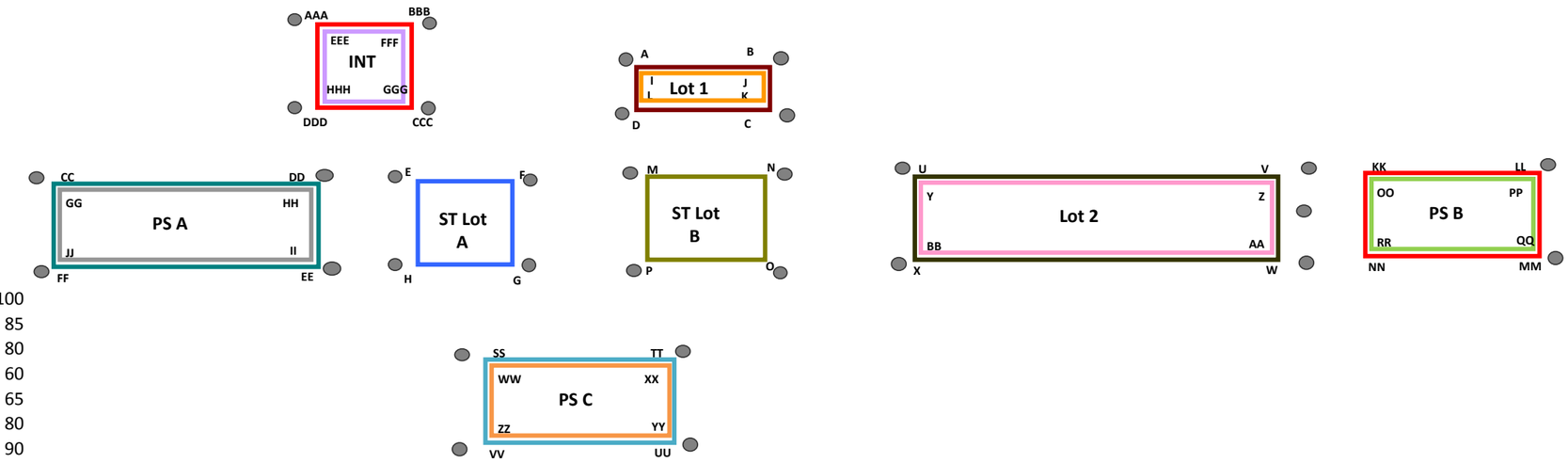
Start-Up Emission Factors

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)

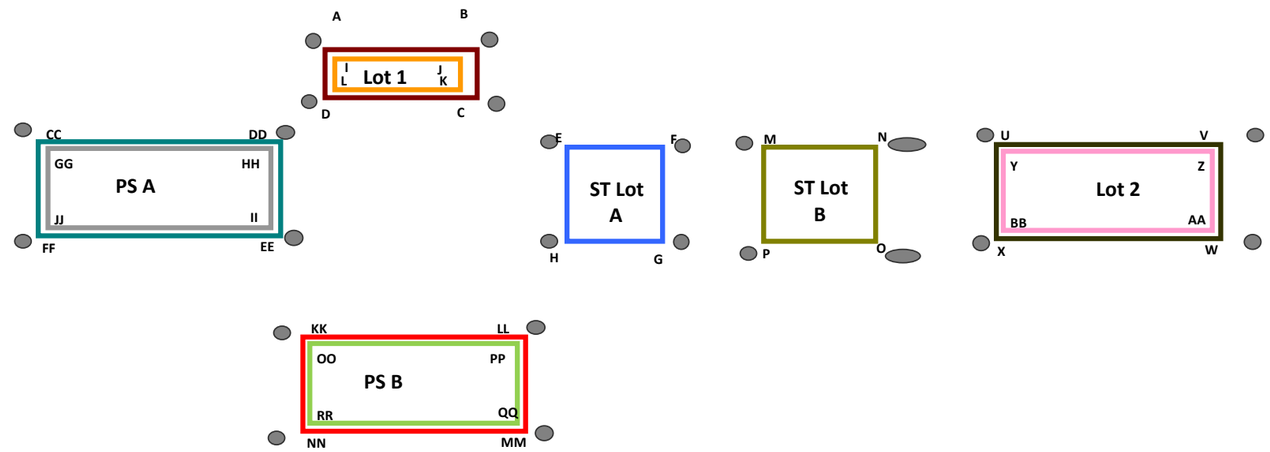
Start-Up Emission Factors

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

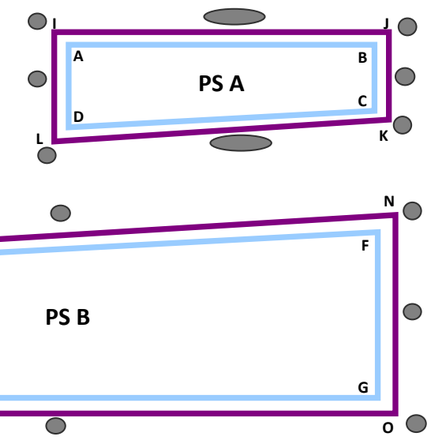
Source: EMFAC 2007 run for Kern Co. (SJV) Winter 2035 (41 F, 33%)

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

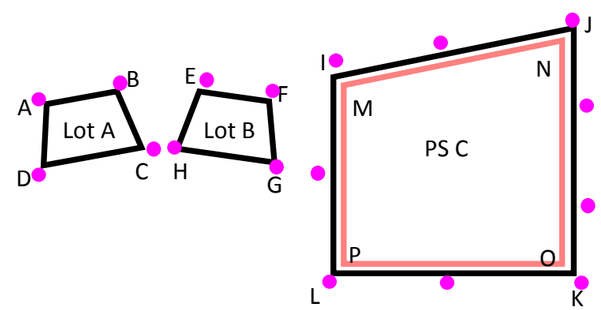
Rest Time (Hrs)	(g/trip) 2035
3	1.325
12	1.877

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

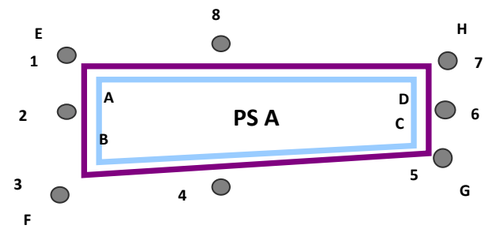
Parking Lot C
Parking Capacity: 185 spaces
1.5 acres

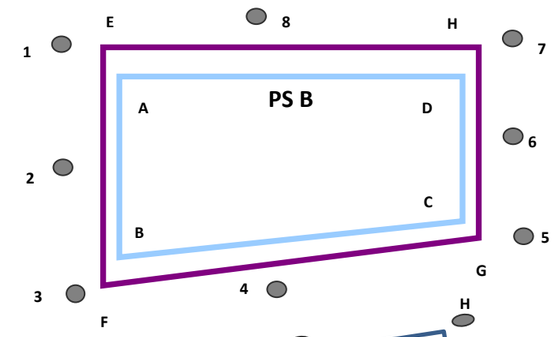
Parking Lot D
Parking Capacity: 90 spaces
0.8 acres

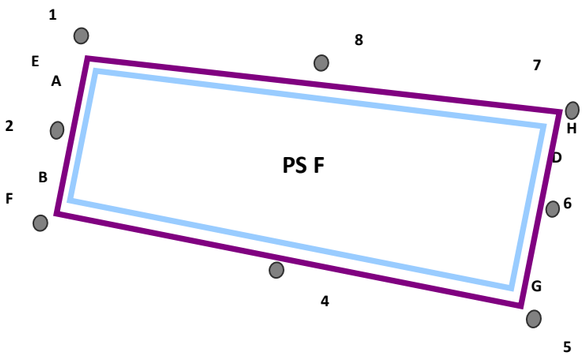
Parking Lot E
Parking Capacity: 110 spaces
1.3 acres

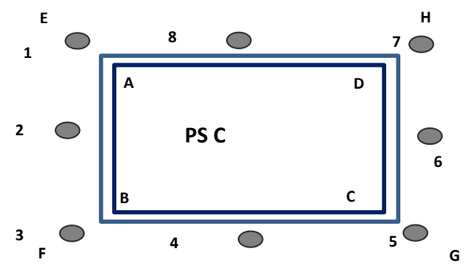
Assumptions:

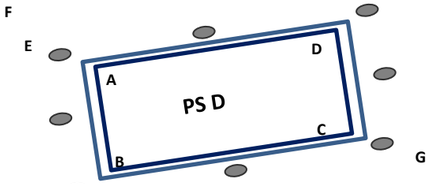
Emfac 2007: Kern Co. (SJV) Winter 2035 (41 F, 33%)
Assumed max speed of 10 mph within parking lot
Assumed 50% LDA and 50% LDT1
Assumed vehicles had been in the parking lot for 12 hours (cold start)
Assumed vehicles had been in the short term parking lot for 3 hours (hot start)

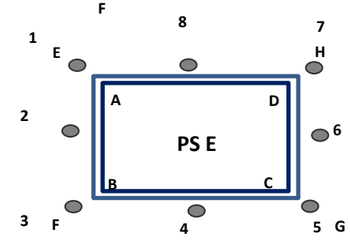


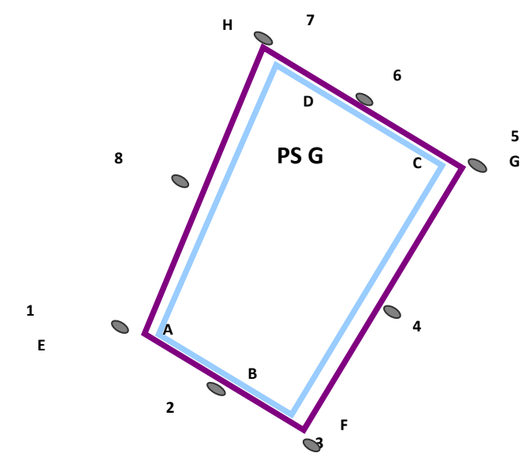












Parking Structure F

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

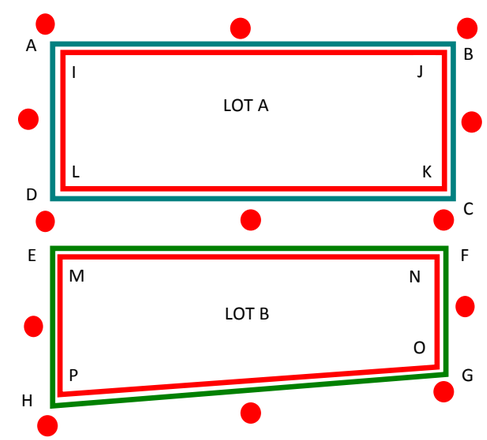
Rest Time (Hrs)	(g/trip) 2035
12	2.135

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

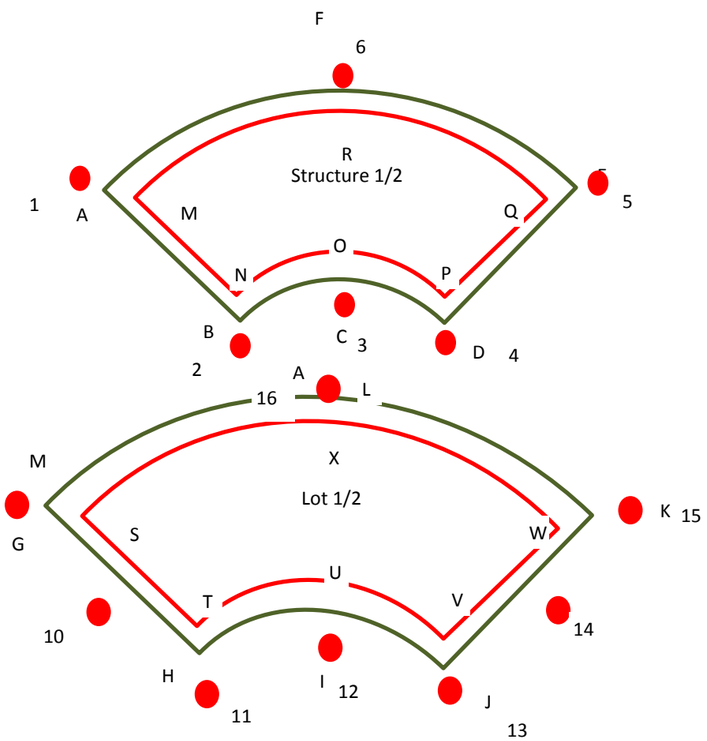
Parking Capacity:	1050 spaces		
	263 spaces/level		
	4 Levels		
	180 feet	A-B	54.9 Meter
	160 feet	B-C	48.8 Meter
	245 feet	F-A	74.7 Meter

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

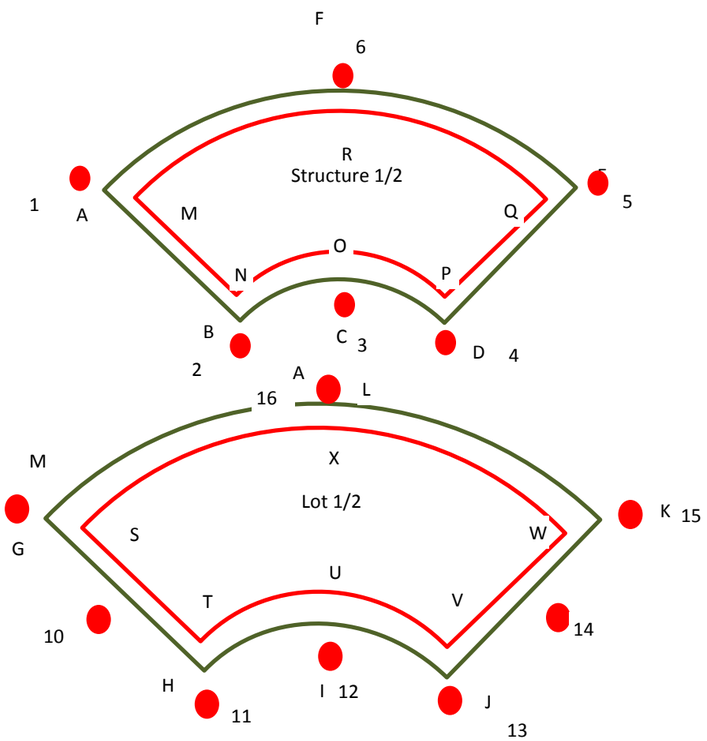
Parking Capacity:	1100 spaces		
	275 spaces/level		
	4 Levels		
	180 feet	A-B	54.9 Meter
	160 feet	B-C	48.8 Meter
	245 feet	F-A	74.7 Meter

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

Appendix C

C.8 EMFAC2007 Output Files

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

Appendix C

C.9 Fresno Station Intersection CALINE Outputs

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

Appendix C

C.10 Bakersfield Station Intersection CALINE Outputs

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

Appendix C

C.11 Kings Tulare Regional Intersection CALINE Outputs

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

Appendix C

C.12 Fresno HMF Intersection CALINE Outputs

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

Appendix C

C.13 Wasco HMF Intersection CALINE Outputs

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

Appendix C

C.14 Station Parking Lot CALINE Outputs

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

Appendix C

C.15 Fresno Station Signalized Intersection CALINE Outputs

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.

Appendix C

C.16 Bakersfield Station Signalized Intersection CALINE Outputs

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.

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

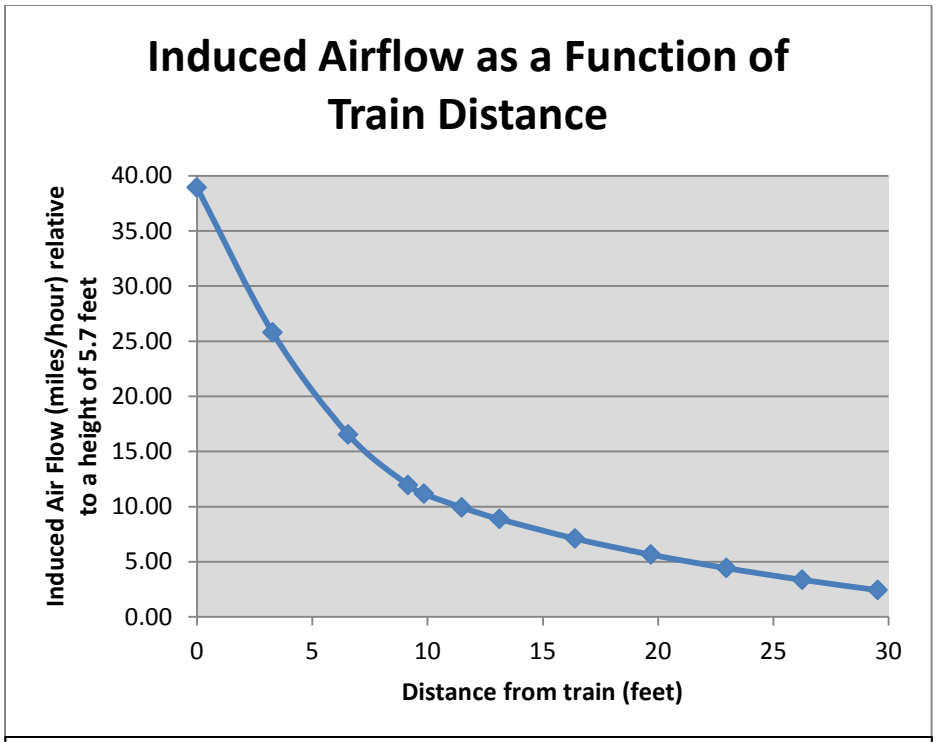
Distance from Train-Body[a] (feet)	Wind Speed u (mph)
0	38.94
3	25.79
7	16.53
9	11.96
10	11.16
11	9.93
13	8.87
16	7.10
20	5.65
23	4.43
26	3.36
30	2.43

[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.

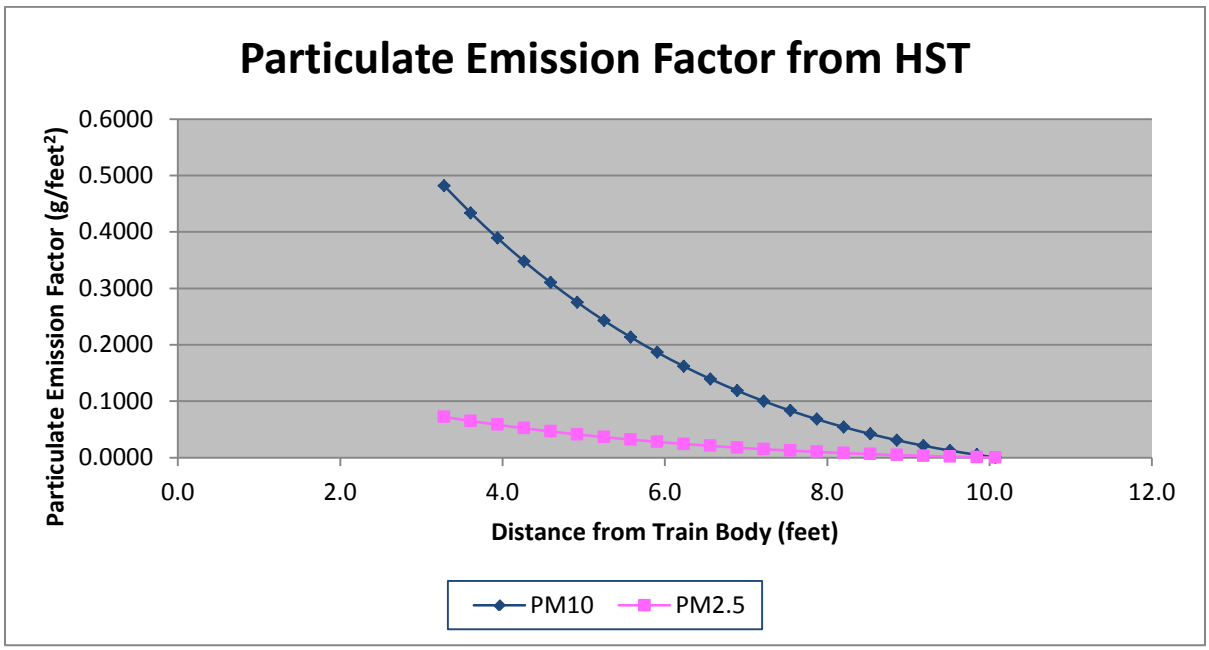


Figure 2
Particulate Emission Factor from Passing Train

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.

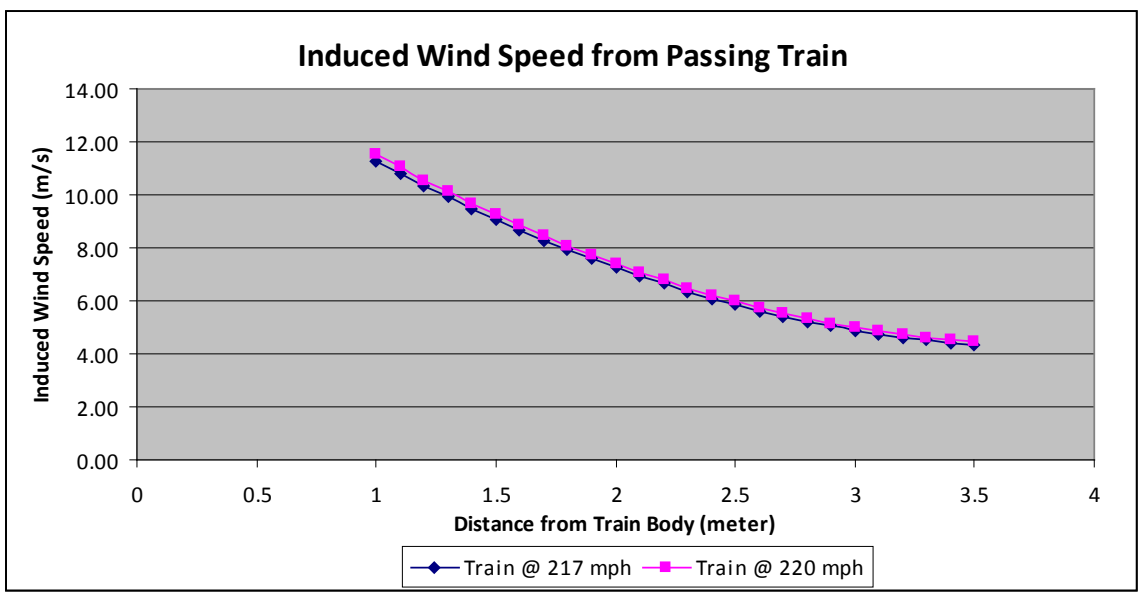


Figure 1. Wind Speed Profile Comparison from Train at 220 mph and 217 mph

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.

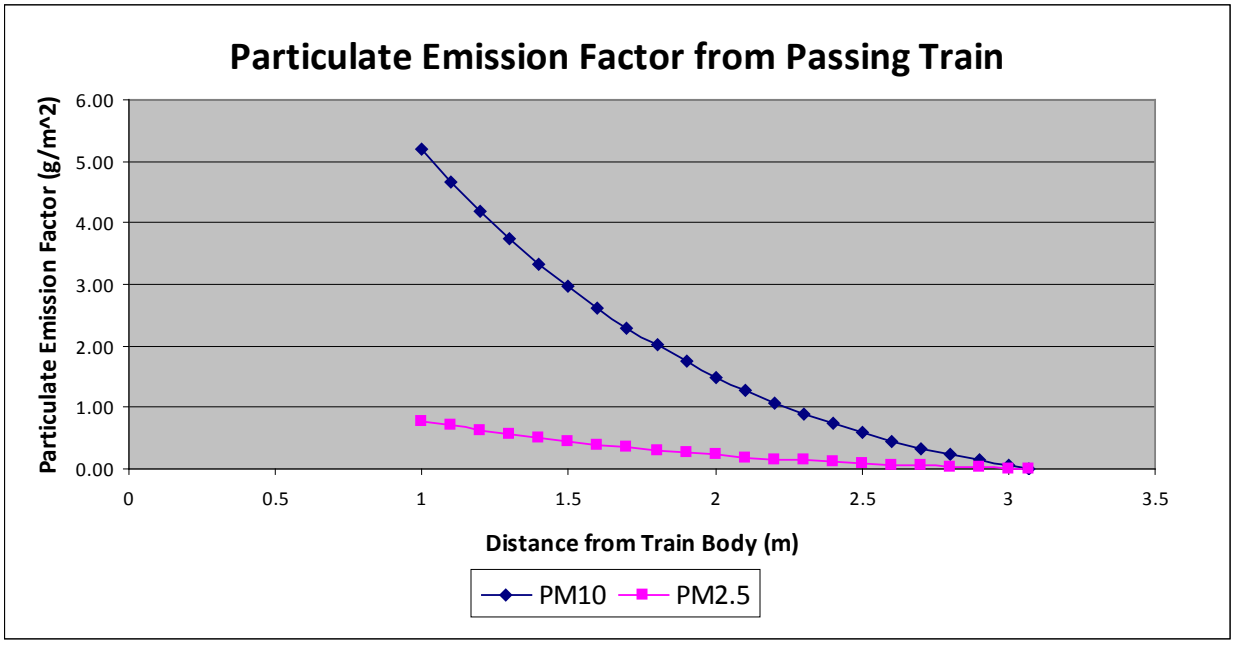


Figure 2. Particulate Emission Factor from Passing Train

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.

Appendix E

Existing Conditions - 2009

E. Existing Conditions Appendix

E.1 Summary of Operational Emissions - 2009

E.2 Station Operational Emissions - 2009
- E.2-1 Fresno Station Emissions Summary - 2009
- E.2-3 Kings-Tulare Regional Station Emissions Summary - 2009
- E.2-5 Bakersfield Station Emissions Summary - 2009

E.3 Regional Emissions by Activity - 2009
- E.3-1 Regional VMT and Change in Emissions - 2009
- E.3-2 Regional Aircraft Travel and Change in Emissions - 2035
- E.3-3 Regional Electricity and Change in Emissions - 2009

E.4 Maintenance Facility Operational Emissions - 2009
- E.4-1 MOWF Operational Emissions - 2009
- E.4-2 HMF Onsite Operational Emissions - 2009
- E.4-5 HMF Offsite Operational Emissions- 2009

E.5 Train Wake Fugitive Dust Emissions - 2009

E.6 URBEMIS2007 Output Files
- E.6-1 Fresno Station Operational URBEMIS Output File
- E.6-2 Kings-Tulare Regional Station Operational URBEMIS Output File
- E.6-3 Bakersfield Station Operational URBEMIS Output File

E.7 EMFAC2007 Output Files
- E.7-1 EMFAC Output File Fresno County 2009 and 2035
- E.7-5 EMFAC Output File Fresno County 2035 Busses
- E.7-7 EMFAC Output File Kings County 2009 and 2035
- E.7-11 EMFAC Output File Kings County 2035 Busses
- E.7-13 EMFAC Output File Kern County 2009 and 2035
- E.7-17 EMFAC Output File Kern County 2035 Busses
- E.7-19 EMFAC Output San Joaquin Valley APCD 2017
- E.7-21 EMFAC Output San Joaquin Valley APCD 2035

Appendix E

E.1 HST 2009 Operation Emissions Summary

Summary of Operational Emissions (2009) - 50% Scenario[1]

Activities	Unmitigated Operational Emisions (tons/ year)						
	VOC	CO	NOx	PM_{10}	$PM_{2.5}$	SO_2	CO_2
Indirect Emissions							
Changes in VMT emissions	-186	-5,206	-666	-66	-30	-6.2	-649,431
Changes in airplane emissions	-3.7	-22	-29	0.00	0.00	-2.1	-5,566
Changes in power plant emissions	10.5	107	72	15.0	13.9	9.0	284,531
Direct Emissions							
Station operation	19.2	563	66.5	6.0	3.3	0.6	60,686
HMF onsite emissions	0.56	9.0	3.5	0.13	0.12	0.47	18,563
HMF offsite mobile source emissions	2.37	66	10.0	0.73	0.43	0.07	7,229
MOWF offsite emissions	0.65	20	2.3	0.2	0.1	0.0	2,242
Fugitive dust from train operations	N/A	N/A	N/A	29	4.3	N/A	N/A
Total	**-157**	**-4,462**	**-540**	**-14.7**	**-7.5**	**1.85**	**-281,745**

Summary of Operational Emissions (2009) - 83% Scenario[1]

Activities	Unmitigated Operational Emisions (tons/ year)						
	VOC	CO	NOx	PM_{10}	$PM_{2.5}$	SO_2	CO_2
Indirect Emissions							
Changes in VMT emissions	-122	-3,463	-441	-43	-20	-3.4	-430,144
Changes in airplane emissions	-1.8	-16	-22	-0.17	-0.17	-1.5	-3,975
Changes in power plant emissions	7.0	72	48	10.0	9.2	6.0	189,821
Direct Emissions							
Station operation	19.2	563	66.5	6.0	3.3	0.6	60,686
HMF onsite emissions	0.56	9.0	3.5	0.13	0.12	0.47	18,563
HMF offsite mobile source emissions	2.37	66	10.0	0.73	0.43	0.07	7,229
MOWF offsite emissions	0.65	20	2.3	0.2	0.1	0.0	2,242
Fugitive dust from train operations	N/A	N/A	N/A	29	4.3	N/A	N/A
Total	**-94**	**-2,749**	**-332**	**2.4**	**-2.4**	**2.29**	**-155,578**

1. 50% and 83% scenarios correspond to HST ticket price at 50% and 83% of airfare ticket, respectively

Appendix E

E.2 Station Operational Emissions Summary

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 2009										
Employees [2,3]	35	40	0.065	1.891	0.212	0.002	0.020	0.011	197	0.017
Passengers by Shuttle / Bus [4]	23	40	0.075	1.264	0.750	0.014	0.014	0.008	187	0.011
Passengers by Car [5]	4,300	40	7.924	231.048	25.916	0.242	2.405	1.349	24,113	2.076
2009 Total	**--**	**--**	**8.064**	**234.204**	**26.878**	**0.258**	**2.439**	**1.368**	**24,497**	**2.104**

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 (Technical Memorandum: Station Area Parking Guidance, created by Bryan Porter and Nick Brand, 06/09/2010). Each bus is expected to hold 30 people (Lightbody, James/AECOM. Personal communication with Andrea White/CH2M HILL. July 22, 2010).

5. 4,300 passenger arrive by vehicle (kiss and ride, vehicle, rental cars or taxis). (Technical Memorandum: Station Area Parking Guidance, created by Bryan Porter and Nick Brand, 06/09/2010)

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 2009								
Passenger	0.115	3.339	0.375	0.004	0.035	0.020	348.449	0.030
Shuttle / Bus [3]	0.201	3.367	1.997	0.038	0.038	0.020	497.421	0.029

Notes:

1. Emission factors are from EMFAC2007 (Version 2.3) for passenger vehicles (50% LDA-All and 50% of the average of LDT1-All and LDT2-All) and urban buses (UBUS-CAT) traveling at 35 mph. All buses and shuttles coming to the Fresno station in 2009 will be natural gas powered. 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. The bus emission factors were determined using only 1997-2009 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 2009							
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
2009 Total	**0.020**	**0.260**	**0.150**	**0.000**	**0.000**	**0.000**	**177**

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 2009					
Station Buildings [2]	75,000	13.55	346	0.014	0.003
2009 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 2009 operations.

2009 Total Operational Emissions

Emission Source	Emissions (tpy) [1]								
	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2	CH4	N2O
Operational VMT	8.064	234.204	26.878	0.258	2.439	1.368	24,497.494	2.104	--
Area Source	0.020	0.260	0.150	0.000	0.000	0.000	176.630	--	--
Indirect Electricity	--	--	--	--	--	--	346	0.014	0.003
Total	**8.084**	**234.464**	**27.028**	**0.258**	**2.439**	**1.368**	**25,020.162**	**2.118**	**0.003**

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 2009										
Employees [2,3]	14	40	0.029	0.814	0.099	0.001	0.008	0.004	72	0.007
Passengers by Shuttle / Bus [4]	10	40	0.002	0.053	0.092	0.001	0.006	0.003	80	0.002
Passengers by Car [5]	1,700	40	3.639	101.789	12.318	0.089	0.964	0.547	9,041	0.930
2009 Total	**--**	**--**	**3.670**	**102.656**	**12.509**	**0.090**	**0.978**	**0.554**	**9,193**	**0.940**

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 (Technical Memorandum: Station Area Parking Guidance, created by Bryan Porter and Nick Brand, 06/09/2010). Each bus is expected to hold 30 people (Lightbody, James/AECOM. Personal communication with Andrea White/CH2M HILL. July 22, 2010).

5. 1,700 passenger arrive by vehicle (kiss and ride, vehicle, rental cars or taxis). (Technical Memorandum: Station Area Parking Guidance, created by Bryan Porter and Nick Brand, 06/09/2010)

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 2009								
Passenger	0.133	3.721	0.450	0.003	0.035	0.020	330.446	0.034
Shuttle / Bus [3]	0.014	0.327	0.570	0.005	0.035	0.017	497.421	0.012

Notes:

1. Emission factors are from EMFAC2007 (Version 2.3) for passenger vehicles (50% LDA-All and 50% of the average of LDT1-All and LDT2-All) and urban buses (UBUS-CAT) traveling at 35 mph. All buses and shuttles coming to the KTR station in 2009 will be natural gas powered. 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. The bus emission factors were determined using only 1997 - 2009 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 2009							
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
2009 Total	**0.020**	**0.260**	**0.150**	**0.000**	**0.000**	**0.000**	**177**

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 2009					
Station Buildings [2]	40,000	13.55	185	0.008	0.002
2009 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.

2009 Total Operational Emissions

Emission Source	Emissions (tpy) [1]								
	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2	CH4	N2O
Operational VMT	3.670	102.656	12.509	0.090	0.978	0.554	9,193.019	0.940	--
Area Source	0.020	0.260	0.150	0.000	0.000	0.000	176.630	--	--
Indirect Electricity	--	--	--	--	--	--	185	0.008	0.002
Total	**3.690**	**102.916**	**12.659**	**0.090**	**0.978**	**0.554**	**9,554.202**	**0.947**	**0.002**

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 2009										
Employees [2,3]	38	40	0.063	1.906	0.223	0.002	0.021	0.012	215	0.017
Passengers by Shuttle / Bus [4]	30	40	0.008	0.214	0.400	0.002	0.019	0.010	240	0.007
Passengers by Car [5]	4,500	40	7.333	223.327	26.090	0.253	2.499	1.394	25,222	1.992
2009 Total	**--**	**--**	**7.403**	**225.447**	**26.712**	**0.258**	**2.539**	**1.416**	**25,677**	**2.016**

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 (Technical Memorandum: Station Area Parking Guidance, created by Bryan Porter and Nick Brand, 06/09/2010). Each bus is expected to hold 30 people (Lightbody, James/AECOM. Personal communication with Andrea White/CH2M HILL. July 22, 2010).

5. 4,500 passenger arrive by vehicle (kiss and ride, vehicle, rental cars or taxis). (Technical Memorandum: Station Area Parking Guidance, created by Bryan Porter and Nick Brand, 06/09/2010)

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 2009								
Passenger	0.101	3.084	0.360	0.004	0.035	0.019	348.267	0.028
Shuttle / Bus [3]	0.017	0.444	0.828	0.005	0.039	0.021	497.421	0.015

Notes:

1. Emission factors are from EMFAC2007 (Version 2.3) for passenger vehicles (50% LDA-All and 50% of the average of LDT1-All and LDT2-All) and urban buses (UBUS-CAT) traveling at 35 mph. All buses and shuttles coming to the Bakersfield station in 2009 will be natural gas powered. 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. The bus emission factors were determined using only 1997-2009 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 2009							
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
2009 Total	**0.020**	**0.260**	**0.150**	**0.000**	**0.000**	**0.000**	**177**

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 2009					
Station Buildings [2]	56,000	13.55	258	0.011	0.002
2009 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.

2009 Total Operational Emissions

Emission Source	Emissions (tpy) [1]								
	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2	CH4	N2O
Operational VMT	7.403	225.447	26.712	0.258	2.539	1.416	25,677.063	2.016	--
Area Source	0.020	0.260	0.150	0.000	0.000	0.000	176.630	--	--
Indirect Electricity	--	--	--	--	--	--	258	0.011	0.002
Total	**7.423**	**225.707**	**26.862**	**0.258**	**2.539**	**1.416**	**26,112.068**	**2.027**	**0.002**

Appendix E

E.3 Regional Emissions by Activity

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	17,311,000	15,300,000	-0.19	-5.15	-0.69	-0.07	-0.03	-653	0.00	-67.60	-1,879.93	-252.46	-24.33	-11.33	-238,493	-1.31
Kern	22,379,000	19,750,000	-0.25	-7.38	-0.89	-0.09	-0.04	-880	-0.01	-92.55	-2,694.65	-324.20	-33.67	-14.81	-321,262	-3.60
Kings	2,151,000	1,800,000	-0.04	-0.99	-0.14	-0.01	-0.01	-142	0.00	-15.30	-359.84	-50.27	-4.35	-1.98	-51,780	-0.48
Tulare	6,046,000	5,770,000	-0.03	-0.74	-0.11	-0.01	0.00	-104	0.00	-10.98	-271.56	-38.78	-3.42	-1.55	-37,896	-0.83
Regional Total	**47,887,000**	**42,620,000**	**-0.51**	**-14.26**	**-1.82**	**-0.18**	**-0.08**	**-1779**	**-0.02**	**-186.42**	**-5,206**	**-666**	**-65.77**	**-29.67**	**-649,431**	**-6.22**

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	17,311,000	15,970,000	-0.13	-3.59	-0.46	-0.04	-0.02	-447	0.00	-47.81	-1,311.07	-168.82	-15.75	-7.55	-163,226	-0.39
Kern	22,379,000	20,620,000	-0.15	-4.70	-0.59	-0.06	-0.03	-571	-0.01	-55.97	-1,716.43	-215.39	-22.53	-9.91	-208,351	-2.41
Kings	2,151,000	1,920,000	-0.03	-0.65	-0.09	-0.01	0.00	-95	0.00	-10.37	-238.40	-33.66	-2.86	-1.30	-34,753	-0.32
Tulare	6,046,000	5,860,000	-0.02	-0.54	-0.06	-0.01	0.00	-65	0.00	-7.40	-197.21	-23.52	-2.31	-1.05	-23,814	-0.25
Regional Total	**47,887,000**	**44,370,000**	**-0.33**	**-9.49**	**-1.21**	**-0.12**	**-0.05**	**-1178**	**-0.01**	**-121.55**	**-3,463**	**-441**	**-43.45**	**-19.81**	**-430,144**	**-3.37**

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 correspond to HST ticket price at 50% and 83% of 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	-4	-0.01	-0.06	-0.08	0.00	0.00	-15.3	-0.01	-3.65	-21.90	-29.20	0.00	0.00	-5,566	-2.09

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	-3	0.00	-0.04	-0.06	0.00	0.00	-10.9	0.00	-1.76	-16.14	-21.61	-0.17	-0.17	-3,975	-1.50

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 correspond to HST ticket price at 50% and 83% of 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)[2]						
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	16.55	0.20	2.07	1.39	0.29	0.27	5,483	0.17	73.51	755.08	507.61	105.62	97.49	2,001,362	63.16
Regional [2]	2.35	0.03	0.29	0.20	0.04	0.04	780	0.02	10.45	107.35	72.17	15.02	13.86	284,531	8.98

Regional Electricity - 83% Scenario[4]

Electricity required [1]		Change in Emissions due to HST (Tons/Day)							Change in Emissions due to HST (Tons/Year)[2]						
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	11.04	0.13	1.38	0.93	0.19	0.18	3,658	0.12	49.04	503.74	338.65	70.46	65.04	1,335,180	42.14
Regional [2]	1.57	0.02	0.20	0.13	0.03	0.03	520	0.02	6.97	71.62	48.14	10.02	9.25	189,821	5.99

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 Alignment = 118 miles

3. Annualization factor (365) was used, based on conversation between Alice Lovegrove (Parsons Brinkerhoff) and Avanti Tamhane (URS)
4. 50% and 83% scenarios correspond to HST ticket price at 50% and 83% of airfare ticket, respectively

Appendix E

E.4 Maintenance Facility Operational Emissions - 2009

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	0.65	19.85	2.32	0.02	0.22	0.12	2241.93	0.18
Total Emissions	**0.65**	**19.85**	**2.32**	**0.02**	**0.22**	**0.12**	**2241.93**	**0.18**

Vehicle Emission Factors

	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$	CO_2	CH_4
Passenger Vehicles (g/mile) [1]	0.10	3.08	0.36	0.00	0.03	0.02	348.27	0.03

Notes:

1. The MOWF will be located at the Shafter-West HMF site, which is in Kern County. Emission factors are from EMFAC2007 (Version 2.3) 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
Total	--	**258.865**	**239.845**	**7,009**	**1129.770**	**17,932**	**946**	**37126346**	**0.129**	**0.120**	**3.504**	**0.565**	**8.966**	**0.473**	**18563**

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 2009										
Employees [2]	1,200	40	2.197	64.966	6.783	0.068	0.671	0.391	6,728	0.594
Deliveries	20	120	0.171	1.353	3.231	0.005	0.056	0.037	501	0.013
2009 Total	**--**	**--**	**2.368**	**66.319**	**10.015**	**0.072**	**0.727**	**0.428**	**7,229**	**0.607**

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 2009								
Passenger [1]	0.114	3.364	0.351	0.004	0.035	0.020	348.405	0.031
Delivery Truck [1]	0.177	1.401	3.347	0.005	0.058	0.038	518.694	0.014

Notes:
1. Emission factors are from EMFAC2007 (Version 2.3) for passenger vehicles (50% LDA-All and 50% of the average of LDT1-All and LDT2-All) and delivery trucks (average of LHD1-DSL and LHD2-DSL) traveling at 35 mph.
2. Emission factors for PM_{10} and $PM_{2.5}$ include contributions from exhaust, brake-wear, and tire-wear.

Appendix E

E.5 Train Wake Fugitive Dust Emissions - 2009

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

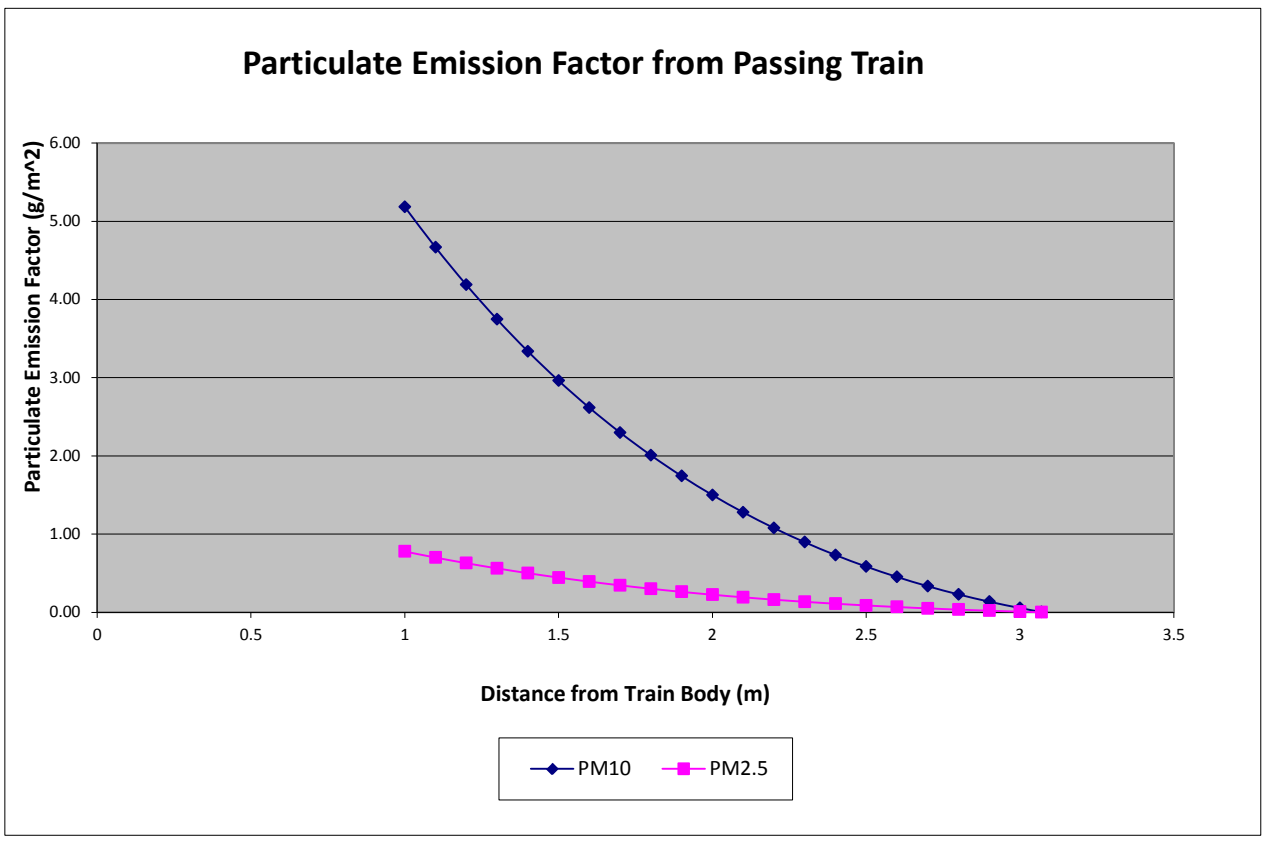
u* = Friction Velocity for the Fastest Mile (m/s)
ut* = Threshold friction velocity (m/s), 0.5 m/s (lowest number from AP42, for coal pile)
0.19 m/s based on the lowest value for disturbed desert soil

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)



Appendix E

E.6 URBEMIS2007 Output Files

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 E

E.7 EMFAC2007 Output Files

Title : 2009 and 2035 Fresno station
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/06/08 11:38:54
Scen Year: 2009 -- All model years in the range 1965 to 2009 selected
Season : Annual
Area : Fresno
****
Year: 2009 -- Model Years 1965 to 2009 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average Fresno County Average

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	4.836	0.05	0.167	0.087	4.97	0.061	0.072	0.16	4.836	0.083	0.143	0.124	0.142	0.1145	6.354	0.095	0.069	0.155	2.81	0.235	0.139

Pollutant Name: Methane Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0.296	0.025	0.008	0.027	0.301	0.026	0.003	0.03	0.296	0.034	0.007	0.036	0.033	0.03	0.353	0.041	0.003	0.044	0.218	0.033	0.006

Pollutant Name: Carbon Monoxide Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	53.064	2.373	0.638	2.759	53.412	2.955	0.48	3.845	51.708	3.587	0.628	3.992	3.9185	3.33875	95.291	3.5	0.466	4.373	70.474	3.28	0.647

Pollutant Name: Oxides of Nitrogen Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	4.557	0.233	1.173	0.267	4.522	0.285	1.184	0.415	4.406	0.515	1.14	0.549	0.482	0.3745	7.35	0.6	1.193	0.666	2.376	0.905	3.949

Pollutant Name: Carbon Dioxide Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	427.432	310.77	361.91	311.75	427.95	385.516	346.915	384.444	428.294	385.557	356.12	385.85	385.147	348.4485	536.741	529.011	347.171	528.611	497.421	497.421	521.82

Pollutant Name: Sulfur Dioxide Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0.005	0.003	0.003	0.003	0.005	0.004	0.003	0.004	0.005	0.004	0.003	0.004	0.004	0.0035	0.007	0.005	0.003	0.005	0.006	0.005	0.005

Pollutant Name: PM10 Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0.027	0.01	0.127	0.01	0.026	0.01	0.047	0.012	0.027	0.023	0.105	0.023	0.0175	0.01375	0.027	0.021	0.045	0.021	0.015	0.006	0.038

Pollutant Name: PM10 - Tire Wear Temperature: 65F Relative Humidity: 41%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	LDT	LDA LDT	MDV	MDV	MDV	MDV	LHD1	LHD1	LHD1
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	ALL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL
35	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.012	0.012	0.012

Pollutant Name: PM10 - Brake Wear Temperature: 65F Relative Humidity: 41%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	LDT	LDA LDT	MDV	MDV	MDV	MDV	LHD1	LHD1	LHD1
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	ALL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL
35	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013

Pollutant Name: PM2.5 Temperature: 65F Relative Humidity: 41%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	LDT	LDA LDT	MDV	MDV	MDV	MDV	LHD1	LHD1	LHD1
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	ALL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL
35	0.02	0.009	0.117	0.009	0.02	0.009	0.044	0.011	0.02	0.021	0.097	0.021	0.016	0.0125	0.021	0.019	0.042	0.02	0.011	0.005	0.035

Pollutant Name: PM2.5 - Tire Wear Temperature: 65F Relative Humidity: 41%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	LDT	LDA LDT	MDV	MDV	MDV	MDV	LHD1	LHD1	LHD1
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	ALL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL
35	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003

Pollutant Name: PM2.5 - Brake Wear Temperature: 65F Relative Humidity: 41%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	LDT	LDA LDT	MDV	MDV	MDV	MDV	LHD1	LHD1	LHD1
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	ALL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL
35	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005

Title : 2009 and 2035 Fresno station
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/06/08 11:38:54
Scen Year: 2035 -- All model years in the range 1991 to 2035 selected
Season : Annual
Area : Fresno
****
Year: 2035 -- Model Years 1991 to 2035 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average Fresno County Average

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0	0.006	0.052	0.006	0	0.006	0.054	0.006	0	0.012	0.065	0.012	0.009	0.0075	0	0.016	0.049	0.016	0	0.007	0.07

Pollutant Name: Methane Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0	0.005	0.002	0.005	0	0.005	0.002	0.005	0	0.01	0.003	0.01	0.0075	0.00625	0	0.012	0.002	0.012	0	0.005	0.003

Pollutant Name: Carbon Monoxide Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0	0.466	0.417	0.466	0	0.524	0.424	0.523	0	0.894	0.464	0.894	0.7085	0.58725	0	1.192	0.409	1.192	0	0.158	0.549

Pollutant Name: Oxides of Nitrogen Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0	0.034	1.218	0.034	0	0.038	1.214	0.04	0	0.073	1.189	0.073	0.0565	0.04525	0	0.088	1.223	0.088	0	0.132	0.894

Pollutant Name: Carbon Dioxide Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0	299.861	345.72	299.862	0	378.702	345.72	378.654	0	387.294	345.72	387.294	382.974	341.418	0	526.824	345.72	526.802	0	497.421	519.009

Pollutant Name: Sulfur Dioxide Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0	0.003	0.003	0.003	0	0.004	0.003	0.004	0	0.004	0.003	0.004	0.004	0.0035	0	0.005	0.003	0.005	0	0.005	0.005

Pollutant Name: PM10 Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0	0.009	0.032	0.009	0	0.011	0.033	0.011	0	0.023	0.041	0.023	0.017	0.013	0	0.024	0.03	0.024	0	0.007	0.019

Pollutant Name: PM10 - Tire Wear Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0	0.008	0.008	0.008	0	0.008	0.008	0.008	0	0.008	0.008	0.008	0.008	0.008	0	0.008	0.008	0.008	0	0.012	0.012

Pollutant Name: PM10 - Brake Wear Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0	0.013	0.013	0.013	0	0.013	0.013	0.013	0	0.013	0.013	0.013	0.013	0.013	0	0.013	0.013	0.013	0	0.013	0.013

Pollutant Name: PM2.5 Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0	0.009	0.029	0.009	0	0.01	0.031	0.01	0	0.022	0.038	0.022	0.016	0.0125	0	0.022	0.028	0.022	0	0.006	0.017

Pollutant Name: PM2.5 - Tire Wear Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0	0.002	0.002	0.002	0	0.002	0.002	0.002	0	0.002	0.002	0.002	0.002	0.002	0	0.002	0.002	0.002	0	0.003	0.003

Pollutant Name: PM2.5 - Brake Wear Temperature: 65F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL
35	0	0.005	0.005	0.005	0	0.005	0.005	0.005	0	0.005	0.005	0.005	0.005	0.005	0	0.005	0.005	0.005	0	0.005	0.005

Title : 2009 Fresno station - Busses; Shuttles
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/06/08 11:39:50
Scen Year: 2009 -- All model years in the range 1997 to 2009 selected
Season : Annual
Area : Fresno
****
Year: 2009 -- Model Years 1997 to 2009 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average Fresno County Average

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases Temperature: 65F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.201	0.443	0.296	0	0	0	0	0

Pollutant Name: Methane Temperature: 65F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.029	0.021	0.026	0	0	0	0	0

Pollutant Name: Carbon Monoxide Temperature: 65F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	3.367	1.009	2.446	0	0	0	0	0

Pollutant Name: Oxides of Nitrogen Temperature: 65F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	1.997	12.398	6.059	0	0	0	0	0

Pollutant Name: Carbon Dioxide Temperature: 65F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	497.421	2392.417	1237.606	0	0	0	0	0

Pollutant Name: Sulfur Dioxide Temperature: 65F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.005	0.023	0.012	0	0	0	0	0

Pollutant Name: PM10 Temperature: 65F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.013	0.201	0.086	0	0	0	0	0

Pollutant Name: PM10 - Tire Wear Temperature: 65F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.012	0.008	0.01	0	0	0	0	0

Pollutant Name: PM10 - Brake Wear Temperature: 65F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.013	0.013	0.013	0	0	0	0	0

Pollutant Name: PM2.5 Temperature: 65F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.012	0.185	0.08	0	0	0	0	0

Pollutant Name: PM2.5 - Tire Wear Temperature: 65F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.003	0.002	0.003	0	0	0	0	0

Pollutant Name: PM2.5 - Brake Wear Temperature: 65F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.005	0.005	0.005	0	0	0	0	0

Title : 2009 and 2035 KTR station
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/06/08 11:40:43
Scen Year: 2009 -- All model years in the range 1965 to 2009 selected
Season : Annual
Area : Kings
****
Year: 2009 -- Model Years 1965 to 2009 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average Kings County Average

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases Temperature: 62F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	5.195	0.078	0.153	0.12	5.275	0.129	0.072	0.241	5.156	0.123	0.128	0.172	0.146	0.133	6.574	0.108	0.064	0.157	2.906

Pollutant Name: Methane Temperature: 62F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	0.309	0.03	0.007	0.032	0.312	0.038	0.003	0.042	0.308	0.038	0.006	0.04	0.036	0.034	0.361	0.04	0.003	0.042	0.222

Pollutant Name: Carbon Monoxide Temperature: 62F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	56.834	2.942	0.619	3.377	57.287	4.683	0.479	5.591	56.311	4.247	0.577	4.751	4.064	3.7205	108.008	3.486	0.459	4.269	73.591

Pollutant Name: Oxides of Nitrogen Temperature: 62F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	4.775	0.32	1.178	0.358	4.69	0.527	1.195	0.665	4.635	0.686	1.183	0.727	0.5425	0.45025	7.719	0.65	1.202	0.706	2.454

Pollutant Name: Carbon Dioxide Temperature: 62F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	427.432	310.854	359.443	311.898	428.198	385.022	346.85	383.46	428.354	385.761	356.095	386.09	348.994	330.446	524.845	528.463	346.833	527.777	497.421

Pollutant Name: Sulfur Dioxide Temperature: 62F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	0.005	0.003	0.003	0.003	0.005	0.004	0.003	0.004	0.005	0.004	0.003	0.004	0.0035	0.00325	0.007	0.005	0.003	0.005	0.006

Pollutant Name: PM10 Temperature: 62F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	0.027	0.011	0.115	0.011	0.026	0.012	0.047	0.015	0.027	0.024	0.095	0.024	0.0175	0.01425	0.027	0.02	0.043	0.021	0.015

Pollutant Name: PM10 - Tire Wear Temperature: 62F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.012

Pollutant Name: PM10 - Brake Wear Temperature: 62F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013

Pollutant Name: PM2.5 Temperature: 62F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	0.02	0.01	0.106	0.01	0.02	0.011	0.043	0.014	0.02	0.022	0.087	0.022	0.016	0.013	0.021	0.019	0.039	0.019	0.011

Pollutant Name: PM2.5 - Tire Wear Temperature: 62F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003

Pollutant Name: PM2.5 - Brake Wear Temperature: 62F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005

Title : 2009 and 2035 KTR station
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/06/08 11:40:43
Scen Year: 2035 -- All model years in the range 1991 to 2035 selected
Season : Annual
Area : Kings
****
Year: 2035 -- Model Years 1991 to 2035 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average Kings County Average

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases Temperature: 62F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	0	0.006	0.052	0.006	0	0.008	0.053	0.008	0	0.014	0.055	0.014	0.01	0.008	0	0.017	0.049	0.017	0

Pollutant Name: Methane Temperature: 62F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	0	0.005	0.002	0.005	0	0.006	0.002	0.006	0	0.01	0.003	0.01	0.0075	0.00625	0	0.012	0.002	0.012	0

Pollutant Name: Carbon Monoxide Temperature: 62F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	0	0.507	0.417	0.507	0	0.593	0.424	0.592	0	0.989	0.429	0.989	0.748	0.6275	0	1.263	0.408	1.263	0

Pollutant Name: Oxides of Nitrogen Temperature: 62F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	0	0.042	1.229	0.042	0	0.05	1.225	0.053	0	0.096	1.222	0.096	0.069	0.0555	0	0.109	1.235	0.109	0

Pollutant Name: Carbon Dioxide Temperature: 62F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	0	299.868	345.72	299.869	0	378.757	345.72	378.677	0	387.289	345.72	387.287	343.578	321.7235	0	526.824	345.72	526.789	0

Pollutant Name: Sulfur Dioxide Temperature: 62F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	0	0.003	0.003	0.003	0	0.004	0.003	0.004	0	0.004	0.003	0.004	0.0035	0.00325	0	0.005	0.003	0.005	0

Pollutant Name: PM10 Temperature: 62F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	0	0.01	0.032	0.01	0	0.011	0.033	0.011	0	0.025	0.034	0.025	0.0175	0.01375	0	0.026	0.03	0.026	0

Pollutant Name: PM10 - Tire Wear Temperature: 62F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	0	0.008	0.008	0.008	0	0.008	0.008	0.008	0	0.008	0.008	0.008	0.008	0.008	0	0.008	0.008	0.008	0

Pollutant Name: PM10 - Brake Wear Temperature: 62F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	0	0.013	0.013	0.013	0	0.013	0.013	0.013	0	0.013	0.013	0.013	0.013	0.013	0	0.013	0.013	0.013	0

Pollutant Name: PM2.5 Temperature: 62F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	0	0.01	0.029	0.01	0	0.011	0.031	0.011	0	0.024	0.032	0.024	0.017	0.0135	0	0.024	0.028	0.024	0

Pollutant Name: PM2.5 - Tire Wear Temperature: 62F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	0	0.002	0.002	0.002	0	0.002	0.002	0.002	0	0.002	0.002	0.002	0.002	0.002	0	0.002	0.002	0.002	0

Pollutant Name: PM2.5 - Brake Wear Temperature: 62F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT
35	0	0.005	0.005	0.005	0	0.005	0.005	0.005	0	0.005	0.005	0.005	0.005	0.005	0	0.005	0.005	0.005	0

Title : 2009 KTR station - Busses; Shuttles
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/06/08 11:41:50
Scen Year: 2009 -- All model years in the range 1997 to 2009 selected
Season : Annual
Area : Kings
****
Year: 2009 -- Model Years 1997 to 2009 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average Kings County Average

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases Temperature: 62F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.014	0.454	0.377	0	0	0	0	0

Pollutant Name: Methane Temperature: 62F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.012	0.021	0.019	0	0	0	0	0

Pollutant Name: Carbon Monoxide Temperature: 62F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.327	1.026	0.904	0	0	0	0	0

Pollutant Name: Oxides of Nitrogen Temperature: 62F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.57	9.665	8.088	0	0	0	0	0

Pollutant Name: Carbon Dioxide Temperature: 62F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	497.421	2405.928	2074.864	0	0	0	0	0

Pollutant Name: Sulfur Dioxide Temperature: 62F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.005	0.023	0.02	0	0	0	0	0

Pollutant Name: PM10 Temperature: 62F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0.118	0.099	0	0	0	0	0

Pollutant Name: PM10 - Tire Wear Temperature: 62F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.012	0.008	0.009	0	0	0	0	0

Pollutant Name: PM10 - Brake Wear Temperature: 62F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.013	0.013	0.013	0	0	0	0	0

Pollutant Name: PM2.5 Temperature: 62F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.009	0.109	0.091	0	0	0	0	0

Pollutant Name: PM2.5 - Tire Wear Temperature: 62F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.003	0.002	0.002	0	0	0	0	0

Pollutant Name: PM2.5 - Brake Wear Temperature: 62F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.005	0.005	0.005	0	0	0	0	0

Title : 2009 and 2035 Bakersfield station
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/06/08 12:47:59
Scen Year: 2009 -- All model years in the range 1965 to 2009 selected
Season : Annual
Area : Kern (SJV)
****
Year: 2009 -- Model Years 1965 to 2009 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

Kern (SJV) Kern (SJV) Kern (SJV)

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT
35	4.92	0.048	0.156	0.085	5.069	0.049	0.066	0.134	4.915	0.071	0.107	0.101	0.1175	0.10125	6.586	0.087	0.064	0.136	2.851	0.185

Pollutant Name: Methane Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT
35	0.299	0.024	0.007	0.026	0.305	0.023	0.003	0.026	0.299	0.03	0.005	0.032	0.029	0.0275	0.362	0.039	0.003	0.041	0.22	0.027

Pollutant Name: Carbon Monoxide Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT
35	54.062	2.35	0.619	2.744	54.56	2.592	0.46	3.328	53.048	3.212	0.534	3.519	3.4235	3.08375	97.079	3.304	0.448	3.996	71.626	2.582

Pollutant Name: Oxides of Nitrogen Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT
35	4.753	0.238	1.197	0.274	4.735	0.256	1.219	0.389	4.621	0.476	1.207	0.504	0.4465	0.36025	7.649	0.585	1.228	0.64	2.477	0.8

Pollutant Name: Carbon Dioxide Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT
35	427.431	310.527	361.563	311.505	427.83	385.733	346.61	384.053	428.233	385.816	352.513	386.003	385.028	348.2665	537.939	528.719	347.233	528.167	497.421	497.421

Pollutant Name: Sulfur Dioxide Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT
35	0.005	0.003	0.003	0.003	0.005	0.004	0.003	0.004	0.005	0.004	0.003	0.004	0.004	0.0035	0.007	0.005	0.003	0.005	0.006	0.005

Pollutant Name: PM10 Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT
35	0.027	0.01	0.12	0.01	0.026	0.01	0.043	0.012	0.027	0.022	0.076	0.022	0.017	0.0135	0.027	0.021	0.042	0.021	0.015	0.005

Pollutant Name: PM10 - Tire Wear Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT
35	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.012	0.012

Pollutant Name: PM10 - Brake Wear Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT
35	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013

Pollutant Name: PM2.5 Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT
35	0.02	0.009	0.11	0.009	0.02	0.009	0.039	0.011	0.02	0.02	0.07	0.02	0.0155	0.01225	0.021	0.02	0.039	0.02	0.011	0.005

Pollutant Name: PM2.5 - Tire Wear Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT
35	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003

Pollutant Name: PM2.5 - Brake Wear Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT
35	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005

Title : 2009 and 2035 Bakersfield station
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/06/08 12:47:59
Scen Year: 2035 -- All model years in the range 1991 to 2035 selected
Season : Annual
Area : Kern (SJV)
****
Year: 2035 -- Model Years 1991 to 2035 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

Kern (SJV) Kern (SJV) Kern (SJV)

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT
35	0	0.006	0.05	0.006	0	0.006	0.052	0.006	0	0.012	0.056	0.012	0.009	0.0075	0	0.015	0.049	0.015	0	0.007

Pollutant Name: Methane Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT
35	0	0.005	0.002	0.005	0	0.005	0.002	0.005	0	0.01	0.003	0.01	0.0075	0.00625	0	0.012	0.002	0.012	0	0.005

Pollutant Name: Carbon Monoxide Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT
35	0	0.469	0.411	0.469	0	0.516	0.419	0.516	0	0.879	0.432	0.879	0.6975	0.58325	0	1.201	0.409	1.201	0	0.15

Pollutant Name: Oxides of Nitrogen Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT
35	0	0.036	1.246	0.036	0	0.039	1.241	0.041	0	0.074	1.233	0.074	0.0575	0.04675	0	0.091	1.247	0.091	0	0.133

Pollutant Name: Carbon Dioxide Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT
35	0	299.866	345.72	299.866	0	378.677	345.72	378.619	0	387.306	345.72	387.305	382.962	341.414	0	526.827	345.72	526.798	0	497.421

Pollutant Name: Sulfur Dioxide Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT
35	0	0.003	0.003	0.003	0	0.004	0.003	0.004	0	0.004	0.003	0.004	0.004	0.0035	0	0.005	0.003	0.005	0	0.005

Pollutant Name: PM10 Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT
35	0	0.009	0.031	0.009	0	0.011	0.032	0.011	0	0.023	0.035	0.023	0.017	0.013	0	0.025	0.03	0.025	0	0.007

Pollutant Name: PM10 - Tire Wear Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT
35	0	0.008	0.008	0.008	0	0.008	0.008	0.008	0	0.008	0.008	0.008	0.008	0.008	0	0.008	0.008	0.008	0	0.012

Pollutant Name: PM10 - Brake Wear Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT
35	0	0.013	0.013	0.013	0	0.013	0.013	0.013	0	0.013	0.013	0.013	0.013	0.013	0	0.013	0.013	0.013	0	0.013

Pollutant Name: PM2.5 Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT
35	0	0.009	0.028	0.009	0	0.01	0.03	0.01	0	0.022	0.032	0.022	0.016	0.0125	0	0.023	0.028	0.023	0	0.007

Pollutant Name: PM2.5 - Tire Wear Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT
35	0	0.002	0.002	0.002	0	0.002	0.002	0.002	0	0.002	0.002	0.002	0.002	0.002	0	0.002	0.002	0.002	0	0.003

Pollutant Name: PM2.5 - Brake Wear Temperature: 64F 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	LDT ALL	LDA LDT ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT
35	0	0.005	0.005	0.005	0	0.005	0.005	0.005	0	0.005	0.005	0.005	0.005	0.005	0	0.005	0.005	0.005	0	0.005

Title : 2009 Bakersfield station - Busses; Shuttles
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/06/08 12:49:42
Scen Year: 2009 -- All model years in the range 1997 to 2009 selected
Season : Annual
Area : Kern (SJV)
****
Year: 2009 -- Model Years 1997 to 2009 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

Kern (SJV) Kern (SJV) Kern (SJV)

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases Temperature: 64F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.017	0.457	0.358	0	0	0	0	0

Pollutant Name: Methane Temperature: 64F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.015	0.021	0.02	0	0	0	0	0

Pollutant Name: Carbon Monoxide Temperature: 64F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.444	1.032	0.899	0	0	0	0	0

Pollutant Name: Oxides of Nitrogen Temperature: 64F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.828	10.217	8.096	0	0	0	0	0

Pollutant Name: Carbon Dioxide Temperature: 64F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	497.421	2412.978	1980.162	0	0	0	0	0

Pollutant Name: Sulfur Dioxide Temperature: 64F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.005	0.023	0.019	0	0	0	0	0

Pollutant Name: PM10 Temperature: 64F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.014	0.124	0.099	0	0	0	0	0

Pollutant Name: PM10 - Tire Wear Temperature: 64F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.012	0.008	0.009	0	0	0	0	0

Pollutant Name: PM10 - Brake Wear Temperature: 64F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.013	0.013	0.013	0	0	0	0	0

Pollutant Name: PM2.5 Temperature: 64F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.013	0.114	0.091	0	0	0	0	0

Pollutant Name: PM2.5 - Tire Wear Temperature: 64F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.003	0.002	0.002	0	0	0	0	0

Pollutant Name: PM2.5 - Brake Wear Temperature: 64F 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	UBUS NCAT	UBUS CAT	UBUS DSL	UBUS ALL	MCY NCAT	MCY CAT	MCY DSL	MCY ALL	SBUS NCAT
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0.005	0.005	0.005	0	0	0	0	0

C.3-3 Emission Factors for HMF Onsite Vehicles for 2035 Operational Emissions

Title : SJVAB Annual (ROG and PM10)
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/04/12 13:23:40
Scen Year: 2017 -- All model years in the range 1973 to 2017 selected
Season : Annual
Area : San Joaquin Valley Unified APCD
****
Year: 2017 -- Model Years 1973 to 2017 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average District Average San Joaquin Valley Unified APCD

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases Temperature: 67F Relative Humidity: 55%

Speed	LHD1	LHD1	LHD1	LHD1	LHD2	LHD2	LHD2	LHD2	MHD	MHD	MHD	MHD	HHD	HHD	HHD	HHD	ALL	ALL	ALL	ALL
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
10	11.603	0.367	0.312	0.365	11.603	0.247	0.359	0.306	17.453	0.767	0.369	0.458	61.617	4.501	3.147	3.166	18.324	0.619	2.643	2.329

Pollutant Name: Carbon Monoxide Temperature: 67F Relative Humidity: 55%

Speed	LHD1	LHD1	LHD1	LHD1	LHD2	LHD2	LHD2	LHD2	MHD	MHD	MHD	MHD	HHD	HHD	HHD	HHD	ALL	ALL	ALL	ALL
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
10	214.511	3.595	2.197	3.484	214.511	2.797	2.148	2.585	321.766	8.721	4.551	5.677	1596.869	95.999	6.627	7.789	375.202	9.091	6.095	6.7

Pollutant Name: Oxides of Nitrogen Temperature: 67F Relative Humidity: 55%

Speed	LHD1	LHD1	LHD1	LHD1	LHD2	LHD2	LHD2	LHD2	MHD	MHD	MHD	MHD	HHD	HHD	HHD	HHD	ALL	ALL	ALL	ALL
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
10	1.55	0.276	3.763	1.098	1.55	0.262	3.967	2.029	2.325	0.701	4.917	4.234	17.107	4.604	12.413	12.318	3.16	0.559	10.989	9.341

Pollutant Name: Carbon Dioxide Temperature: 67F Relative Humidity: 55%

Speed	LHD1	LHD1	LHD1	LHD1	LHD2	LHD2	LHD2	LHD2	MHD	MHD	MHD	MHD	HHD	HHD	HHD	HHD	ALL	ALL	ALL	ALL
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
10	1672.267	1672.267	519.874	1401.022	1672.267	1672.267	524.214	1125.064	1672.267	1672.267	1505	1532.197	1672.267	1672.267	3165.447	3147.072	1672.267	1672.267	2800.796	2622.425

Pollutant Name: Sulfur Dioxide Temperature: 67F Relative Humidity: 55%

Speed	LHD1	LHD1	LHD1	LHD1	LHD2	LHD2	LHD2	LHD2	MHD	MHD	MHD	MHD	HHD	HHD	HHD	HHD	ALL	ALL	ALL	ALL
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
10	0.02	0.016	0.005	0.013	0.02	0.016	0.005	0.011	0.021	0.016	0.014	0.015	0.042	0.018	0.03	0.03	0.022	0.016	0.027	0.025

Pollutant Name: PM10 Temperature: 67F Relative Humidity: 55%

Speed	LHD1	LHD1	LHD1	LHD1	LHD2	LHD2	LHD2	LHD2	MHD	MHD	MHD	MHD	HHD	HHD	HHD	HHD	ALL	ALL	ALL	ALL
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
10	0.066	0.029	0.075	0.04	0.066	0.027	0.078	0.051	0.066	0.034	0.423	0.36	0.066	0.059	0.585	0.578	0.066	0.031	0.532	0.453

Pollutant Name: PM10 - Tire Wear Temperature: 67F Relative Humidity: 55%

Speed	LHD1	LHD1	LHD1	LHD1	LHD2	LHD2	LHD2	LHD2	MHD	MHD	MHD	MHD	HHD	HHD	HHD	HHD	ALL	ALL	ALL	ALL
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
10	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.036	0.036	0.012	0.012	0.032	0.029

Pollutant Name: PM10 - Brake Wear Temperature: 67F Relative Humidity: 55%

Speed	LHD1	LHD1	LHD1	LHD1	LHD2	LHD2	LHD2	LHD2	MHD	MHD	MHD	MHD	HHD	HHD	HHD	HHD	ALL	ALL	ALL	ALL
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
10	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.028	0.028	0.028	0.028	0.014	0.013	0.025	0.023

Pollutant Name: PM2.5 Temperature: 67F Relative Humidity: 55%

Speed	LHD1	LHD1	LHD1	LHD1	LHD2	LHD2	LHD2	LHD2	MHD	MHD	MHD	MHD	HHD	HHD	HHD	HHD	ALL	ALL	ALL	ALL
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
10	0.05	0.027	0.069	0.037	0.05	0.025	0.072	0.047	0.05	0.032	0.389	0.331	0.05	0.055	0.538	0.532	0.05	0.028	0.49	0.417

Pollutant Name: PM2.5 - Tire Wear Temperature: 67F Relative Humidity: 55%

Speed	LHD1	LHD1	LHD1	LHD1	LHD2	LHD2	LHD2	LHD2	MHD	MHD	MHD	MHD	HHD	HHD	HHD	HHD	ALL	ALL	ALL	ALL
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
10	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.009	0.009	0.003	0.003	0.008	0.007

Pollutant Name: PM2.5 - Brake Wear Temperature: 67F Relative Humidity: 55%

Speed	LHD1	LHD1	LHD1	LHD1	LHD2	LHD2	LHD2	LHD2	MHD	MHD	MHD	MHD	HHD	HHD	HHD	HHD	ALL	ALL	ALL	ALL
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
10	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.012	0.012	0.012	0.012	0.006	0.006	0.011	0.01

Title : HMF offsite 2009
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/06/13 10:53:50
Scen Year: 2009 -- All model years in the range 1965 to 2009 selected
Season : Annual
Area : San Joaquin Valley
****
Year: 2009 -- Model Years 1965 to 2009 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

San Joaquin Valley Basin Average Basin Average

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases Temperature: 67F Relative Humidity: 55%

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	LDT ALL	LDT LDA ALL	LHD DSL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT
35	4.741	0.051	0.151	0.09	4.848	0.068	0.07	0.16	4.725	0.078	0.126	0.115	0.1375	0.11375	0.177	4.143	0.622	0.249	0.33	14.669

Pollutant Name: Methane Temperature: 67F Relative Humidity: 55%

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	LDT ALL	LDT LDA ALL	LHD DSL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT
35	0.292	0.026	0.007	0.028	0.296	0.029	0.003	0.032	0.291	0.033	0.006	0.035	0.0335	0.03075	0.0135	0.269	0.083	0.012	0.023	0.667

Pollutant Name: Carbon Monoxide Temperature: 67F Relative Humidity: 55%

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	LDT ALL	LDT LDA ALL	LHD DSL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT
35	51.725	2.43	0.607	2.828	51.787	3.254	0.474	4.008	50.448	3.423	0.587	3.792	3.9	3.364	1.401	102.357	9.778	1.993	3.85	501.124

Pollutant Name: Oxides of Nitrogen Temperature: 67F Relative Humidity: 55%

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	LDT ALL	LDT LDA ALL	LHD DSL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT
35	4.213	0.218	1.132	0.253	4.158	0.291	1.14	0.419	4.078	0.449	1.111	0.48	0.4495	0.35125	3.3465	3.269	2.939	8.04	7.343	23.856

Pollutant Name: Carbon Dioxide Temperature: 67F Relative Humidity: 55%

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	LDT ALL	LDT LDA ALL	LHD DSL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT
35	427.432	310.912	359.913	311.963	428.01	385.326	346.655	383.713	428.282	385.724	354.445	385.982	384.8475	348.40525	518.6935	497.421	497.421	1505	1366.667	497.421

Pollutant Name: Sulfur Dioxide Temperature: 67F Relative Humidity: 55%

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	LDT ALL	LDT LDA ALL	LHD DSL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT
35	0.005	0.003	0.003	0.003	0.005	0.004	0.003	0.004	0.005	0.004	0.003	0.004	0.004	0.0035	0.005	0.006	0.005	0.014	0.013	0.013

Pollutant Name: PM10 Temperature: 67F Relative Humidity: 55%

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	LDT ALL	LDT LDA ALL	LHD DSL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT
35	0.027	0.01	0.114	0.01	0.026	0.011	0.045	0.013	0.027	0.022	0.092	0.022	0.0175	0.01375	0.033	0.015	0.009	0.297	0.257	0.015

Pollutant Name: PM10 - Tire Wear Temperature: 67F Relative Humidity: 55%

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	LDT ALL	LDT LDA ALL	LHD DSL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT
35	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.012	0.012	0.012	0.012	0.012	0.012

Pollutant Name: PM10 - Brake Wear Temperature: 67F Relative Humidity: 55%

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	LDT ALL	LDT LDA ALL	LHD DSL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT
35	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.028

Pollutant Name: PM2.5 Temperature: 67F Relative Humidity: 55%

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	LDT ALL	LDT LDA ALL	LHD DSL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT
35	0.02	0.009	0.105	0.01	0.02	0.01	0.042	0.012	0.02	0.021	0.084	0.021	0.0165	0.01325	0.03	0.011	0.008	0.273	0.237	0.011

Pollutant Name: PM2.5 - Tire Wear Temperature: 67F Relative Humidity: 55%

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	LDT ALL	LDT LDA ALL	LHD DSL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT
35	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003

Pollutant Name: PM2.5 - Brake Wear Temperature: 67F Relative Humidity: 55%

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	LDT ALL	LDT LDA ALL	LHD DSL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT
35	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.012

APPENDIX F

POTENTIAL AIR QUALITY IMPACTS OF HEAVY MAINTENANCE FACILITY (HMF) OPERATIONS

Parsons Brinckerhoff

August 2011

TABLE OF CONTENTS

1.0 INTRODUCTION 1

2.0 POLLUTANTS OF CONCERN 1

3.0 EMISSION FACTORS AND RATES 2

4.0 DISPERSION MODELING 5

5.0 HEALTH RISK METHODOLOGY 5

5.1 CANCER RISK 5

5.1.1 Daily Breathing Rate (DBR) 6

5.1.2 Cancer Potency Factor (CP) 6

5.1.3 Exposure Value Factors 7

5.2 CHRONIC NONCANCER RISK 7

5.3 ACUTE HAZARD RISK 7

6.0 RESULTS 8

6.1 CRITERIA POLLUTANTS 8

6.2 TOXIC POLLUTANTS 8

6.2.1 Chronic Noncancer Risk 8

6.2.2 Acute Risk 8

6.2.3 Cancer Risks 9

7.0 CONCLUSIONS 9

TABLES

TABLE 1 SWITCH LOCOMOTIVE HORSE-POWER AND LOAD FACTORS 1

TABLE 2 PM_{10} EMISSION RATES FOR SWITCH LOCOMOTIVE AND DIESEL EQUIPMENT 2

TABLE 3 $PM_{2.5}$ EMISSION RATES FOR SWITCH LOCOMOTIVE AND DIESEL EQUIPMENT 3

TABLE 4 NO_2 EMISSION RATES FOR SWITCH LOCOMOTIVES AND DIESEL EQUIPMENT 4

TABLE 5 TOTAL ESTIMATED CONCENTRATIONS OF THE CRITERIA POLLUTANTS AT THE PROPERTY LINE 8

TABLE 6 CHRONIC NON-CANCER HAZARD INDEX AT THE HMF PROPERTY LINE 10

TABLE 7 TOTAL ACUTE HAZARD INDEX AT THE HMF PROPERTY LINE 11

TABLE 8 DIESEL PM AND TAC CANCER RISK CALCULATIONS AT THE DISTANCE OF 500 FEET FROM HMF BOUNDARY 12

TABLE 9 DIESEL PM AND TAC CANCER RISK CALCULATIONS AT THE DISTANCE OF 1,000 FEET FROM HMF BOUNDARY 13

TABLE 10 DIESEL PM AND TAC CANCER RISK CALCULATIONS AT THE DISTANCE OF 1,300 FEET FROM HMF BOUNDARY 14

TABLE 11 DIESEL PM AND TAC CANCER RISK CALCULATIONS AT THE DISTANCE OF 2,000 FEET FROM HMF BOUNDARY 15

TABLE 12 DIESEL PM AND TAC CANCER RISK CALCULATIONS AT THE DISTANCE OF 3,000 FEET FROM HMF BOUNDARY 16

TABLE 13 DIESEL PM AND TAC CANCER RISK CALCULATIONS AT THE DISTANCE OF 5,000 FEET FROM HMF BOUNDARY 17

1.0 Introduction

The HST project will include a heavy maintenance facility (HMF) that would service and repair the rail cars and locomotives. The facility would include locomotives, diesel equipment (e.g., cranes, backhoes, loaders, etc.), heavy-duty diesel trucks, and a spray booth for painting the trains. While measures would be incorporated to minimize atmospheric emissions from these sources, such as the use of electric yard trains to move the rail cars and electric locomotives around the site, the use of diesel-retrofits on heavy-duty diesel engines, etc., the activities at the HMF site would generate emissions that could impact nearby sensitive land uses. The major sources of HMF emissions include:

- Switch diesel locomotive activities associated with maintenance of way operations;
- Spray booth painting operations;
- Diesel equipment; and
- Diesel trucks.

While only one HMF will be needed for the HST project, several sites are currently being considered. Some of these may have sensitive land uses located nearby. As no one site has been selected, an air quality analysis was conducted for a prototypical facility (using the current facility design and anticipated activities) to determine whether HMF operations have the potential to significantly impact nearby sensitive land uses.

2.0 Pollutants of Concern

Criteria pollutants (i.e. pollutants for which national ambient air quality standards [NAAQS] have been established), pollutants for which California ambient air quality standards [CAAQS] have been established, and non-criteria toxic air contaminants (TACs) were considered in this analysis of potential localized impacts. The criteria pollutants considered are:

- Nitrogen dioxide (NO_2) from diesel locomotives, diesel equipment, and trucks; and
- Particulate matter smaller than 10 microns (PM_{10}) and particulate matter smaller than 2.5 microns ($PM_{2.5}$) from diesel locomotives, diesel equipment, trucks, and spray booth operations.

The TACs considered are contaminants identified by the California Air Resources Board (CARB) and the California Office of Environmental Health Hazard Assessment (OEHHA) that may be emitted from HMF operations, including diesel engines and spray booth activities. Of these, the most critical pollutant for determining the potential health effects of the HMF operations is diesel particulate matter (diesel PM), which has been identified by CARB as a TAC based on its potential to cause cancer and other adverse health problems, including respiratory illnesses, and increased risk of heart disease. There are also a number of toxic pollutants (with various toxicities) that are either caricnogenic or non-carconogenic that can also be potentially released from spray booth operations and diesel vehicular exhaust.

Analyses were conducted that considered chronic (long-term) carcinogenic, chronic non-carcinogenic, and acute (short-term) health risks. These analyses were conducted following San Joaquin Valley Air Pollution Control District (SJVAPCD) modeling guidance for a diesel “only” facility, which is defined as a facility where diesel PM is the predominant TAC and where emissions of other toxic pollutants will not contribute significantly (i.e., cancer risk greater than 1 in one million) to the overall risk.

3.0 Emission Factors and Rates

Emission factors from the locomotives and diesel-powered engines of the equipment and trucks and spray booth operations were estimated as follows:

- PM_{10}, $PM_{2.5}$, and NO_2 emissions from switch locomotives were estimated assuming these vehicles would comply with EPA Tier 4 emission standards (which are standards also adopted by CARB) applicable for newly manufactured (after 2015) locomotives (73 FR 88 25098-25352, May 6, 2008) that utilize stringent control technologies and use ultra-low sulfur diesel fuel, and locomotive emission rates were estimated based on locomotive type, notch setting, activity time, and duration;
- For other diesel equipment, EPA's Tier 4 emission standards for non-road diesel engines were used (69 FR 38957-39273, 29 June 2004);
- PM_{10} emission factors were used to represent diesel PM;
- Diesel truck emissions were estimated using EMFAC2007, CARB's latest vehicular emission factor algorithm; and
- Volatile organic compounds (VOCs) from paint booth emissions were estimated using conservative volatility rates and paint usage projections assuming that the paint booths would be equipped with conventional filters with 90% control efficiency. Speciation of VOC compounds from these emissions was obtained from *CARB's Organic Speciation Profile for Surface Coating Operations.* Speciation of VOC compounds from diesel combustion emissions was obtained from CARB's *Organic Speciation Profile for Diesel Light & Heavy Equipment*.

Emission rates for the locomotives, diesel equipment, and trucks were estimated based on the following HMF operating scenario, which was supplied by the project's design engineers:

- Two (2) switch locomotives (for maintenance-of-way operations) and six (6) pieces of diesel-fueled equipment would be operating at the HMF;
- Two (2) maintenance-of-way locomotives, which are assumed to be 2,000 horse-power (hp) each, would be idling for 2 hours and moving around the HMF site for 2 hours over a 24-hour period, and the locomotives would go through all notches (gears) when moving (see Table 1 for the hp and load factors used in this analysis);
- The diesel equipment, which is assumed to be 200 hp each, would be operating continuously for 8 hours over a 24-hour period; and
- Twenty (20) diesel trucks would be operating on the site continuously for 8 hours over each 24-hour period.

Tables 2, 3, and 4 present estimated PM_{10}, $PM_{2.5}$, and NO_2 emission rates estimated for locomotives, diesel equipment, and trucks, respectively, together with the parameters and references used to develop these estimates.

Table 1
Switch Locomotive Horse-Power and Load Factors

Notch	HP (1)	% HP in use	Percent Time in Notch (2)	Actual % time in use	Engine HP (3)	Equivalent HP Used in Analysis	Load Factors (4)
Idle	13	0.3%	38%	100%	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	44%

Assumptions:

1. Notch horsepower usage was obtained from tests conducted by MotivePower, a Wabtec company, for the MP36PH-3C locomotive.
2. Percent time in each notch is based on EPA-estimated high power duty-cycles for locomotives.
3. Each switch locomotive is assumed to be 2,000 hp.
4. Average load factors were estimated for two operational modes: idling and moving. It is assumed that the engines would go through all notches when moving.

Table 2
PM_{10} Emission Rates for Switch Locomotive and Diesel Equipment

HMF Operations	Mode	Average Number of Locomotives[1] or Pieces of Diesel Equipment	Engine Horsepower (hp) [2]	Load Factor[3] (%)	Tier 4 Emission Factors [4] (g/bhp-hr)	PM_{10} Emission Rates	
						24-hour	Annual
						g/sec	lb/year
Locomotive	Idle	2	2,000	0.3%	0.03	9.57E-06	6.65E-01
	Moving	2	2,000	44%	0.03	1.22E-03	8.47E+01
Diesel Equipment[5,6]	—	6	200	60%	0.015	1. 00E-03	6.95E+01
Diesel Trucks[7,8]	—	20	—	—	0.596 [7]	1.49E-03	1.04E+02
Total	—		—	—	—	4.06E-03	2.82E+02

Assumptions:

1. Number of locomotives operating in yard, duration of operation in each mode, and number of pieces of diesel equipment were provided by the project engineers. It is assumed that each locomotive would be moving and idling continuously for 2 hours over a 24-hour period.

2. The switch locomotive is assumed to be 2,000 hp; the diesel equipment is 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 setting (see Table 1).

4. Locomotives would be purchased after 2015 and, therefore, subject to Tier 4 emission standards (http://dieselnet.com/standards/us/). The emission factors used are the most stringent locomotive Tier 4 federal standards for switch locomotives (73 FR 88 25098-25352, May 6, 2008).

5. PM_{10} emission factors used for diesel for equipment are Tier 4 federal standards for on-road (off-road) diesel engines introduced in May, 2004 (69 FR 38957-39273, 29 June, 2004) and are provided in Table 3, Tier 4 Emission Standards for engines up to 560 KW from an online source: http://dieselnet.com/standards/us/

6. Each piece of diesel equipment was assumed to operate for 8 hours over a 24-hour period; the load factor for this equipment was assumed to be 0.6.

7. Emission factors for the diesel trucks, which are for 2017, were estimated using California's EMFAC2007 model and are in units of grams of PM per vehicle-mile. Values are for running exhaust emissions at 10 mph, and include tire wear and brake wear emissions for diesel trucks.

8. It was assumed that 20 trucks would operate on the site for 8 hours over each 24-hour period.

Table 3
$PM_{2.5}$ Emission Rates for Switch Locomotive and Diesel Equipment

HMF Operations	Mode	Average Number of Locomotives(1) or Pieces of Diesel Equipment	Engine Horsepower (hp) (2)	Load Factor 3) (%)	Tier 4 Emission Factors (4) (g/bhp-hr)	$PM_{2.5}$ Emission Rates	
						24-hour	Annual
						g/sec	lb/year
Locomotive	Idle	2	2,000	0.3%	0.03	9.28E-06	6.45E-01
	Moving	2	2,000	44%	0.03	1.18E-03	8.22E+01
Diesel Equipment(5,6)	—	6	200	60%	0.015	9.70E-04	6.74E+01
Diesel Trucks(7,8)	—	20	—	—	0.514 (7)	1.29E-03	8.96E+01
Total	—		—	—	—	3.45E-03	2.40E+02

Assumptions:

1. Number of locomotives operating in yard, duration of operation in each mode, and number of pieces of diesel equipment were provided by the project engineers. It is assumed that each locomotive would be moving and idling continuously for 2 hours over a 24-hour period.

2. The switch locomotive is assumed to be 2,000 hp; the diesel equipment is assumed to be 200 hp.

3. Load factors for locomotives are weighted-average factors that were estimated for the idling and moving modes based on in-use power at each notch setting (see Table 1).

4. Locomotives would be purchased after 2015 and, therefore, subject to Tier 4 emission standards (http://dieselnet.com/standards/us/). The emission factors used are the most stringent locomotive Tier 4 federal standards for switch locomotives (73 FR 88 25098-25352, May 6, 2008). $PM_{2.5}$ emission factors are assumed to be 92 percent of the PM_{10} emission factors.

5. $PM_{2.5}$ emission factors used for diesel for equipment are Tier 4 federal standards for on-road (off-road) diesel engines introduced in May, 2004 (69 FR 38957-39273, 29 June, 2004) and are provided in Table 3, Tier 4 Emission Standards for engines up to 560 KW from an online source: http://dieselnet.com/standards/us/

6. Each piece of diesel equipment was assumed to operate for 8 hours over a 24-hour period; the load factor for this equipment was assumed to be 0.6.

7. Emission factors for the diesel trucks, which are for 2017, were estimated using California's EMFAC2007 model and are in units of grams of PM per vehicle-mile. Values are for running exhaust emissions at 10 mph, and include tire wear and brake wear emissions for diesel trucks.

8. It was assumed that 20 trucks would operate on the site for 8 hours over each 24-hour period.

Table 4
NO_2 Emission Rates for Switch Locomotives and Diesel Equipment

HMF Operations	Mode	Average Number of Locomotive (1) or Pieces of Equipment	Engine Horsepower (2) (hp)	Load Factor (3) (%)	Tier 4 Emission Factors (4) (g/bhp-hour)	Annual NO_2 Emission Rates[5]	
						g/sec	lb/year
Locomotive	Idle	2	2,000	0.3%	1.3	4.15E-04	2.88E+01
	Moving	2	2,000	44%	1.3	5.28E-02	3.67E+03
Diesel Equipment (6,7)		6	200	60%	0.3	2.00E-02	1.39E+03
Diesel Trucks (8,9)		20			11.03	2.77E-02	1.92E+03
Total						1.01E-01	7.01E+03

Assumptions:

1. Number of locomotives operating in yard, duration of operation in each mode, and number of pieces of diesel equipment were provided by the project engineers. It is assumed that each locomotive would be moving and idling continuously for 2 hours over a 24-hour period.

2. The switch locomotive is assumed to be 2,000 hp; the diesel equipment is assumed to be 200 hp.

3. Load factors for locomotives are weighted-average factors that were estimated for the idling and moving modes based on in-use power at each notch setting (see Table 1).

4. Locomotives would be purchased after 2015 and, therefore, subject to Tier 4 emission standards (http://dieselnet.com/standards/us/). The emission factors used are the most stringent locomotive Tier 4 federal standards for switch locomotives that were introduced in May 2008 (73 FR 88 25098-25352, May 6, 2008)

5. It is conservatively assumed that all of the nitrogen oxides released from the diesel exhaust would be in the form of NO_2.

6. Emission factors used for diesel for equipment are Tier 4 federal standards for on-road (off-road) diesel engines introduced in May, 2004 (69 FR 38957-39273, 29 June, 2004) and are provided in Table 3, Tier 4 Emission Standards for engines up to 560 kW from an online source. (http://dieselnet.com/standards/us/).

7. Each piece of diesel equipment was assumed to operate for 8 hours over a 24-hour period; the load factor for this equipment was assumed to be 0.6.

8. NOx emission factors for the diesel trucks, which are for 2017, were estimated using California's EMFAC2007 model.

9. It was assumed that 20 trucks would operate on the site for 8 hours over each 24-hour period.

4.0 Dispersion Modeling

As the operation of the HMF has the potential to cause health impacts on nearby sensitive land uses, detailed dispersion modeling analyses were conducted to determine whether these impacts would be significant. USEPA's AERMOD atmospheric dispersion model was used to simulate physical conditions and predict pollutant concentrations at the facility's property line and at specified distances from the boundaries of a prototypical HMF facility.

AERMOD is generally applied to estimate impacts from simple point-source emissions from stacks as well as emissions from volume and area sources. The model accepts actual hourly meteorological observations and directly estimates hourly and average concentrations for various time periods. Regulatory default options and the rural dispersion algorithm of the AERMOD model were conservatvely used in these analyses.

The final site of the HMF has not as yet been selected and there are several potential sites between Merced and Bakersfield that are being considered. As such, site-specific coordinates that include locations of nearby sensitive land uses cannot be considered at this time. Instead, a prototypical site was analyzed (using a conceptual design and anticipated HMF activities), and pollutant concentrations were estimated at the site's property line and distances of approximately 500, 1,000, 1,300, 3,000, and 5,000 feet from the site boundary. Receptors were located around the property boundary in increments of 25 meters, as specified in SJVAPCD modeling guidance. The maximum concentrations found at any location were used to estimate potential impacts, and these values were compared with applicable federal and state air quality standards and health-related guidelines.

Emissions from all operations were simulated as one area source spread out over the 140 acre prototypical HMF site. An emissions release height was assumed to be 4.5 meters (14.8 feet) to approximate the stack heights of the locomotive engines, diesel trucks, and spray booth stack(s). Five years of meteorological data (i.e., 2004 through 2009) from Merced County Airport, as compiled by SJVAPCD, were used for all analyses.

The results of these analyses were used to estimate worst-case pollutant (criteria and TAC) concentrations for:

- Comparison with the NAAQS and CAAQS; and
- Input to the health risk analysis.

5.0 Health Risk Methodology

Maximum estimated dispersion modeling concentrations of diesel PM and other representative TACs were used to calculate cancer risks, chronic noncancer health risks, and acute health risks associated with HMF operations. The following methodologies were applied.

5.1 Cancer Risk

From the multiple pollutants that may be emitted from diesel vehicular exhaust, and spray booth operations, six pollutants, are considered by OEHHA as carcinogens for which cancer potency factors (or unit risk factors) were developed. These are diesel PM, benzene, 1, 3-butadiene, acetaldehyde, formaldehyde, and methylene chloride. The maximum individual cancer risk for each pollutant and total incremental cancer risks associated with these pollutant releases were calculated as described below. The 5-year average AERMOD-estimated concentrations were used for these calculations, as recommended by the SJVAPCD. Metal elements bounded to PM from vehicular exhaust, such as arsenic, cadmium, nickel, and others, were considered as part of the diesel PM.

The cancer risk calculation procedures developed by OEHHA, together with OEHHA/CARB-approved health values for health risk assessments, that were used are based on the following:

- Guidance for Air Dispersion Modeling, San Joaquin Valley Air Pollution Control District, Section 2.7 Alternative Modeling Procedures, Diesel "Only" Facilities, Page 81, Calculation of the Diesel PM Adjustment Factor; and
- OEHHA Air Toxics Hot Spots Program Risk Assessment Guidelines, OEHHA, 2003, OEHHA/ARB Approved Health Values for Use in Hot Spot Facility Risk Assessments, Appendix L – Table 1, Cancer Risk, Inhalation Cancer Potency Factors and Chronic Inhalation REL and Acute REL values.

The detailed procedures and equations used in these calculations are as follows:

Inhalation Dose $= C_{air} \times DBR \times A \times EF \times ED \times 10^{-6}/AT$

Where,

C_{air} = concentration in air (ug/m3)

DBR = Daily Breathing Rate (L/kg body weight-day)

A = Inhalation absorption factor

EF = Exposure frequency (days/year)

ED = Exposure duration (years)

AT = Averaging time period over which exposure is averaged

10^{-6} = Conversion Factor

Cancer Risk (per million) = CP x Inhalation Dose x 1.0E+06 = URF x C_{air}

Where,

CP = Cancer potency factor $(mg/kg\text{-}day)^{-1}$

URF = Unit risk factor (cancer risk per ug/m3)

The following are detailed descriptions of some of the parameters used in the health risk assessment:

5.1.1 Daily Breathing Rate (DBR)

Exposure to airborne chemicals occurs through inhalation and subsequent absorption into the body, potentially resulting in adverse health effects depending on toxicological properties of the chemical and concentration in air. The dose of a substance through inhalation is a function of the concentration of the substance and the amount of air inhaled. DBR values used in these procedures, expressed in liters per kilogram-day (L/kg-day), as recommended by SJVAPCD for diesel PM, is 393 L/kg body weight-day. This DBR value was also used for calculations of the cancer risk of other carcinogenic pollutants.

5.1.2 Cancer Potency Factor (CP)

The inhalation cancer potency factor is a measure of the cancer potency of a carcinogen. It is the estimated probability that a person will contract cancer as a result of inhalation of a concentration of 1 milligram of the TAC per kilogram of body weight continuously over a period of 70 years. The inhalation cancer potency factors used in this analysis (see Tables 8-13) were obtained from OEHHA.

5.1.3 Exposure Value Factors

In order to protect public health, and in accordance with the recommendations of OEHHA, a 70-year lifetime exposure is assumed for all receptor locations. In addition to the 70-year exposure duration (ED) values, exposure values used to calculate cancer risk are exposure frequency (EF), which is the number of days per year of exposure, and the averaging time period in days over which exposure is averaged (AT). For EF, OEHHA and SJVAPCD recommend the use of 350 days/year for residential exposure. For AT, OEHHA and SJVAPCD recommend the use of 25,550 days (70 years x 365 days/year). For ED values used to calculate chronic noncancer risk, EPA recommends the use of 30 years.

5.2 Chronic Noncancer Risk

Calculations for estimating the chronic noncancer hazard index (HQ) are based on the EPA's Human Health Risk Assessment Protocol (HHRAP, Appendix C, Tables C-2-1 and C-2-2) methodology and equations, as follows:

HQ = EC x 0.001/RfC

Where,

EC = Ca x EF x ED/AT x 365 days/year or EC = Ca x Fc, where

HQ = hazard quotient for direct inhalation of noncarcinogen (unitless)

Ca = annual concentration estimated by the AERMOD, ug/m3

EC = exposure concentration, ug/m3

EF = exposure frequency, days/year, assumed by EPA to be equal 350 days/year

ED = exposure duration is assumed to be 70 years

AT = averaging time, years; AT is assumed by EPA to be equal 30 years

RfC = reference concentration for chronic inhalation exposure, mg/m3 (EPA Integrated Risk Information System (IRIS)

0.001=units conversion factor, mg/ug

5.3 Acute Hazard Risk

Acute hazard index analyses are based on HHRAP methodology and equations (HHRAP, Appendix C, Table C-4-1 and B, Table B-6-1), as follows:

AHQ = C_{acute} x 0.001/AIEC

Where,

AHQ acute hazard quotient, unitless

C_{acute}=1-hr estimated concentration, ug/m3

AIEC = acute inhalation exposure criteria, mg/m3. They were obtained from EPA Table 2 "Acute Dose-Response Values for Screening Risk Assessments

0.001= units conversion factor, mg/ug

REL are OEHHA/ARB approved health values for use in Hot Spot facility Risk Assessment, Acute Reference Exposure Levels and target Organs. Appendix L-Table 2

Diesel PM has no acute health value; therefore, it was not included in acute hazard index calculations.

6.0 Results

6.1 Criteria Pollutants

Total estimated concentrations of the criteria pollutants at the HMF property line are provided in Table 5. In general, HMF emissions of criteria pollutants would not cause an exceedance of a NAAQS or CAAQS at the facility's property line. However, because ambient values currently being monitored at the Merced, Madera, Drummond, and/or Fresno monitoring stations currently exceed the 24-hour and annual PM2.5 NAAQS and the 24-hour and annual PM10 CAAQS, and may continue to exceed these standards under future No Build conditions, there is a potential that HMF emissions could exacerbate future exceedances even though the maximum estimated project impacts at the property line are minimal.

Table 5
Total Estimated Concentrations of the Criteria Pollutants at the Property Line

Pollutant	Time Period	CAAQS (ug/m3)	NAAQS (ug/m3)	Estimated Impacts (ug/m3)	Background Conc. (ug/m3)	Total Estimated Concentrations (ug/m3)	Exceed CAAQS ?	Exceed NAAQS ?
NO_2	1-hour	339	188	25.2	81.8	106.9	No	No
	Annual	57	100	2.3	30.1	32.4	No	No
PM_{10}	24-hr	50	150	0.44	99.5	99.9	Yes	No
	Annual	20	—	0.15	40.5	40.7	Yes	—
$PM_{2.5}$	24-hr	—	35	0.25	81.6	81.8	—	Yes
	Annual	12	15	0.08	15.23	15.3	Yes	Yes

6.2 Toxic Pollutants

6.2.1 Chronic Noncancer Risk

The results of hazard chronic noncancer index calculations are summarized in Table 6. Pollutants listed are those for which non-cancer RfC (reference dose concentration) guideline values are available from EPA's Integrated Risk Information System (IRIS), Prioritized Chronic Dose-Response Values for Screening Risk Assessments (EPA, Table 1, June 2007) and REL (Reference Exposure Limit) values from OEHHA Air Toxics Hot Spots Program Risk Assessment Guidelines, OEHHA, 2003, OEHHA/ARB Approved Health Values for Use in Hot Spot Facility Risk Assessments.

As shown, the total maximum chronic noncancer hazard index at the HMF property line is estimated to be less than 1 – using both EPA and OEHHA health risk values. As such, potential chronic noncancer risks associated with HMF operations are not considered to be significant.

6.2.2 Acute Risk

The results of acute hazard index calculations are summarized in Table 7. Pollutants listed are those for which acute inhalation exposure criteria values are available from the Prioritized Chronic Dose-Response Values for Screening Risk Assessments (EPA, Table 1, June 2007) and acute REL values from OEHHA Air Toxics Hot Spots Program Risk Assessment Guidelines, OEHHA, 2003, OEHHA/ARB Approved Health Values for Use in Hot Spot Facility Risk Assessments.

As shown, the total maximum acute hazard index at the HMF property line are estimated to be less than 1 – using both EPA and OEHHA health risk values. As such, potential acute health risks associated with HMF operations are not considered to be significant.

6.2.3 Cancer Risks

Maximum cancer risks were estimated at various distances from the HMF boundary until impacts were not considered to be significant. Based on the results of these preliminary analyses, it was determined that at a distance of approximately 1,300 feet from the facility boundary, the overall incremental cancer impacts would be below applicable significant thresholds.

Based on this result, maximum cancer risks at 1,300 feet from the HMF boundary were then computed using procedures recommended by SJVAPCD and OEHHA, which assume continuous exposure over a 70-year life-time for residences. This resulted in a diesel PM unit risk factor of 414.5 for 70-years residential exposure, as determined by the SJVAPCD guidance. This factor was then multiplied by the estimated average diesel PM concentration at 1,300 feet to arrive at an increased cancer risk of approximately 9.7 per million. The same calculations were then performed for each of the other applicable carcinogenic pollutants at a distance of 1,300 feet from the facility boundary (Table 10).

As shown, the total incremental cancer risk due to all these pollutant releases at 1,300 feet from the HMF property does not exceed (i.e., are within) the 10 in a million (10×10^{-6}) significance threshold. As such, the estimated cancer risk at distances greater than 1,300 feet from the HMF boundary is not considered to be significant.

7.0 Conclusions

The results of the air quallity analyses for a prototypical HMF facility are as follows:

1. Criteria pollutant impacts at the HMF property line are not considered to be significant. However, there could be minimal criteria pollutant impacts in areas that would exceed a NAAQS or CAAQS under future No Build conditions. Therefore, prior to the issuance of the final EIS for the HST project, a more detailed analysis, using an actual facility design, actual nearby sensitive land uses, and a more detailed consideration of future background values near the selected site, will be conducted. More stringent emission reduction strategies may also be considered;
2. The total chronic noncancer hazard index at the HMF propery line is less than the threshold value of 1 and, therefore, is not considered to be significant;
3. The total acute hazard index at the HMF propery line is less than the threshold value of 1 and, therefore, is not considered to be significant; and
4. Total incremental cancer risk found at the distance of 1,300 feet from the HMF boundary is less than 10 per million and, therefore, is not considered to be significant. However, until detailed analyses are conducted for an actual (as opposed to a prototypical) HMF facility, the potential cancer risks at sensitive land uses that are located closer than 1,300 feet from the HMF boundary are considered to be significant.

Table 6
Chronic Non-Cancer Hazard Index at the HMF Property Line

Contaminant	CAS No.	Annual Conc. (C_a) ug/m^3	Exposure Conc. (EC) ug/m^3	Reference Dose Conc. (RfC) mg/m^3	OEHHA Chronic Inhalation Exposure (REL) mg/m^3	Hazard Quotients (HQ) based on EPA RfC	Hazard Quotients (HQ) based on OEHHA REL
Ethyl benzene	100-41-4	1.33E-02	1.33E-02	2.0E+00	2.0E+00	1.33E-05	5.00E-04
1,3-butadiene	106-99-0	5.80E-05	5.80E-05	2.0E-02	2.0E-02	2.90E-05	1.00E-04
Formaldehyde	50-00-0	4.49E-03	4.49E-03	3.0E-03	3.0E-03	4.58E-04	3.27E-03
Naphthalene	91-20-3	2.60E-05	2.60E-05			8.65E-06	
Acetaldehyde	75-07-0	2.25E-03	2.25E-03	9.0E-03	9.0E-03	2.49E-04	1.00E-03
Xylene	1330-20-7	1.26E-03	1.26E-03	7.0E-01	7.0E-01	1.26E-05	1.43E-04
Ethylene dibromide	106-93-4	9.48E-04	9.48E-04	8.0E-04	8.0E-04	1.05E-04	1.13E-02
Ethylene glycol	107-21-1	6.32E-04	6.32E-04	4.0E-01	4.0E-01	1.58E-06	1.00E-03
Toluene	108-88-3	2.12E-01	2.12E-01	3.0E-01	3.0E-01	4.25E-05	1.67E-02
n-hexane	110-54-3	1.30E-02	1.30E-02	7.0E+00	7.0E+00	1.85E-05	1.00E-04
Methanol	67-56-1	1.05E-01	1.05E-01	4.0E+00	4.0E+00	2.63E-05	1.00E-03
Dimethyl formamide	68-12-2	1.05E-01	1.05E-01	8.0E-02	8.0E-02	3.51E-03	3.75E-04
Benzene	71-43-2	1.58E-03	1.58E-03	6.0E-02	6.0E-02	5.27E-05	5.00E-04
Ethyl chloride	75-00-3	6.32E-04	6.32E-04	3.0E+01	3.0E+01	6.32E-08	3.33E-04
Methylene chloride	75-09-2	6.95E-03	6.95E-03	4.0E-01	4.0E-01	6.95E-06	2.50E-03
Methyl ethyl ketone	78-93-3	1.74E-01	1.74E-01	5.0E+00		3.48E-05	
Phthalic anhydride	85-44-9	9.48E-04	9.48E-04	2.0E-02	2.0E-02	4.74E-05	1.00E-03
Diesel PM	9901	8.57E-02	8.57E-02	5.0E-03	5.0E-03	1.71E-02	1.00E-03
Total Hazard Index						2.18E-02	4.07E-02
Hazard Index Threshold						1	1

Table 7
Total Acute Hazard Index at the HMF Property Line

Contaminant	CAS No.	1-hr Estimated Conc. (C_{acute}) (ug/m^3)	EPA Acute Inhalation Exposure Criteria (AIEC) mg/m^3	OEHHA Acute Inhalation Exposure Criteria (Acute REL) mg/m^3	Hazard Quotients (AHQ) Based on AIEC	Acute Hazard Quotients Based on Acute REL
ethyl benzene	100-41-4	0.15759	3.5E+02		4.50E-04	
1,3-butadiene	106-99-0	0.00068	1.5E+03		4.56E-07	
formaldehyde	50-00-0	0.05297	1.1E+00	9.40E-02	4.82E-02	5.64E-01
naphthalene	91-20-3	0.00031	1.3E+02		2.35E-06	
acetaldehyde	75-07-0	0.02647	8.1E+01		3.27E-04	
xylene	106-42-3	0.01525	2.2E+01	2.20E+01	6.93E-04	6.93E-04
ethylene dibromide	106-93-4	0.01118	1.3E+02		8.60E-05	
ethylene glycol	107-21-1	0.00745	1.3E+00		5.73E-03	
toluene	108-88-3	2.50917	3.7E+01	3.70E+01	6.78E-02	6.78E-02
n-hexane	110-54-3	0.15333	1.2E+04		1.28E-05	
methanol	67-56-1	1.24086	2.8E+01	2.80E+01	4.43E-02	4.43E-02
dimethyl formamide	68-12-2	1.24076	2.7E+02		4.60E-03	
benzene	71-43-2	0.02583	1.3E+00	1.30E+00	1.99E-02	1.99E-02
ethyl chloride	75-00-3	0.00745	4.0E+01		1.86E-04	
methylene chloride	75-09-2	0.08197	1.4E+01	1.40E+01	5.86E-03	5.86E-03
methyl ethyl ketone (mek)	78-93-3	2.05461	1.3E+01	1.30E+01	1.58E-01	1.58E-01
phthalic anhydride	85-44-9	0.01118	6.0E+00		1.86E-03	
Total Estimated Acute Hazard Index					3.58E-01	8.60E-01
Hazard Index threshold					1	1

Table 8
Diesel PM and TAC Cancer Risk Calculations at the distance of 500 feet from HMF Boundary

Inhalation Dose Factors (1)

Exposure Type	Value					
	DBR	A	Exposure	EF	ED	AT
	L/kg BW-day		hours/day	days/year	years	days
Residential (70-years)	393	1	24	350	70	25,550

Unit Risk Factor Calculations (1, 2)

Pollutant	CP (mg/kg-day) $^{-1}$	URF (Risk/million/ug/m^3)
Diesel PM	1.10E+00	414.5
Benzene	1.00E-01	37.7
Acetaldehyde	1.00E-02	3.8
1,3-Butadiene	6.00E-01	226.1
Formaldehyde	2.10E-02	7.9
Methylene Chloride	3.50E-03	1.3

Cancer Risk Calculations (1, 2)

Pollutant	Estimated Conc. (ug/m^3)	Cancer Risk per million
Diesel PM	0.04262	17.66859
Benzene	0.00079	0.02962
Acetaldehyde	0.00112	0.00421
1,3-Butadiene	0.00003	0.00652
Formaldehyde	0.00223	0.01769
Methylene Chloride	0.00346	0.00456
Total Incremental Cancer Risk		17.7312
Significance Threshold		10

Notes:

1. Guidance for Air Dispersion Modeling, San Joaquin Valley Air Pollution Control District, Section 2.7 Alternative Modeling Procedures, Diesel "Only" Facilities, Page 81, Calculation of the Diesel PM Adjustment Factor

2. OEHHA Air Toxics Hot Spots Program Risk Assessment Guidelines, OEHHA, 2003, OEHHA/ARB Approved Health Values for Use in Hot Spot Facility Risk Assessments, Appendix L - Table 1, Cancer Risk, Inhalation Cancer Potency Factors.

Table 9
Diesel PM and TAC Cancer Risk Calculations at the distance of 1,000 feet from HMF Boundary

Inhalation Dose Factors (1)

Exposure Type	Value					
	DBR	A	Exposure	EF	ED	AT
	L/kg BW-day		hours/day	days/year	years	days
Residential (70-years)	393	1	24	350	70	25,550

Unit Risk Factor Calculations (1, 2)

Pollutant	CP (mg/kg-day) $^{-1}$	URF (Risk/million/ug/m^3)
Diesel PM	1.10E+00	414.5
Benzene	1.00E-01	37.7
Acetaldehyde	1.00E-02	3.8
1,3-Butadiene	6.00E-01	226.1
Formaldehyde	2.10E-02	7.9
Methylene Chloride	3.50E-03	1.3

Cancer Risk Calculations (1, 2)

Pollutant	Estimated Conc. (ug/m^3)	Cancer Risk per million
Diesel PM	0.02858	11.84592
Benzene	0.00053	0.01986
Acetaldehyde	0.00075	0.00282
1,3-Butadiene	0.00002	0.00437
Formaldehyde	0.00150	0.01186
Methylene Chloride	0.00232	0.00306
Total Incremental Cancer Risk		11.8879
Significance Threshold		10

Notes:

1. Guidance for Air Dispersion Modeling, San Joaquin Valley Air Pollution Control District, Section 2.7 Alternative Modeling Procedures, Diesel "Only" Facilities, Page 81, Calculation of the Diesel PM Adjustment Factor

2. OEHHA Air Toxics Hot Spots Program Risk Assessment Guidelines, OEHHA, 2003, OEHHA/ARB Approved Health Values for Use in Hot Spot Facility Risk Assessments, Appendix L - Table 1, Cancer Risk, Inhalation Cancer Potency Factors.

Table 10
Diesel PM and TAC Cancer Risk Calculations at the distance of 1,300 feet from HMF Boundary

Inhalation Dose Factors (1)

Exposure Type	Value					
	DBR	A	Exposure	EF	ED	AT
	L/kg BW-day		hours/day	days/year	years	days
Residential (70-years)	393	1	24	350	70	25,550

Unit Risk Factor Calculations (1, 2)

Pollutant	CP (mg/kg-day) $^{-1}$	URF (Risk/million/ug/m^3)
Diesel PM	1.10E+00	414.5
Benzene	1.00E-01	37.7
Acetaldehyde	1.00E-02	3.8
1,3-Butadiene	6.00E-01	226.1
Formaldehyde	2.10E-02	7.9
Methylene Chloride	3.50E-03	1.3

Cancer Risk Calculations (1, 2)

Pollutant	Estimated Conc. (ug/m^3)	Cancer Risk per million
Diesel PM	0.02334	9.67366
Benzene	0.00043	0.01622
Acetaldehyde	0.00061	0.00230
1,3-Butadiene	0.00002	0.00357
Formaldehyde	0.00122	0.00968
Methylene Chloride	0.00189	0.00250
Total Incremental Cancer Risk		9.7079
Significance Threshold		10

Notes:

1. Guidance for Air Dispersion Modeling, San Joaquin Valley Air Pollution Control District, Section 2.7 Alternative Modeling Procedures, Diesel "Only" Facilities, Page 81, Calculation of the Diesel PM Adjustment Factor

2. OEHHA Air Toxics Hot Spots Program Risk Assessment Guidelines, OEHHA, 2003, OEHHA/ARB Approved Health Values for Use in Hot Spot Facility Risk Assessments, Appendix L - Table 1, Cancer Risk, Inhalation Cancer Potency Factors.

Table 11
Diesel PM and TAC Cancer Risk Calculations at the distance of 2,000 feet from HMF Boundary

Inhalation Dose Factors (1)

Exposure Type	Value					
	DBR	A	Exposure	EF	ED	AT
	L/kg BW-day		hours/day	days/year	years	days
Residential (70-years)	393	1	24	350	70	25,550

Unit Risk Factor Calculations (1, 2)

Pollutant	CP (mg/kg-day) $^{-1}$	URF (Risk/million/ug/m^3)
Diesel PM	1.10E+00	414.5
Benzene	1.00E-01	37.7
Acetaldehyde	1.00E-02	3.8
1,3-Butadiene	6.00E-01	226.1
Formaldehyde	2.10E-02	7.9
Methylene Chloride	3.50E-03	1.3

Cancer Risk Calculations (1, 2)

Pollutant	Estimated Conc. (ug/m^3)	Cancer Risk per million
Diesel PM	0.01640	6.79665
Benzene	0.00030	0.01139
Acetaldehyde	0.00043	0.00162
1,3-Butadiene	0.00001	0.00251
Formaldehyde	0.00086	0.00680
Methylene Chloride	0.00133	0.00175
Total Incremental Cancer Risk		6.8207
Significance Threshold		10

Notes:

1. Guidance for Air Dispersion Modeling, San Joaquin Valley Air Pollution Control District, Section 2.7 Alternative Modeling Procedures, Diesel "Only" Facilities, Page 81, Calculation of the Diesel PM Adjustment Factor

2. OEHHA Air Toxics Hot Spots Program Risk Assessment Guidelines, OEHHA, 2003, OEHHA/ARB Approved Health Values for Use in Hot Spot Facility Risk Assessments, Appendix L - Table 1, Cancer Risk, Inhalation Cancer Potency Factors.

Table 12
Diesel PM and TAC Cancer Risk Calculations at the distance of 3,000 feet from HMF Boundary

Inhalation Dose Factors (1)

Exposure Type	Value					
	DBR	A	Exposure	EF	ED	AT
	L/kg BW-day		hours/day	days/year	years	days
Residential (70-years)	393	1	24	350	70	25,550

Unit Risk Factor Calculations (1, 2)

Pollutant	CP (mg/kg-day) $^{-1}$	URF (Risk/million/ug/m^3)
Diesel PM	1.10E+00	414.5
Benzene	1.00E-01	37.7
Acetaldehyde	1.00E-02	3.8
1,3-Butadiene	6.00E-01	226.1
Formaldehyde	2.10E-02	7.9
Methylene Chloride	3.50E-03	1.3

Cancer Risk Calculations (1, 2)

Pollutant	Estimated Conc. (ug/m^3)	Cancer Risk per million
Diesel PM	0.01121	4.64486
Benzene	0.00021	0.00779
Acetaldehyde	0.00029	0.00111
1,3-Butadiene	0.00001	0.00172
Formaldehyde	0.00059	0.00465
Methylene Chloride	0.00091	0.00120
Total Incremental Cancer Risk		4.6613
Significance Threshold		10

Notes:

1. Guidance for Air Dispersion Modeling, San Joaquin Valley Air Pollution Control District, Section 2.7 Alternative Modeling Procedures, Diesel "Only" Facilities, Page 81, Calculation of the Diesel PM Adjustment Factor

2. OEHHA Air Toxics Hot Spots Program Risk Assessment Guidelines, OEHHA, 2003, OEHHA/ARB Approved Health Values for Use in Hot Spot Facility Risk Assessments, Appendix L - Table 1, Cancer Risk, Inhalation Cancer Potency Factors.

Table 13
Diesel PM and TAC Cancer Risk Calculations at the distance of 5,000 feet from HMF Boundary

Inhalation Dose Factors (1)

Exposure Type	Value					
	DBR	A	Exposure	EF	ED	AT
	L/kg BW-day		hours/day	days/year	years	days
Residential (70-years)	393	1	24	350	70	25,550

Unit Risk Factor Calculations (1, 2)

Pollutant	CP (mg/kg-day) $^{-1}$	URF (Risk/million/ug/m^3)
Diesel PM	1.10E+00	414.5
Benzene	1.00E-01	37.7
Acetaldehyde	1.00E-02	3.8
1,3-Butadiene	6.00E-01	226.1
Formaldehyde	2.10E-02	7.9
Methylene Chloride	3.50E-03	1.3

Cancer Risk Calculations (1, 2)

Pollutant	Estimated Conc. (ug/m^3)	Cancer Risk per million
Diesel PM	0.00636	2.63653
Benzene	0.00012	0.00442
Acetaldehyde	0.00017	0.00063
1,3-Butadiene	0.00000	0.00097
Formaldehyde	0.00033	0.00264
Methylene Chloride	0.00052	0.00068
Total Incremental Cancer Risk		2.6459
Significance Threshold		10

Notes:

1. Guidance for Air Dispersion Modeling, San Joaquin Valley Air Pollution Control District, Section 2.7 Alternative Modeling Procedures, Diesel "Only" Facilities, Page 81, Calculation of the Diesel PM Adjustment Factor

2. OEHHA Air Toxics Hot Spots Program Risk Assessment Guidelines, OEHHA, 2003, OEHHA/ARB Approved Health Values for Use in Hot Spot Facility Risk Assessments, Appendix L - Table 1, Cancer Risk, Inhalation Cancer Potency Factors.

Appendix G

Quarry and Ballast Hauling Memorandum

URS/HMM/Arup Joint Venture
1333 Broadway St. Suite 800
Oakland, CA 94612
Tel: 510 893 3600
Fax: 510 874 3268

MEMORANDUM

To: **Rebecca Kohlstrand/PMT; Bryan Porter/PMT**
From: **Jonathan Tamimi /URS/HMM/Arup; Avanti Tamhane /URS/HMM/Arup**
Date: **03/23/2012**
Subject: **Estimated Emissions from Hauling Ballast Material – Merced to Fresno and Fresno to Bakersfield Sections of the California High-Speed Train Project**

Analysis of pollutant emissions that are associated with hauling railway ballast material needed for the Merced to Fresno and Fresno to Bakersfield Sections of the California High-Speed Train Project are included in the air quality analysis section in Chapter 3 of the *California High-Speed Train Project Environmental Impact Report/Environmental Impact Statement*. Since the construction period for the Merced to Fresno Section and the Fresno to Bakersfield would overlap, the total amount of material and the associated emissions for both sections are analyzed in this memorandum. Air emissions were proportioned based on the material requirement for each section and were then compared to the General Conformity de minimis thresholds as well as the CEQA thresholds.

The analysis presented in this memorandum assumes that the rail will be constructed using a combination of ballast, sub-ballast, and slab track. The analysis assumes that sub-ballast and the material necessary for concrete manufacture will be available within the SJVAB. Also, worst case emissions for one year are shown. This corresponds to hauling in the years of 2014, 2015, and 2016, while the remaining years would have emissions less than presented in this memo.

Over the course of the construction period, the Merced to Fresno and Fresno to Bakersfield Sections will require about 2 million cubic yards (cy) of ballast material for alignment construction, however, this total amount is not currently available within San Joaquin Valley Air Basin (SJVAB), and there would be a need to haul it from quarries located in other air basins. If project material is hauled through other air basins, the associated emissions must be analyzed with respect to pollutant thresholds in the air basins traversed.

This memorandum describes the analysis performed to determine (1) the potential amount of railroad ballast material available from California quarries for the Merced to Fresno and Fresno to Bakersfield Sections of the California High-Speed Train Project and (2) pollutant emissions associated with hauling the materials to the SJVAB boundary.

Quarries Evaluated

The Office of Mine Reclamation (California Department of Conservation [CDC]) provided a list of quarries within the state of California (CDC 2010). The list was screened for active rock quarries with 200 or more acres of permitted area because they are considered to be of sufficient size to serve the demand effectively. Quarries that are in the planning stage and have not received

a permit, such as the Jesse Morrow Mountain Quarry in Fresno County and Liberty Quarry in Riverside County, were not considered in the analysis.

A general inquiry call (which did not identify the project) was made to the five quarries that met the screening criteria. The quarries were asked (1) if they could manufacture ballast material to American Railway Engineering and Maintenance-of-Way Association (AREMA) 4 specifications, (2) the distance from the quarry to the nearest railhead for transport, and (3) the amount of ballast material that could be produced by the quarry in 1 year. Table 1 summarizes the results. Two quarries, Bowman Quarry and Mountain Avenue Pit No. 1 (Elsinore Ready Mix Concrete) met the screening criteria but contact information was not available and, therefore, they were not considered in this analysis.

TABLE 1
Quarry Information

Quarry Name and Address	Distance to SJVAB (rail miles)	AREMA 4 Ballast Availability	Distance to Nearest Railhead	Annual Ballast Production Capacity
Kaiser Eagle Mountain Quarry 1 Court Street Desert Center, CA 92239 (Mojave Air Basin)	350	Yes	Railhead onsite	1,000,000 cy/yr
Napa Quarry 2301 Napa-Vallejo Highway Napa, CA 94558 (San Francisco Bay Air Basin)	70	Yes	Railhead onsite	150,000 tons/yr
Lake Herman Quarry 885 Lake Herman Road Vallejo, CA 94591 (San Francisco Bay Air Basin)	70	Yes	15 miles	200,000 tons/yr
San Rafael Rock Quarry 1000 Point San Pedro Road San Rafael, CA 94901 (San Francisco Bay Air Basin)	55	Yes	15 miles	150,000 tons/yr
Bangor Rock Quarry – Site A 5522 LaPorte Road Bangor, CA 92194 (Sacramento Valley Air Basin)	85	Yes	15 miles	300,000 tons/yr

Methodology for Estimating Pollutant Emissions from Hauling Ballast to the Project Site

As the construction schedules of the Merced to Fresno and Fresno to Bakersfield Sections of the California High Speed Train Project overlap, the ballast material hauling analysis took into account the requirements for both sections to ensure realistic emission estimates. Five scenarios were developed for hauling ballast materials from quarries listed in Table 1 to the boundary of SJVAB to develop a range of emission estimates (the actual hauling scenario during construction is uncertain). The scenarios represent a range of combinations of supply from the different quarries and different methods of hauling (either by truck to the nearest railhead and railway the remainder of the distance, or by truck the entire distance). The scenarios include the following:

- Scenario 1: All Ballast Hauled from Kaiser Eagle Mountain Quarry by Rail Only – Haul all of the ballast material, for both sites, via rail from the Kaiser Eagle Mountain Quarry (the longest hauling distance).
- Scenario 2: Ballast from Quarries Nearest to the Project by Truck and Rail and Balance from Kaiser Eagle Mountain Quarry by Truck and Rail - Haul all of the ballast material from the quarries closest to the project site (Napa Quarry, Lake Herman Quarry, and San Rafael Rock Quarry) via truck to the nearest railhead, then by railway the remainder of the distance and the balance from Bangor Rock Quarry by truck and rail.
- Scenario 3: Ballast from Quarries Nearest to the Project by Truck and Rail and Balance from Bangor Rock Quarry and Kaiser Eagle Mountain Quarry - Haul the maximum amount of ballast available from the quarries closest to the project site (Napa Quarry, Lake Herman Quarry, and San Rafael Rock Quarry), the maximum amount from Bangor Rock Quarry – Site A (which is closer than Kaiser Eagle Mountain Quarry) up to ballast production limits; and then the balance from Kaiser Eagle Mountain Quarry. Haul ballast by truck to the nearest railhead, then by rail the remainder of the distance.
- Scenario 4: Maximum Ballast from Quarries Nearest to the Project and Balance from Bangor Rock Quarry and Kaiser Eagle Mountain Quarry by Truck Only – Haul the maximum amount of ballast from the quarries closest to the project site (Napa Quarry, Lake Herman Quarry, and San Rafael Rock Quarry), and obtain the balance of material needed from Bangor Rock Quarry – Site A (closer than Kaiser Eagle Mountain Quarry) and Kaiser Eagle Mountain Quarry, transported by truck for the entire distance.
- Scenario 5: – Maximum Ballast from Quarries Nearest Project and Balance from Kaiser Eagle Mountain Quarry by Truck Only - Haul the maximum amount of ballast up to emission threshold limits from the quarries closest to the project site (Napa Quarry, Lake Herman Quarry, and San Rafael Rock Quarry), and obtain the balance of material needed from Kaiser Eagle Mountain Quarry transported by truck the entire distance.

For each scenario, emissions were calculated using year 2014 emission factors. Year 2014 would

be the first year that ballast is required for the project, and emission factors for that year are the most conservative within the project schedule because they are expected to decrease each year as vehicle technology improves. Table 2 provides the emission factors used in the analysis. For unmitigated truck emissions, emission factors were based on a fleet composed of the last 45 model years (1969-2014). Mitigated haul truck emission factors are for a fleet composed of model year 2010 and newer trucks.

TABLE 2
Ballast Hauling Emission Factors

Emission Source	Emission Factors						
	CO	NO_x	$PM_{2.5}$	PM_{10}	SO_2	VOC	CO_2
Unmitigated Haul Trucks (grams/mile)[a]	2.76	7.89	0.313	0.34	0.015	0.423	1561
Mitigated Haul Trucks (grams/mile)[a]	1.02	1.18	0.063	0.068	0.015	0.096	1600
Large Haul Rail (grams/ton-mile)[b]	0.055	0.28	0.0072	0.0074	0.0002	0.013	21.1

[a] Truck emission factors were developed using the EMFAC2007 emissions model and statewide average emission factors.
[b] Railway emission factors were developed using the *Emission Factors for Locomotives* (EPA 2009)

Notes:
CO = carbon monoxide
NO_x = nitrogen oxide
$PM_{2.5}$ = particulate matter less than 2.5 micrometers in aerodynamic diameter
PM_{10} = particulate matter less than 10 micrometers in aerodynamic diameter
SO_2 = sulfur dioxide
VOC = volatile organic compound

For each scenario, emissions were calculated by multiplying the emission factor by the distance traveled and the amount of material hauled per trip for each hauling method. The following pollutant emissions were calculated: CO, NOx, $PM_{2.5}$, PM_{10}, SO_2, and VOC. Greenhouse gas (GHG) emissions were also estimated. Emissions were calculated separately for each federal nonattainment or maintenance area through which the materials would be hauled (reference Attachment A). The results were compared to the General Conformity (GC) de minimis values to determine if an exceedance would occur. Emissions were also calculated for each air quality management district (AQMD) that the material was hauled through and compared to daily and annual CEQA significance threshold values for each of the air districts (reference Attachment B). Although the quantity of ballast material being considered was the combined amounts from both sections to ensure plausible scenarios, the emissions for each section were calculated by proportioning out the total air emissions based on the material requirements for each section.

For each scenario, the maximum material hauled in one year was used to estimate the annual emissions. The daily emissions calculations were estimated by assuming that the annual material requirements would be hauled by trucks that would operate 260 days per year and trains that would run twice weekly from each of the railheads to the SJVAB.

Estimated Pollutant Emissions from Hauling Ballast to the Project Site

Tables 3 shows the amounts of material hauled from the quarries for each scenario in cubic yards (cy) per year. For daily emissions calculations, it was assumed trucks would operate 260 days per year and that trains would run twice weekly from each of the railheads to the SJVAB.

TABLE 3

Amount of Material Hauled from Each Quarry Under Scenarios 1-5

Scenario / Quarry Name	1 (cy/yr)	2 (cy/yr)	3 (cy/yr)	4 (cy/yr)	5 (cy/yr)
Kaiser Eagle Mountain Quarry	491,219	253,124	110,267	110,267	253,124
Napa Quarry	0	71,429	71,429	71,429	71,429
Lake Herman Quarry	0	95,238	95,238	95,238	95,238
San Rafael Rock Quarry	0	71,429	71,429	71,429	71,429
Bangor Rock Quarry – Site A	0	0	142,857	142,857	0

Tables C-1 through C-10 (reference Attachment C) show the estimated unmitigated emissions for the five scenarios relative to the GC de minimis thresholds for the air basins traversed. Tables D-1 through D-20 (reference Attachment D) show the estimated unmitigated emissions relative to CEQA significance thresholds for the AQMDs traversed. Tables E-1 through E-8 (reference Attachment E) show estimated mitigated emissions for scenarios 2 through 5 relative to GC de minimis thresholds for the air basins traversed. Tables F-1 through F-16 (reference Attachment F) show the estimated mitigated emissions for scenarios 2 through 5 relative to CEQA significance thresholds for the AQMDs traversed. Scenario 1 did not change under the mitigated scenario since tall the material was transported by rail. Please note that a particular air basin could be under the jurisdiction of more than one AQMD.

Scenarios one and five both exceed GC de minimis thresholds for NOx for both the Merced to Fresno and Fresno to Bakersfield sections in the South Coast Air Basin. Scenario one, for the Fresno to Bakersfield section, also exceeds GC de minimis thresholds for NOx in the Salton Sea Air Basin. No other pollutants for any scenarios exceed their respective GC de minimis threshold. With a mitigation measure to use a fleet of model year 2010 and newer trucks, Scenario 5 no longer exceed any de minimis thresholds in any air basin for either section.

Annual CEQA emission threshold limits would not be exceeded by any of the scenarios for either section. Daily CEQA thresholds for NO_X would be exceeded under Scenario 1 in the South Coast AQMD for both sections, and the Fresno to Bakersfield section would also exceed daily CEQA threshold limits for Mojave Desert and East Kern AQMDs. Emissions from Scenarios 2 and 3 would exceed the daily CEQA threshold limits for NO_X in the Bay Area and South Coast AQMDs for both sections. Emissions from Scenarios 4 would not exceed any daily CEQA limits for the Merced to Fresno section, but would exceed daily CEQA threshold limits for NO_X in the Bay Area Air Basin for the Fresno to Bakersfield section. Scenario 5 would exceed daily CEQA threshold limits for NO_X in the South Coast AQMD for both sections, and the Fresno to Bakersfield section would also exceed daily CEQA threshold limits for NO_X in the Bay Area Air

Basin. With the proposed mitigation for haul trucks, Scenarios 4 and 5 would no longer exceed any daily CEQA threshold limits for both sections.

GHG emissions (in units of CO_2e) from ballast hauling range were calculated by assuming methane and nitrogen dioxide impacts were 5% of the total CO_2 impacts. Total CO_2e impacts ranged from 3,665 to 12,355 metric tons annually, depending on the chosen scenario. The total statewide emissions in 2008 of CO_2e was 477,740,000 metric tons. Material hauling for this project will have a negligible impact (less than 0.1%) on statewide greenhouse gas emissions.

Conclusion

According to this analysis, sufficient ballast material of the type needed for the project is available from quarries within the state of California. General Conformity de minimis pollutant thresholds in nonattainment areas for NO_X would be exceeded in some air basin for scenarios 1 and 5 without mitigation. With mitigation, scenario 5 no longer exceed GC de minimis threshold limits for any pollutant for either section. Annual CEQA threshold limits would not be exceeded for either section in any scenario. Daily CEQA NO_X thresholds would be exceeded for certain AQMDs for every scenario for both sections without mitigation, except scenario 4 for the Merced to Fresno section. With mitigation, Scenarios 4 and 5 would no longer exceed daily CEQA NO_X thresholds for either section. Additionally, material hauling for this project will have a negligible impact on statewide greenhouse gas emissions.

References

California Department of Conservation. 2010. Email from Candace Mapel in the Office of Mine Reclamation including spreadsheet with permitted mines in the State of California. April 8, 2010.

Campbell, Ross. 2011. San Rafael Rock Quarry. Personal communication via telephone regarding production capabilities of San Rafael Rock Quarry, with Kirstin Skadberg/ CH2M HILL. June 15, 2011.

Roberts, Jan. 2011. Kaiser Eagle Mountain Quarry. Personal communication via telephone regarding production capabilities of Kaiser Eagle Mountain Rock Quarry, with Kirstin Skadberg/CH2M HILL. June 15, 2011.

Thomas, Scott. 2011. Sylar Industries. Personal communication via telephone regarding production capabilities of Lake Herman Napa Rock Quarries, with Kirstin Skadberg/ CH2M HILL. June 15, 2011.

U.S. Environmental Protection Agency (EPA). 2009. *Emission Factors for Locomotives*. Available at http://www.epa.gov/nonroad/locomotv/420f09025.pdf. Washington, DC. April 2009.

Weisswasswer, Barry. 2011. Ladd Construction. Personal communication via telephone regarding production capabilities of Bangor Rock Quarry, with Kirstin Skadberg/CH2M HILL. June 15, 2011.

Attachment A
Air Basins and Nonattainment/Maintenance Areas

TABLE A-1
Air Basins and Nonattainment/Maintenance Areas

Nonattainment/Maintenance Area	Pollutant(s)
Mojave Desert Air Basin	
East Kern County	8-hour ozone, PM_{10}
Western San Bernardino/Los Angeles County	8-hour ozone, PM_{10}
Sacramento Valley Air Basin	
Chico, Butte County	8-hour ozone, $PM_{2.5}$ (2006)
Sacramento Metropolitan Area	8-hour ozone, PM_{10}, $PM_{2.5}$ (2006)
Yuba City	8-hour ozone, $PM_{2.5}$ (2006)
Salton Sea Air Basin	
Coachella Valley, Riverside County	8-hour ozone, PM_{10}
San Francisco Bay Air Basin	
Bay Area	8-hour ozone, $PM_{2.5}$ (2006)
South Coast Air Basin	
Los Angeles County	8-hour ozone, PM_{10}, $PM_{2.5}$ (2006)

Notes:

$PM_{2.5}$ = particulate matter less than 2.5 micrometers in aerodynamic diameter

PM_{10} = particulate matter less than 10 micrometers in aerodynamic diameter

Attachment B
Air Quality Management Districts and CEQA Thresholds

TABLE B-1

Air Quality Management Districts and CEQA Thresholds

	Daily CEQA Thresholds (lb/day)						Annual CEQ Thresholds (tpy)					
	VOC	**CO**	**NOx**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**	**VOC**	**CO**	**NOx**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Antelope Valley AQMD	137	548	137	137	82	82	25	100	25	25	15	15
Bay Area AQMD	54	-	54	-	82	54	-	-	-	-	-	-
Butte County AQMD	25	-	-	-	80	-	-	-	-	-	-	-
Kern Country APCD	137	-	137	-	-	-	-	-	-	-	-	-
Feather River AQMD	-	-	-	-	80	-	4.5	-	4.5	-	-	-
Mojave Desert AQMD	137	548	137	137	82	82	25	100	25	25	15	15
Sac Metro AQMD	65	-	85	-	-	-	-	-	-	-	-	-
South Coast AQMD	75	550	100	150	150	55	-	-	-	-	-	-

Notes:

– = no CEQA annual threshold for this pollutant in the AQMD

$PM_{2.5}$ = particulate matter less than 2.5 micrometers in aerodynamic diameter

PM_{10} = particulate matter less than 10 micrometers in aerodynamic diameter

tpy = tons per year

Attachment C
Emission Calculations for Scenarios Compared to GC de minimis Thresholds

TABLE C-1
Emissions for Scenario 1 - All Ballast from Kaiser Eagle Mountain Quarry by Rail (Merced to Fresno Section), Comparison to GC de Minimis Thresholds

Nonattainment/Maintenance Area (Air Basin)	Emissions (tons per year) Merced to Fresno						
	CO	NO_x	$PM_{2.5}$	PM_{10}	SO_2	VOC	CO_2 (Metric Tons)
Riverside County (Salton Sea)	3.55	18.0	0.47	0.48	0.01	0.81	1,236
General Conformity de Minimis	100	25	–	70	–	25	–
Western San Bernardino/Los Angeles County (Mojave Desert)	1.33	6.72	0.17	0.18	0.00	0.30	461
East Kern County (Mojave Desert)	1.38	6.97	0.18	0.19	0.00	0.32	479
Total Mojave Desert Air Basin	2.70	13.6	0.35	0.37	0.01	0.62	940
General Conformity de Minimis	100	100	–	100	–	50	-
Los Angeles County (South Coast)	2.50	***12.7***	0.33	0.34	0.01	0.57	871
General Conformity de Minimis	100	***10***	100	70	100	10	-

Notes:
– = no de minimis threshold for this pollutant in the air basin

TABLE C-2
Emissions for Scenario 2 –Ballast from Quarries Nearest Project and Balance From Kaiser Eagle Quarry by Rail and Truck (Merced to Fresno), Comparison to GC de Minimis Thresholds

Nonattainment/Maintenance Area (Air Basin)	Emissions (tons per year) Merced to Fresno						
	CO	NO_x	$PM_{2.5}$	PM_{10}	SO_2	VOC	CO_2 (Metric Tons)
Bay Area (San Francisco Bay)	1.10	4.89	0.14	0.14	0.00	0.23	432
General Conformity de Minimis	100	100	100	–	100	50	–
Riverside County (Salton Sea)	1.83	9.28	0.24	0.25	0.01	0.42	637
General Conformity de Minimis	100	25	–	70	–	25	-
Western San Bernardino/Los Angeles County (Mojave Desert)	0.68	3.46	0.09	0.09	0.00	0.16	238
East Kern County (Mojave Desert)	2.27	11.5	0.30	0.31	0.01	0.52	247
Total Mojave Desert Air Basin	1.39	7.06	0.18	0.19	0.01	0.32	484
General Conformity de Minimis	100	100	–	70	–	50	-
Los Angeles County (South Coast)	1.29	6.53	0.17	0.17	0.00	0.30	449
General Conformity de Minimis	100	10	100	70	100	10	-

Notes:
– = no de minimis threshold for this pollutant in the air basin

TABLE C-3
Emissions for Scenario 3 - Ballast from a Mixture of Quarries by Truck and Rail (Merced to Fresno Section), Comparison to GC de Minimis Thresholds

Nonattainment/Maintenance Area (Air Basin)	Emissions (tons per year) Merced to Fresno						
	CO	NO_x	$PM_{2.5}$	PM_{10}	SO_2	VOC	CO_2 (Metric Tons)
Bay Area (San Francisco Bay)	1.10	4.89	0.14	0.14	0.00	0.23	432
General Conformity de Minimis	100	100	100	–	100	50	-
Chico, CA (Sacramento Valley)	0.33	1.11	0.04	0.04	0.00	0.06	159
Yuba City (Sacramento Valley)	0.30	1.51	0.04	0.04	0.00	0.07	104
Sacramento Metropolitan Area (Sacramento Valley)	0.25	1.25	0.03	0.03	0.00	0.06	86
Total Sacramento Valley Air Basin	0.88	3.88	0.11	0.12	0.00	0.18	349
General Conformity de Minimis	100	25	100	100	100	25	-
Riverside County (Salton Sea)	0.80	4.04	0.11	0.11	0.00	0.18	277
General Conformity de Minimis	100	25	–	70	–	25	-
Western San Bernardino/Los Angeles County (Mojave Desert)	0.30	1.51	0.04	0.04	0.00	0.07	104
East Kern County (Mojave Desert)	0.31	1.57	0.04	0.04	0.00	0.07	107
Total Mojave Desert Air Basin	0.61	3.07	0.08	0.08	0.00	0.14	211
General Conformity de Minimis	100	100	–	100	–	50	-
Los Angeles County (South Coast)	0.56	2.85	0.07	0.08	0.00	0.13	195
General Conformity de Minimis	100	10	100	70	100	10	-

Note:
– = no de minimis threshold for this pollutant in the air basin

TABLE C-4
Emissions for Scenario 4 - Maximum Ballast from Quarries Nearest to the Project and Balance from Bangor Rock Quarry and Kaiser Eagle Mountain Quarry by Truck Only (Merced to Fresno Section) , Comparison to GC de Minimis Thresholds

Nonattainment/Maintenance Area (Air Basin)	Emissions (tons per year) Merced to Fresno						
	CO	NO_x	$PM_{2.5}$	PM_{10}	SO_2	VOC	CO_2 (Metric Tons)
Bay Area (San Francisco Bay)	1.87	5.34	0.21	0.23	0.01	0.29	958
General Conformity de Minimis	100	100	100	–	100	50	-
Riverside County (Salton Sea)	1.57	4.49	0.18	0.19	0.01	0.24	805
General Conformity de Minimis	100	25	–	70	–	25	-
Los Angeles County (South Coast)	1.81	5.18	0.21	0.22	0.01	0.28	929
General Conformity de Minimis	100	10	100	70	100	10	-
Chico, Butte County (Sacramento Valley)	0.32	0.92	0.04	0.04	0.00	0.05	165
Sacramento Metropolitan Area (Sacramento Valley)	0.61	1.74	0.07	0.07	0.00	0.09	312
Yuba City (Sacramento Valley)	0.73	2.09	0.08	0.09	0.00	0.11	374
Total Sacramento Valley Air Basin	1.66	4.74	0.19	0.20	0.01	0.25	851
General Conformity de Minimis	100	25.0	100	100	100	25	-

Note:
– = no de minimis threshold for this pollutant in the air basin

TABLE C-5
Emissions for Scenario 5 - Maximum Ballast from Quarries Nearest Project Balance from Kaiser Eagle Mountain Quarry by Truck Only (Merced to Fresno Section) , Comparison to GC de Minimis Thresholds

Nonattainment/Maintenance Area (Air Basin)	Emissions (tons per year) Merced to Fresno						
	CO	NO_x	$PM_{2.5}$	PM_{10}	SO_2	VOC	CO_2 (Metric Tons)
Bay Area (San Francisco Bay)	1.87	5.34	0.21	0.23	0.01	0.29	958
General Conformity de Minimis	100	100	100	–	100	50	-
Riverside County (Salton Sea)	3.61	10.30	0.41	0.44	0.02	0.55	1,848
General Conformity de Minimis	100	25	–	70	–	25	-
Los Angeles County (South Coast)	4.16	***11.88***	0.47	0.50	0.02	0.64	2,133
General Conformity de Minimis	100	***10***	100	70	100	10	-

Note:
– = no de minimis threshold for this pollutant in the Air Basin

TABLE C-6
Emissions for Scenario 1 - All Ballast from Kaiser Eagle Mountain Quarry by Rail (Fresno to Bakersfield Section), Comparison to GC de Minimis Thresholds

Nonattainment/Maintenance Area (Air Basin)	Emissions (tons per year) Fresno to Bakersfield						
	CO	NO_x	$PM_{2.5}$	PM_{10}	SO_2	VOC	CO_2 (Metric Tons)
Riverside County (Salton Sea)	5.33	***27.0***	0.70	0.72	0.02	1.22	1,856
General Conformity de Minimis	100	***25***	–	70	–	25	–
Western San Bernardino/Los Angeles County (Mojave Desert)	1.99	10.1	0.26	0.27	0.01	0.46	693
East Kern County (Mojave Desert)	2.06	10.5	0.27	0.28	0.01	0.47	719
Total Mojave Desert Air Basin	4.05	20.6	0.53	0.55	0.01	0.93	1,412
General Conformity de Minimis	100	100	–	100	–	50	-
Los Angeles County (South Coast)	3.75	***19.0***	0.49	0.51	0.01	0.86	1,307
General Conformity de Minimis	100	***10***	100	70	100	10	-

Notes:
– = no de minimis threshold for this pollutant in the air basin

TABLE C-7
Emissions for Scenario 2 –Ballast from Quarries Nearest Project and Balance From Kaiser Eagle Quarry by Rail and Truck (Fresno to Bakersfield), Comparison to GC de Minimis Thresholds

Nonattainment/Maintenance Area (Air Basin)	Emissions (tons per year) Fresno to Bakersfield						
	CO	NO_x	$PM_{2.5}$	PM_{10}	SO_2	VOC	CO_2 (Metric Tons)
Bay Area (San Francisco Bay)	1.65	7.35	0.21	0.22	0.01	0.34	649
General Conformity de Minimis	100	100	100	–	100	50	–
Riverside County (Salton Sea)	2.75	13.93	0.36	0.37	0.01	0.63	956
General Conformity de Minimis	100	25	–	70	–	25	-
Western San Bernardino/Los Angeles County (Mojave Desert)	1.03	5.20	0.13	0.14	0.00	0.23	357
East Kern County (Mojave Desert)	1.06	5.40	0.14	0.14	0.00	0.24	370
Total Mojave Desert Air Basin	2.09	10.59	0.27	0.28	0.01	0.48	727
General Conformity de Minimis	100	100	–	70	–	50	-
Los Angeles County (South Coast)	1.93	9.81	0.25	0.26	0.01	0.44	674
General Conformity de Minimis	100	10	100	70	100	10	-

Notes:
– = no de minimis threshold for this pollutant in the air basin

TABLE C-8
Emissions for Scenario 3 - Ballast from a Mixture of Quarries by Truck and Rail (Fresno to Bakersfield Section), Comparison to GC de Minimis Thresholds

Nonattainment/Maintenance Area (Air Basin)	Emissions (tons per year) Fresno to Bakersfield						
	CO	NO_x	$PM_{2.5}$	PM_{10}	SO_2	VOC	CO_2 (Metric Tons)
Bay Area (San Francisco Bay)	1.65	7.35	0.21	0.22	0.01	0.34	649
General Conformity de Minimis	100	100	100	–	100	50	-
Chico, CA (Sacramento Valley)	0.50	1.67	0.06	0.06	0.00	0.08	239
Yuba City (Sacramento Valley)	0.45	2.27	0.06	0.06	0.00	0.10	156
Sacramento Metropolitan Area (Sacramento Valley)	0.37	1.88	0.05	0.05	0.00	0.09	129
Total Sacramento Valley Air Basin	1.32	5.82	0.17	0.17	0.01	0.27	524
General Conformity de Minimis	100	25	100	100	100	25	-
Riverside County (Salton Sea)	1.20	6.07	0.16	0.16	0.00	0.27	417
General Conformity de Minimis	100	25	–	70	–	25	-
Western San Bernardino/Los Angeles County (Mojave Desert)	0.45	2.26	0.06	0.06	0.00	0.10	156
East Kern County (Mojave Desert)	0.46	2.35	0.06	0.06	0.00	0.11	161
Total Mojave Desert Air Basin	0.91	4.62	0.12	0.12	0.00	0.21	317
General Conformity de Minimis	100	100	–	100	–	50	-
Los Angeles County (South Coast)	0.84	4.27	0.11	0.11	0.00	0.19	293
General Conformity de Minimis	100	10	100	70	100	10	-

Note:
– = no de minimis threshold for this pollutant in the air basin

TABLE C-9

Emissions for Scenario 4 - Maximum Ballast from Quarries Nearest to the Project and Balance from Bangor Rock Quarry and Kaiser Eagle Mountain Quarry by Truck Only (Fresno to Bakersfield Section) , Comparison to GC de Minimis Thresholds

Nonattainment/Maintenance Area (Air Basin)	Emissions (tons per year) Fresno to Bakersfield						
	CO	NO_x	$PM_{2.5}$	PM_{10}	SO_2	VOC	CO_2 (Metric Tons)
Bay Area (San Francisco Bay)	2.81	8.02	0.32	0.34	0.02	0.43	1,439
General Conformity de Minimis	100	100	100	–	100	50	-
Riverside County (Salton Sea)	2.36	6.73	0.27	0.29	0.01	0.36	1,209
General Conformity de Minimis	100	25	–	70	–	25	-
Los Angeles County (South Coast)	2.72	7.77	0.31	0.33	0.01	0.42	1,395
General Conformity de Minimis	100	10	100	70	100	10	-
Chico, Butte County (Sacramento Valley)	0.48	1.38	0.05	0.06	0.00	0.07	248
Sacramento Metropolitan Area (Sacramento Valley)	0.91	2.61	0.10	0.11	0.00	0.14	469
Yuba City (Sacramento Valley)	1.10	3.13	0.12	0.13	0.01	0.17	562
Total Sacramento Valley Air Basin	2.49	7.12	0.28	0.30	0.01	0.38	1,278
General Conformity de Minimis	100	25.0	100	100	100	25	-

Note:
– = no de minimis threshold for this pollutant in the air basin

TABLE C-10

Emissions for Scenario 5 - Maximum Ballast from Quarries Nearest Project Balance from Kaiser Eagle Mountain Quarry by Truck Only (Fresno to Bakersfield Section) , Comparison to GC de Minimis Thresholds

Nonattainment/Maintenance Area (Air Basin)	Emissions (tons per year) Fresno to Bakersfield						
	CO	NO_x	$PM_{2.5}$	PM_{10}	SO_2	VOC	CO_2 (Metric Tons)
Bay Area (San Francisco Bay)	2.81	8.02	0.32	0.34	0.02	0.43	1,439
General Conformity de Minimis	100	100	100	–	100	50	-
Riverside County (Salton Sea)	5.42	15.46	0.61	0.66	0.03	0.83	2,775
General Conformity de Minimis	100	25	–	70	–	25	-
Los Angeles County (South Coast)	6.25	***17.84***	0.71	0.76	0.03	0.96	3,202
General Conformity de Minimis	100	***10***	100	70	100	10	-

Note:
– = no de minimis threshold for this pollutant in the Air Basin

Attachment D
Emission Calculations for Scenarios Compared to CEQA Thresholds

TABLE D-1

Emissions for Scenario 1 - All Ballast from Kaiser Eagle Mountain Quarry by Rail (Merced to Fresno Section), Comparison to CEQA Annual Thresholds

	Emissions (tons per year) Merced to Fresno						
Air Quality Management District (AQMD)	**CO**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**	**CO_2 (Metric Tons)**
San Bernardino/Los Angeles County (Mojave Desert AQMD)	1.33	6.72	0.17	0.18	0.00	0.30	461
CEQA Annual Threshold Limits	100	25	15	15	25	25	-
Los Angeles County/Riverside County (South Coast AQMD)	6.05	30.68	0.79	0.82	0.02	1.39	2,107
CEQA Annual Threshold Limits	–	–	–	–	–	–	-
East Kern County APCD	1.38	6.97	0.18	0.19	0.00	0.32	479
CEQA Annual Threshold Limits	–	–	–	–	–	–	-

Notes:
– = no CEQA annual threshold for this pollutant in the AQMD

TABLE D-2
Emissions for Scenario 2 –Ballast from Quarries Nearest Project and Balance From Kaiser Eagle Quarry by Rail and Truck (Merced to Fresno Section), Comparison to CEQA Annual Thresholds

	Emissions (tons per year) Merced to Fresno						
Air Quality Management District (AQMD)	**CO**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**	**CO_2 (Metric Tons)**
Bay Area AQMD	1.10	4.89	0.14	0.14	0.00	0.23	432
CEQA Annual Threshold Limits	–	–	–	–	–	–	-
San Bernardino/Los Angeles County (Mojave Desert AQMD)	0.68	3.46	0.09	0.09	0.00	0.16	238
CEQA Annual Threshold Limits	100	25	15	15	25	25	-
Los Angeles County/Riverside County (South Coast AQMD)	3.12	15.81	0.41	0.42	0.01	0.71	1,086
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
East Kern County APCD	0.71	3.59	0.09	0.10	0.00	0.16	247
CEQA Annual Threshold Limits	-	-	-	-	-	-	-

Notes:
– = no CEQA annual threshold for this pollutant in the AQMD

TABLE D-3
Emissions for Scenario 3 - Ballast from a Mixture of Quarries by Truck and Rail (Merced to Fresno Section), Comparison to CEQA Annual Thresholds

	Emissions (tons per year) Merced to Fresno						
Air Quality Management District (AQMD)	**CO**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**	**CO_2 (Metric Tons)**
Bay Area AQMD	1.10	4.89	0.14	0.14	0.00	0.23	432
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
Butte County AQMD	0.33	1.11	0.04	0.04	0.00	0.06	159
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
Sacramento Metropolitan Area AQMD	0.25	1.25	0.03	0.03	0.00	0.06	86
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
Feather River AQMD	0.30	1.51	0.04	0.04	0.00	0.07	104
CEQA Annual Threshold Limits	-	4.5	-	-	-	4.5	-
San Bernardino/Los Angeles County (Mojave Desert AQMD)	0.30	1.51	0.04	0.04	0.00	0.07	104
CEQA Annual Threshold Limits	100	25	15	15	25	25	-
Los Angeles County/Riverside County (South Coast AQMD)	1.36	6.89	0.18	0.18	0.00	0.31	473
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
East Kern County APCD	0.31	1.57	0.04	0.04	0.00	0.07	107
CEQA Annual Threshold Limits	-	-	-	-	-	-	-

Note:
– = no CEQA annual threshold for this pollutant in the AQMD

TABLE D-4
Emissions for Scenario 4 - Maximum Ballast from Quarries Nearest to the Project and Balance from Bangor Rock Quarry and Kaiser Eagle Mountain Quarry by Truck Only (Merced to Fresno Section), Comparison to CEQA Annual Thresholds

	Emissions (tons per year) Merced to Fresno						
Air Quality Management District (AQMD)	**CO**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**	**CO_2 (Metric Tons)**
Bay Area AQMD	1.87	5.34	0.21	0.23	0.01	0.29	958
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
Los Angeles County/Riverside County (South Coast AQMD)	3.38	9.66	0.38	0.41	0.02	0.52	1,734
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
Butte County AQMD	0.32	0.92	0.04	0.04	0.00	0.05	165
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
Sacramento Metropolitan Area AQMD	0.61	1.74	0.07	0.07	0.00	0.09	312
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
Feather River AQMD	0.73	2.09	0.08	0.09	0.00	0.11	374
CEQA Annual Threshold Limits	-	4.5	-	-	-	4.5	-

Note:
– = no CEQA annual threshold for this pollutant in the AQMD

TABLE D-5
Emissions for Scenario 5 - Maximum Ballast from Quarries Nearest Project Balance from Kaiser Eagle Mountain Quarry by Truck Only (Merced to Fresno Section), Comparison to CEQA Annual Thresholds

	Emissions (tons per year) Merced to Fresno						
Air Quality Management District (AQMD)	**CO**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**	**CO_2 (Metric Tons)**
Bay Area AQMD	1.87	5.34	0.21	0.23	0.01	0.29	958
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
Los Angeles County/Riverside County (South Coast AQMD)	7.77	22.18	0.88	0.94	0.04	1.19	3,981
CEQA Annual Threshold Limits	-	-	-	-	-	-	-

Note:
– = no CEQA annual threshold for this pollutant in the AQMD

TABLE D-6
Emissions for Scenario 1 - All Ballast from Kaiser Eagle Mountain Quarry by Rail (Fresno to Bakersfield Section), Comparison to CEQA Annual Thresholds

	Emissions (tons per year) Fresno to Bakersfield						
Air Quality Management District (AQMD)	**CO**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**	**CO_2 (Metric Tons)**
San Bernardino/Los Angeles County (Mojave Desert AQMD)	1.99	10.09	0.26	0.27	0.01	0.46	693
CEQA Annual Threshold Limits	100	25	15	15	25	25	-
Los Angeles County/Riverside County (South Coast AQMD)	9.09	46.07	1.19	1.23	0.03	0.86	3,163
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
East Kern County APCD	2.06	10.47	0.27	0.28	0.01	0.47	719
CEQA Annual Threshold Limits	-	-	-	-	-	-	-

Notes:
– = no CEQA annual threshold for this pollutant in the AQMD

TABLE D-7
Emissions for Scenario 2 –Ballast from Quarries Nearest Project and Balance From Kaiser Eagle Quarry by Rail and Truck (Fresno to Bakersfield Section), Comparison to CEQA Annual Thresholds

	Emissions (tons per year) Fresno to Bakersfield						
Air Quality Management District (AQMD)	**CO**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**	**CO_2 (Metric Tons)**
Bay Area AQMD	1.65	7.35	0.21	0.22	0.01	0.34	649
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
San Bernardino/Los Angeles County (Mojave Desert AQMD)	1.03	5.20	0.13	0.14	0.00	0.23	357
CEQA Annual Threshold Limits	100	25	15	15	25	25	-
Los Angeles County/Riverside County (South Coast AQMD)	3.76	19.09	0.49	0.51	0.01	0.86	674
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
East Kern County APCD	1.06	5.40	0.14	0.14	0.00	0.24	370
CEQA Annual Threshold Limits	-	-	-	-	-	-	-

Notes:
– = no CEQA annual threshold for this pollutant in the AQMD

TABLE D-8
Emissions for Scenario 3 - Ballast from a Mixture of Quarries by Truck and Rail ((Fresno to Bakersfield Section), Comparison to CEQA Annual Thresholds

	Emissions (tons per year) Fresno to Bakersfield						
Air Quality Management District (AQMD)	**CO**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**	**CO_2 (Metric Tons)**
Bay Area AQMD	1.65	7.35	0.21	0.22	0.01	0.34	649
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
Butte County AQMD	0.50	1.67	0.06	0.06	0.00	0.08	239
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
Sacramento Metropolitan Area AQMD	0.37	1.88	0.05	0.05	0.00	0.09	129
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
Feather River AQMD	0.45	2.27	0.06	0.06	0.00	0.10	156
CEQA Annual Threshold Limits	-	4.5	-	-	-	4.5	-
San Bernardino/Los Angeles County (Mojave Desert AQMD)	0.45	2.26	0.06	0.06	0.00	0.10	156
CEQA Annual Threshold Limits	100	25	15	15	25	25	-
Los Angeles County/Riverside County (South Coast AQMD)	2.04	10.34	0.27	0.28	0.01	0.47	293
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
East Kern County APCD	0.46	2.35	0.06	0.06	0.00	0.11	161
CEQA Annual Threshold Limits	-	-	-	-	-	-	-

Note:
– = no CEQA annual threshold for this pollutant in the AQMD

TABLE D-9
Emissions for Scenario 4 - Maximum Ballast from Quarries Nearest to the Project and Balance from Bangor Rock Quarry and Kaiser Eagle Mountain Quarry by Truck Only (Fresno to Bakersfield Section), Comparison to CEQA Annual Thresholds

	Emissions (tons per year) Fresno to Bakersfield						
Air Quality Management District (AQMD)	**CO**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**	**CO_2 (Metric Tons)**
Bay Area AQMD	2.81	8.02	0.32	0.34	0.02	0.43	1,439
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
Butte County AQMD	0.48	1.38	0.05	0.06	0.00	0.07	248
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
Sacramento Metropolitan Area AQMD	0.91	2.61	0.10	0.11	0.00	0.14	469
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
Feather River AQMD	1.10	3.13	0.12	0.13	0.01	0.17	562
CEQA Annual Threshold Limits	-	4.5	-	-	-	4.5	-
Los Angeles County/Riverside County (South Coast AQMD)	4.29	12.26	0.49	0.52	0.02	0.66	1,395
CEQA Annual Threshold Limits	-	-	-	-	-	-	-

Note:
– = no CEQA annual threshold for this pollutant in the AQMD

TABLE D-10
Emissions for Scenario 5 - Maximum Ballast from Quarries Nearest Project Balance from Kaiser Eagle Mountain Quarry by Truck Only (Fresno to Bakersfield Section), Comparison to CEQA Annual Thresholds

	Emissions (tons per year) Fresno to Bakersfield						
Air Quality Management District (AQMD)	**CO**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**	**CO_2 (Metric Tons)**
Bay Area AQMD	2.81	8.02	0.32	0.34	0.02	0.43	1,439
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
Los Angeles County/Riverside County (South Coast AQMD)	9.86	28.14	1.12	1.19	0.05	1.51	3,202
CEQA Annual Threshold Limits	-	-	-	-	-	-	-

Note:
– = no CEQA annual threshold for this pollutant in the AQMD

TABLE D-11
Emissions for Scenario 1 - All Ballast from Kaiser Eagle Mountain Quarry by Rail (Merced to Fresno Section), Comparison to Daily CEQA Daily Thresholds

	Emissions (pounds per day) Merced to Fresno					
Air Quality Management District (AQMD)	**CO**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**
San Bernardino/Los Angeles County (Mojave Desert AQMD)	25.49	129.23	3.34	3.45	0.09	5.84
CEQA Daily Threshold Limits	548	137	82	82	137	137
Los Angeles County/Riverside County (South Coast AQMD)	116.37	***590.07***	15.26	15.74	0.42	26.66
CEQA Daily Threshold Limits	550	***100***	55	150	150	75
East Kern County APCD	26.45	134.11	3.47	3.58	0.10	6.06
CEQA Daily Threshold Limits	-	137	-	-	-	137

Notes:
– = no CEQA daily threshold for this pollutant in the AQMD

TABLE D-12
Emissions for Scenario 2 –Ballast from Quarries Nearest Project and Balance From Kaiser Eagle Quarry by Rail and Truck (Merced to Fresno Section), Comparison to CEQA Daily Thresholds

	Emissions (pounds per day) Merced to Fresno					
Air Quality Management District (AQMD)	**CO**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**
Bay Area AQMD	17.61	***84.10***	2.27	2.35	0.07	3.86
CEQA Daily Threshold Limits	-	***54***	54	82	-	54
San Bernardino/Los Angeles County (Mojave Desert AQMD)	13.13	66.59	1.78	1.72	0.05	3.01
CEQA Daily Threshold Limits	548	137	82	82	137	137
Los Angeles County/Riverside County (South Coast AQMD)	59.97	***304.06***	8.11	7.87	0.22	13.74
CEQA Daily Threshold Limits	550	***100***	55	150	150	75
East Kern County APCD	13.63	69.10	1.84	1.79	0.05	3.12
CEQA Daily Threshold Limits	-	137	-	-	-	137

Notes:
– = no CEQA daily threshold for this pollutant in the AQMD

TABLE D-13
Emissions for Scenario 3 - Ballast from a Mixture of Quarries by Truck and Rail (Merced to Fresno Section), Comparison to CEQA Daily Thresholds

	Emissions (pounds per day) Merced to Fresno					
Air Quality Management District (AQMD)	**CO**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**
Bay Area AQMD	17.61	***84.10***	2.27	2.35	0.07	3.86
CEQA Daily Threshold Limits	-	***54***	54	82	-	54
Butte County AQMD	3.41	12.82	0.41	0.43	0.02	0.63
CEQA Daily Threshold Limits	-	-	-	80	-	25
Sacramento Metropolitan Area AQMD	4.75	24.11	0.62	0.64	0.02	1.09
CEQA Daily Threshold Limits	-	85	-	-	-	65
Feather River AQMD	5.73	29.07	0.75	0.78	0.02	1.31
CEQA Daily Threshold Limits	-	-	-	80	-	-
San Bernardino/Los Angeles County (Mojave Desert AQMD)	5.72	29.01	0.75	0.77	0.02	1.31
CEQA Daily Threshold Limits	548	137	82	82	137	137
Los Angeles County/Riverside County (South Coast AQMD)	26.12	***132.46***	3.43	3.53	0.09	5.99
CEQA Daily Threshold Limits	550	***100***	55	150	150	75
East Kern County APCD	5.94	30.10	0.78	0.80	0.02	1.36
CEQA Daily Threshold Limits	-	137	-	-	-	137

Note:
– = no CEQA daily threshold for this pollutant in the AQMD

TABLE D-14

Emissions for Scenario 4 - Maximum Ballast from Quarries Nearest to the Project and Balance from Bangor Rock Quarry and Kaiser Eagle Mountain Quarry by Truck Only (Merced to Fresno Section), Comparison to CEQA Daily Thresholds

	Emissions (pounds per day) Merced to Fresno					
Air Quality Management District (AQMD)	**CO**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**
Bay Area AQMD	14.39	41.07	1.63	1.74	0.08	2.20
CEQA Daily Threshold Limits	-	54	54	82	-	54
Los Angeles County/Riverside County (South Coast AQMD)	26.03	74.32	2.95	3.16	0.14	3.98
CEQA Daily Threshold Limits	550	100	55	150	150	75
Butte County AQMD	2.48	7.07	0.28	0.30	0.01	0.38
CEQA Daily Threshold Limits	-	-	-	80	-	25
Sacramento Metropolitan Area AQMD	4.68	13.37	0.53	0.57	0.03	0.72
CEQA Daily Threshold Limits	-	85	-	-	-	65
Feather River AQMD	5.62	16.05	0.64	0.68	0.03	0.86
CEQA Daily Threshold Limits	-	25	-	80	-	25

Note:
– = no CEQA daily threshold for this pollutant in the AQMD

TABLE D-15

Emissions for Scenario 5 - Maximum Ballast from Quarries Nearest Project Balance from Kaiser Eagle Mountain Quarry by Truck Only (Merced to Fresno Section), Comparison to CEQA Daily Thresholds

	Emissions (pounds per day) Merced to Fresno					
Air Quality Management District (AQMD)	**CO**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**
Bay Area AQMD	14.39	41.07	1.63	1.74	0.08	2.20
CEQA Daily Threshold Limits	-	54	54	82	-	54
Los Angeles County/Riverside County (South Coast AQMD)	59.76	***170.60***	6.77	7.24	0.32	9.15
CEQA Daily Threshold Limits	550	***100***	55	150	150	75

Note:
– = no CEQA daily threshold for this pollutant in the AQMD

TABLE D-16
Emissions for Scenario 1 - All Ballast from Kaiser Eagle Mountain Quarry by Rail (Fresno to Bakersfield Section), Comparison to CEQA Daily Thresholds

	Emissions (pounds per day) Fresno to Bakersfield					
Air Quality Management District (AQMD)	**CO**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**
San Bernardino/Los Angeles County (Mojave Desert AQMD)	38.27	***194.03***	5.02	5.17	0.14	8.77
CEQA Daily Threshold Limits	548	***137***	82	82	137	137
Los Angeles County/Riverside County (South Coast AQMD)	174.72	***885.95***	22.92	23.63	0.63	16.54
CEQA Daily Threshold Limits	550	***100***	55	150	150	75
East Kern County APCD	39.71	***201.35***	5.21	5.37	0.14	9.10
CEQA Daily Threshold Limits	-	***137***	-	-	-	137

Notes: – = no CEQA daily threshold for this pollutant in the AQMD

TABLE D-17
Emissions for Scenario 2 –Ballast from Quarries Nearest Project and Balance From Kaiser Eagle Quarry by Rail and Truck (Fresno to Bakersfield Section), Comparison to CEQA Daily Thresholds

	Emissions (pounds per day) Fresno to Bakersfield					
Air Quality Management District (AQMD)	**CO**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**
Bay Area AQMD	26.44	***126.27***	3.40	3.53	0.10	5.79
CEQA Daily Threshold Limits	-	***54***	54	82	-	54
San Bernardino/Los Angeles County (Mojave Desert AQMD)	19.72	99.98	2.59	2.67	0.07	4.52
CEQA Daily Threshold Limits	548	137	82	82	137	137
Los Angeles County/Riverside County (South Coast AQMD)	72.39	***367.06***	9.49	9.79	0.26	16.59
CEQA Daily Threshold Limits	550	***100***	55	150	150	75
East Kern County APCD	20.46	103.76	2.68	2.77	0.07	4.69
CEQA Daily Threshold Limits	-	137	-	-	-	137

Notes:

– = no CEQA daily threshold for this pollutant in the AQMD

TABLE D-18
Emissions for Scenario 3 - Ballast from a Mixture of Quarries by Truck and Rail (Fresno to Bakersfield Section), Comparison to CEQA Daily Thresholds

	Emissions (pounds per day) Fresno to Bakersfield					
Air Quality Management District (AQMD)	**CO**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**
Bay Area AQMD	26.44	***126.27***	3.40	3.53	0.10	5.79
CEQA Daily Threshold Limits	-	***54***	54	82	-	54
Butte County AQMD	5.11	19.25	0.62	0.65	0.02	0.94
CEQA Daily Threshold Limits	-	-	-	80	-	25
Sacramento Metropolitan Area AQMD	7.14	36.20	0.94	0.97	0.03	1.64
CEQA Daily Threshold Limits	-	85	-	-	-	65
Feather River AQMD	8.61	43.65	1.13	1.16	0.03	1.97
CEQA Daily Threshold Limits	-	-	-	80	-	-
San Bernardino/Los Angeles County (Mojave Desert AQMD)	8.59	43.55	1.13	1.16	0.03	1.97
CEQA Daily Threshold Limits	548	137	82	82	137	137
Los Angeles County/Riverside County (South Coast AQMD)	39.22	***198.87***	5.14	5.30	0.14	8.99
CEQA Daily Threshold Limits	550	***100***	55	150	150	75
East Kern County APCD	8.91	45.20	1.17	1.21	0.03	2.04
CEQA Daily Threshold Limits	-	137	-	-	-	137

Note:
– = no CEQA daily threshold for this pollutant in the AQMD

TABLE D-19
Emissions for Scenario 4 - Maximum Ballast from Quarries Nearest to the Project and Balance from Bangor Rock Quarry and Kaiser Eagle Mountain Quarry by Truck Only (Fresno to Bakersfield Section), Comparison to CEQA Daily Thresholds

Air Quality Management District (AQMD)	Emissions (pounds per day) Fresno to Bakersfield					
	CO	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**
Bay Area AQMD	21.60	***61.67***	2.45	2.62	0.12	3.31
CEQA Daily Threshold Limits	-	***54***	54	82	-	54
Los Angeles County/Riverside County (South Coast AQMD)	33	94	4	4	0	5
CEQA Daily Threshold Limits	550	100	55	150	150	75
Butte County AQMD	3.72	10.61	0.42	0.45	0.02	0.57
CEQA Daily Threshold Limits	-	-	-	80	-	25
Sacramento Metropolitan Area AQMD	7.03	20.08	0.80	0.85	0.04	1.08
CEQA Daily Threshold Limits	-	85	-	-	-	65
Feather River AQMD	8.44	24.09	0.96	1.02	0.05	1.29
CEQA Daily Threshold Limits	-	-	-	80	-	-

Note:
– = no CEQA daily threshold for this pollutant in the AQMD

TABLE D-20
Emissions for Scenario 5 - Maximum Ballast from Quarries Nearest Project Balance from Kaiser Eagle Mountain Quarry by Truck Only (Fresno to Bakersfield Section), Comparison to CEQA Thresholds

Air Quality Management District (AQMD)	Emissions (pounds per day) Fresno to Bakersfield					
	CO	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**
Bay Area AQMD	21.60	***61.67***	2.45	2.62	0.12	3.31
CEQA Daily Threshold Limits	-	***54***	54	82	-	54
Los Angeles County/Riverside County (South Coast AQMD)	75.82	***216.43***	8.59	9.19	0.41	11.60
CEQA Daily Threshold Limits	550	***100***	55	150	150	75

Note:
– = no CEQA daily threshold for this pollutant in the AQMD

Attachment E
Mitigated Emission Calculations for Scenarios Compared to GCR de minimis Thresholds

TABLE E-1
Mitigated Emissions for Scenario 2 –Ballast from Quarries Nearest Project and Balance From Kaiser Eagle Quarry by Rail and Truck (Merced to Fresno), Comparison to GC de Minimis Thresholds

Nonattainment/Maintenance Area (Air Basin)	Emissions (tons per year) Merced to Fresno						
	CO	NO_x	$PM_{2.5}$	PM_{10}	SO_2	VOC	CO_2 (Metric Tons)
Bay Area (San Francisco Bay)	0.91	4.16	0.11	0.11	0.00	0.19	436
General Conformity de Minimis	100	100	100	–	100	50	–
Riverside County (Salton Sea)	1.83	9.28	0.24	0.25	0.01	0.42	637
General Conformity de Minimis	100	25	–	70	–	25	–
Western San Bernardino/Los Angeles County (Mojave Desert)	0.68	3.46	0.09	0.09	0.00	0.16	238
East Kern County (Mojave Desert)	0.71	3.59	0.09	0.10	0.00	0.16	247
Total Mojave Desert Air Basin	1.39	7.06	0.18	0.19	0.01	0.32	484
General Conformity de Minimis	100	100	–	70	–	50	-
Los Angeles County (South Coast)	1.29	6.53	0.17	0.17	0.00	0.30	449
General Conformity de Minimis	100	10	100	70	100	10	-

Notes:

– = no de minimis threshold for this pollutant in the air basin

TABLE E-2
Mitigated Emissions for Scenario 3 - Ballast from a Mixture of Quarries by Truck and Rail (Merced to Fresno Section), Comparison to GC de Minimis Thresholds

Nonattainment/Maintenance Area (Air Basin)	Emissions (tons per year) Merced to Fresno						
	CO	NO_x	$PM_{2.5}$	PM_{10}	SO_2	VOC	CO_2 (Metric Tons)
Bay Area (San Francisco Bay)	0.91	4.16	0.11	0.11	0.00	0.19	436
General Conformity de Minimis	100	100	100	–	100	50	-
Chico, CA (Sacramento Valley)	0.17	0.48	0.02	0.02	0.00	0.03	162
Yuba City (Sacramento Valley)	0.30	1.51	0.04	0.04	0.00	0.07	104
Sacramento Metropolitan Area (Sacramento Valley)	0.25	1.25	0.03	0.03	0.00	0.06	86
Total Sacramento Valley Air Basin	0.71	3.25	0.09	0.09	0.00	0.15	352
General Conformity de Minimis	100	25	100	100	100	25	-
Riverside County (Salton Sea)	0.80	4.04	0.105	0.11	0.00	0.18	277
General Conformity de Minimis	100	25	–	70	–	25	-
Western San Bernardino/Los Angeles County (Mojave Desert)	0.30	1.51	0.04	0.04	0.00	0.07	104
East Kern County (Mojave Desert)	0.31	1.57	0.04	0.04	0.00	0.07	107
Total Mojave Desert Air Basin	0.61	3.07	0.08	0.08	0.00	0.14	211
General Conformity de Minimis	100	100	–	100	–	50	-
Los Angeles County (South Coast)	0.56	2.85	0.07	0.08	0.00	0.13	195
General Conformity de Minimis	100	10	100	70	100	10	-

Note:
– = no de minimis threshold for this pollutant in the air basin

TABLE E-3
Mitigated Emissions for Scenario 4 - Maximum Ballast from Quarries Nearest to the Project and Balance from Bangor Rock Quarry and Kaiser Eagle Mountain Quarry by Truck Only (Merced to Fresno Section) , Comparison to GC de Minimis Thresholds

Nonattainment/Maintenance Area (Air Basin)	Emissions (tons per year) Merced to Fresno						
	CO	NO_x	$PM_{2.5}$	PM_{10}	SO_2	VOC	CO_2 (Metric Tons)
Bay Area (San Francisco Bay)	0.69	0.80	0.04	0.05	0.01	0.06	982
General Conformity de Minimis	100	100	100	–	100	50	-
Riverside County (Salton Sea)	0.58	0.67	0.04	0.04	0.01	0.05	825
General Conformity de Minimis	100	25	–	70	–	25	-
Los Angeles County (South Coast)	0.67	0.78	0.04	0.04	0.01	0.06	952
General Conformity de Minimis	100	10	100	70	100	10	-
Chico, Butte County (Sacramento Valley)	0.12	0.14	0.01	0.01	0.00	0.01	169
Sacramento Metropolitan Area (Sacramento Valley)	0.23	0.26	0.01	0.01	0.00	0.02	320
Yuba City (Sacramento Valley)	0.27	0.31	0.02	0.02	0.00	0.03	384
Total Sacramento Valley Air Basin	0.61	0.71	0.04	0.04	0.01	0.06	873
General Conformity de Minimis	100	25	100	100	100	25	-

Note:
– = no de minimis threshold for this pollutant in the air basin

TABLE E-4
Mitigated Emissions for Scenario 5 - Maximum Ballast from Quarries Nearest Project Balance from Kaiser Eagle Mountain Quarry by Truck Only (Merced to Fresno Section) , Comparison to GC de Minimis Thresholds

Nonattainment/Maintenance Area (Air Basin)	Emissions (tons per year) Merced to Fresno						
	CO	NO_x	$PM_{2.5}$	PM_{10}	SO_2	VOC	CO_2 (Metric Tons)
Bay Area (San Francisco Bay)	0.69	0.80	0.04	0.05	0.01	0.06	982
General Conformity de Minimis	100	100	100	–	100	50	-
Riverside County (Salton Sea)	1.33	1.54	0.08	0.09	0.02	0.13	1,894
General Conformity de Minimis	100	25	–	70	–	25	-
Los Angeles County (South Coast)	1.54	1.78	0.09	0.10	0.02	0.14	2,186
General Conformity de Minimis	100	10	100	70	100	10	-

Note:
– = no de minimis threshold for this pollutant in the Air Basin

TABLE E-5
Mitigated Emissions for Scenario 2 –Ballast from Quarries Nearest Project and Balance From Kaiser Eagle Quarry by Rail and Truck (Fresno to Bakersfield), Comparison to GC de Minimis Thresholds

Nonattainment/Maintenance Area (Air Basin)	Emissions (tons per year) Fresno to Bakersfield						
	CO	NO_x	$PM_{2.5}$	PM_{10}	SO_2	VOC	CO_2 (Metric Tons)
Bay Area (San Francisco Bay)	1.36	6.24	0.17	0.17	0.01	0.29	655
General Conformity de Minimis	100	100	100	–	100	50	–
Riverside County (Salton Sea)	2.75	13.93	0.36	0.37	0.01	0.63	956
General Conformity de Minimis	100	25	–	70	–	25	-
Western San Bernardino/Los Angeles County (Mojave Desert)	1.03	5.20	0.13	0.14	0.00	0.23	357
East Kern County (Mojave Desert)	1.06	5.40	0.14	0.14	0.00	0.24	370
Total Mojave Desert Air Basin	2.09	10.59	0.27	0.28	0.01	0.48	727
General Conformity de Minimis	100	100	–	70	–	50	-
Los Angeles County (South Coast)	1.93	9.81	0.25	0.26	0.01	0.44	674
General Conformity de Minimis	100	10	100	70	100	10	-

Notes:

– = no de minimis threshold for this pollutant in the air basin

TABLE E-6
Mitigated Emissions for Scenario 3 - Ballast from a Mixture of Quarries by Truck and Rail (Fresno to Bakersfield Section), Comparison to GC de Minimis Thresholds

Nonattainment/Maintenance Area (Air Basin)	Emissions (tons per year) Fresno to Bakersfield						
	CO	NO_x	$PM_{2.5}$	PM_{10}	SO_2	VOC	CO_2 (Metric Tons)
Bay Area (San Francisco Bay)	1.36	6.24	0.17	0.17	0.01	0.29	655
General Conformity de Minimis	100	100	100	–	100	50	-
Chico, CA (Sacramento Valley)	0.25	0.72	0.02	0.02	0.00	0.04	244
Yuba City (Sacramento Valley)	0.45	2.27	0.06	0.06	0.00	0.10	156
Sacramento Metropolitan Area (Sacramento Valley)	0.37	1.88	0.05	0.05	0.00	0.09	129
Total Sacramento Valley Air Basin	1.07	4.87	0.13	0.14	0.01	0.23	529
General Conformity de Minimis	100	25	100	100	100	25	-
Riverside County (Salton Sea)	1.20	6.07	0.16	0.16	0.00	0.27	417
General Conformity de Minimis	100	25	–	70	–	25	-
Western San Bernardino/Los Angeles County (Mojave Desert)	0.45	2.26	0.06	0.06	0.00	0.10	156
East Kern County (Mojave Desert)	0.46	2.35	0.06	0.06	0.00	0.11	161
Total Mojave Desert Air Basin	0.91	4.62	0.12	0.12	0.00	0.21	317
General Conformity de Minimis	100	100	–	100	–	50	-
Los Angeles County (South Coast)	0.84	4.27	0.11	0.11	0.00	0.19	293
General Conformity de Minimis	100	10	100	70	100	10	-

Note:
– = no de minimis threshold for this pollutant in the air basin

TABLE E-7

Mitigated Emissions for Scenario 4 - Maximum Ballast from Quarries Nearest to the Project and Balance from Bangor Rock Quarry and Kaiser Eagle Mountain Quarry by Truck Only (Fresno to Bakersfield Section) , Comparison to GC de Minimis Thresholds

Nonattainment/Maintenance Area (Air Basin)	Emissions (tons per year) Fresno to Bakersfield						
	CO	NO_x	$PM_{2.5}$	PM_{10}	SO_2	VOC	CO_2 (Metric Tons)
Bay Area (San Francisco Bay)	1.04	1.20	0.06	0.07	0.02	0.10	1,475
General Conformity de Minimis	100	100	100	–	100	50	-
Riverside County (Salton Sea)	0.87	1.01	0.05	0.06	0.01	0.08	1,239
General Conformity de Minimis	100	25	–	70	–	25	-
Los Angeles County (South Coast)	1.01	1.16	0.06	0.07	0.01	0.09	1,430
General Conformity de Minimis	100	10	100	70	100	10	-
Chico, Butte County (Sacramento Valley)	0.18	0.21	0.01	0.01	0.00	0.02	254
Sacramento Metropolitan Area (Sacramento Valley)	0.34	0.39	0.02	0.02	0.00	0.03	480
Yuba City (Sacramento Valley)	0.41	0.47	0.03	0.03	0.01	0.04	576
Total Sacramento Valley Air Basin	0.92	1.07	0.06	0.06	0.01	0.09	1,310
General Conformity de Minimis	100	25	100	100	100	25	–

Note:
– = no de minimis threshold for this pollutant in the air basin

TABLE E-8

Mitigated Emissions for Scenario 5 - Maximum Ballast from Quarries Nearest Project Balance from Kaiser Eagle Mountain Quarry by Truck Only (Fresno to Bakersfield Section) , Comparison to GC de Minimis Thresholds

Nonattainment/Maintenance Area (Air Basin)	Emissions (tons per year) Fresno to Bakersfield						
	CO	NO_x	$PM_{2.5}$	PM_{10}	SO_2	VOC	CO_2 (Metric Tons)
Bay Area (San Francisco Bay)	1.04	1.20	0.06	0.07	0.02	0.10	1,475
General Conformity de Minimis	100	100	100	–	100	50	-
Riverside County (Salton Sea)	2.00	2.32	0.12	0.13	0.03	0.19	2,844
General Conformity de Minimis	100	25	–	70	–	25	-
Los Angeles County (South Coast)	2.31	2.67	0.14	0.15	0.03	0.22	3,282
General Conformity de Minimis	100	10	100	70	100	10	-

Note:
– = no de minimis threshold for this pollutant in the Air Basin

Attachment F
Mitigated Emission Calculations for Scenarios Compared to CEQA Thresholds

TABLE F-1
Mitigated Emissions for Scenario 2 –Ballast from Quarries Nearest Project and Balance From Kaiser Eagle Quarry by Rail and Truck (Merced to Fresno Section), Comparison to CEQA Annual Thresholds)

	Emissions (tons per year) Merced to Fresno						
Air Quality Management District (AQMD)	**CO**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**	**CO_2 (Metric Tons)**
Bay Area AQMD	0.91	4.16	0.11	0.11	0.00	0.19	436
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
San Bernardino/Los Angeles County (Mojave Desert AQMD)	0.68	3.46	0.09	0.09	0.00	0.16	238
CEQA Annual Threshold Limits	100	25	15	15	25	25	-
Los Angeles County/Riverside County (South Coast AQMD)	3.12	15.8	0.41	0.42	0.01	0.71	1,086
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
East Kern County APCD	0.71	3.59	0.09	0.10	0.00	0.16	247
CEQA Annual Threshold Limits	-	-	-	-	-	-	-

Notes:

– = no CEQA annual threshold for this pollutant in the AQMD

TABLE F-2
Mitigated Emissions for Scenario 3 - Ballast from a Mixture of Quarries by Truck and Rail (Merced to Fresno Section), Comparison to CEQA Annual Thresholds)

	Emissions (tons per year) Merced to Fresno						
Air Quality Management District (AQMD)	**CO**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**	**CO_2 (Metric Tons)**
Bay Area AQMD	0.91	4.16	0.11	0.11	0.00	0.19	436
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
Butte County AQMD	0.17	0.48	0.02	0.02	0.00	0.03	162
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
Sacramento Metropolitan Area AQMD	0.25	1.25	0.03	0.03	0.00	0.06	86
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
Feather River AQMD	0.30	1.51	0.04	0.04	0.00	0.07	104
CEQA Annual Threshold Limits	-	4.5	-	-	-	4.5	-
San Bernardino/Los Angeles County (Mojave Desert AQMD)	0.30	1.51	0.04	0.04	0.00	0.07	104
CEQA Annual Threshold Limits	100	25	15	15	25	25	-
Los Angeles County/Riverside County (South Coast AQMD)	1.36	6.89	0.18	0.18	0.00	0.31	473
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
East Kern County APCD	0.31	1.57	0.04	0.04	0.00	0.07	107
CEQA Annual Threshold Limits	-	-	-	-	-	-	-

Note:
– = no CEQA annual threshold for this pollutant in the AQMD

TABLE F-3
Mitigated Emissions for Scenario 4 - Maximum Ballast from Quarries Nearest to the Project and Balance from Bangor Rock Quarry and Kaiser Eagle Mountain Quarry by Truck Only (Merced to Fresno Section), Comparison to CEQA Annual Thresholds)

	Emissions (tons per year) Merced to Fresno						
Air Quality Management District (AQMD)	**CO**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**	**CO_2 (Metric Tons)**
Bay Area AQMD	0.69	0.80	0.04	0.05	0.01	0.06	982
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
Los Angeles County/Riverside County (South Coast AQMD)	1.25	1.45	0.08	0.08	0.02	0.12	1,777
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
Butte County AQMD	0.12	0.14	0.01	0.01	0.00	0.01	169
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
Sacramento Metropolitan Area AQMD	0.23	0.26	0.01	0.01	0.00	0.02	320
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
Feather River AQMD	0.27	0.31	0.02	0.02	0.00	0.03	384
CEQA Annual Threshold Limits	-	4.5	-	-	-	4.5	-

Note:
– = no CEQA annual threshold for this pollutant in the AQMD

TABLE F-4
Mitigated Emissions for Scenario 5 - Maximum Ballast from Quarries Nearest Project Balance from Kaiser Eagle Mountain Quarry by Truck Only (Merced to Fresno Section), Comparison to CEQA Annual Thresholds)

	Emissions (tons per year) Merced to Fresno						
Air Quality Management District (AQMD)	**CO**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**	**CO_2 (Metric Tons)**
Bay Area AQMD	0.69	0.80	0.04	0.05	0.01	0.06	982
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
Los Angeles County/Riverside County (South Coast AQMD)	2.87	3.32	0.18	0.19	0.04	0.27	4,080
CEQA Annual Threshold Limits	-	-	-	-	-	-	-

Note:
– = no CEQA annual threshold for this pollutant in the AQMD

TABLE F-5
Mitigated Emissions for Scenario 2 –Ballast from Quarries Nearest Project and Balance From Kaiser Eagle Quarry by Rail and Truck (Fresno to Bakersfield Section), Comparison to Annual CEQA Thresholds

	Emissions (tons per year) Fresno to Bakersfield						
Air Quality Management District (AQMD)	**CO**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**	**CO_2 (Metric Tons)**
Bay Area AQMD	1.36	6.24	0.17	0.17	0.01	0.29	655
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
San Bernardino/Los Angeles County (Mojave Desert AQMD)	1.03	5.20	0.13	0.14	0.00	0.23	357
CEQA Annual Threshold Limits	100	25	15	15	25	25	-
Los Angeles County/Riverside County (South Coast AQMD)	3.76	19.09	0.49	0.51	0.01	0.86	674
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
East Kern County APCD	1.06	5.40	0.14	0.14	0.00	0.24	370
CEQA Annual Threshold Limits	-	-	-	-	-	-	-

Notes:

– = no CEQA annual threshold for this pollutant in the AQMD

TABLE F-6
Mitigated Emissions for Scenario 3 - Ballast from a Mixture of Quarries by Truck and Rail (Fresno to Bakersfield Section), Comparison to Annual CEQA Thresholds

	Emissions (tons per year) Fresno to Bakersfield						
Air Quality Management District (AQMD)	**CO**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**	**CO_2 (Metric Tons)**
Bay Area AQMD	1.36	6.24	0.17	0.17	0.01	0.29	655
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
Butte County AQMD	0.25	0.72	0.02	0.02	0.00	0.04	244
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
Sacramento Metropolitan Area AQMD	0.37	1.88	0.05	0.05	0.00	0.09	129
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
Feather River AQMD	0.45	2.27	0.06	0.06	0.00	0.10	156
CEQA Annual Threshold Limits	-	4.5	-	-	-	4.5	-
San Bernardino/Los Angeles County (Mojave Desert AQMD)	0.45	2.26	0.06	0.06	0.00	0.10	156
CEQA Annual Threshold Limits	100	25	15	15	25	25	-
Los Angeles County/Riverside County (South Coast AQMD)	0.84	4.27	0.11	0.11	0.00	0.19	293
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
East Kern County APCD	0.46	2.35	0.06	0.06	0.00	0.11	161
CEQA Annual Threshold Limits	-	-	-	-	-	-	-

Note:
– = no CEQA annual threshold for this pollutant in the AQMD

TABLE F-7
Mitigated Emissions for Scenario 4 - Maximum Ballast from Quarries Nearest to the Project and Balance from Bangor Rock Quarry and Kaiser Eagle Mountain Quarry by Truck Only (Fresno to Bakersfield Section), Comparison to Annual CEQA Thresholds

	Emissions (tons per year) Fresno to Bakersfield						
Air Quality Management District (AQMD)	**CO**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**	**CO_2 (Metric Tons)**
Bay Area AQMD	1.04	1.20	0.06	0.07	0.02	0.10	1,475
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
Butte County AQMD	0.18	0.21	0.01	0.01	0.00	0.02	254
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
Sacramento Metropolitan Area AQMD	0.34	0.39	0.02	0.02	0.00	0.03	480
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
Feather River AQMD	0.41	0.47	0.03	0.03	0.01	0.04	576
CEQA Annual Threshold Limits	-	4.5	-	-	-	4.5	-
Los Angeles County/Riverside County (South Coast AQMD)	1.59	1.84	0.10	0.11	0.02	0.15	1,430
CEQA Annual Threshold Limits	-	-	-	-	-	-	-

Note:
– = no CEQA annual threshold for this pollutant in the AQMD

TABLE F-8
Mitigated Emissions for Scenario 5 - Maximum Ballast from Quarries Nearest Project Balance from Kaiser Eagle Mountain Quarry by Truck Only (Fresno to Bakersfield Section), Comparison to Annual CEQA Thresholds

	Emissions (tons per year) Fresno to Bakersfield						
Air Quality Management District (AQMD)	**CO**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**	**CO_2 (Metric Tons)**
Bay Area AQMD	1.04	1.20	0.06	0.07	0.02	0.10	1,475
CEQA Annual Threshold Limits	-	-	-	-	-	-	-
Los Angeles County/Riverside County (South Coast AQMD)	3.64	4.21	0.22	0.24	0.05	0.34	3,282
CEQA Annual Threshold Limits	-	-	-	-	-	-	-

Note:
– = no CEQA annual threshold for this pollutant in the AQMD

TABLE F-9
Mitigated Emissions for Scenario 2 –Ballast from Quarries Nearest Project and Balance From Kaiser Eagle Quarry by Rail and Truck (Merced to Fresno Section), Comparison to CEQA Daily Thresholds)

	Emissions (pounds per day) Merced to Fresno					
Air Quality Management District (AQMD)	**CO**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**
Bay Area AQMD	16.13	***78.41***	2.06	2.12	0.07	3.58
CEQA Daily Threshold Limits	-	***54***	54	82	-	54
San Bernardino/Los Angeles County (Mojave Desert AQMD)	13.13	66.59	1.78	1.72	0.05	3.01
CEQA Daily Threshold Limits	548	137	82	82	137	137
Los Angeles County/Riverside County (South Coast AQMD)	59.97	***304.06***	8.11	7.87	0.22	13.74
CEQA Daily Threshold Limits	550	***100***	55	150	150	75
East Kern County APCD	13.63	69.10	1.84	1.79	0.05	3.12
CEQA Daily Threshold Limits	-	137	-	-	-	137

Notes:

– = no CEQA daily threshold for this pollutant in the AQMD

TABLE F-10
Mitigated Emissions for Scenario 3 - Ballast from a Mixture of Quarries by Truck and Rail (Merced to Section), Comparison to Daily CEQA Thresholds

	Emissions (pounds per day) Merced to Fresno					
Air Quality Management District (AQMD)	**CO**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**
Bay Area AQMD	16.13	***78.41***	2.06	2.12	0.07	3.58
CEQA Daily Threshold Limits	-	***54***	54	82	-	54
Butte County AQMD	2.14	7.95	0.23	0.24	0.02	0.39
CEQA Daily Threshold Limits	-	-	-	80	-	25
Sacramento Metropolitan Area AQMD	4.75	24.11	0.62	0.64	0.02	1.09
CEQA Daily Threshold Limits	-	85	-	-	-	65
Feather River AQMD	5.73	29.07	0.75	0.78	0.02	1.31
CEQA Daily Threshold Limits	-	-	-	80	-	-
San Bernardino/Los Angeles County (Mojave Desert AQMD)	5.72	29.01	0.75	0.77	0.02	1.31
CEQA Daily Threshold Limits	548	137	82	82	137	137
Los Angeles County/Riverside County (South Coast AQMD)	26.12	***132.46***	3.43	3.53	0.09	5.99
CEQA Daily Threshold Limits	550	***100***	55	150	150	75
East Kern County APCD	5.94	30.10	0.78	0.80	0.02	1.36
CEQA Daily Threshold Limits	-	137	-	-	-	137

Note:

– = no CEQA daily threshold for this pollutant in the AQMD

TABLE F-11

Mitigated Emissions for Scenario 4 - Maximum Ballast from Quarries Nearest to the Project and Balance from Bangor Rock Quarry and Kaiser Eagle Mountain Quarry by Truck Only (Merced to Section), Comparison to Daily CEQA Thresholds

	Emissions (pounds per day) Merced to Fresno					
Air Quality Management District (AQMD)	**CO**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**
Bay Area AQMD	5.32	6.15	0.33	0.35	0.08	0.50
CEQA Daily Threshold Limits	-	54	54	82	-	54
Los Angeles County/Riverside County (South Coast AQMD)	9.63	11.13	0.59	0.64	0.14	0.90
CEQA Daily Threshold Limits	550	100	55	150	150	75
Butte County AQMD	0.92	1.06	0.06	0.06	0.01	0.09
CEQA Daily Threshold Limits	-	-	-	80	-	25
Sacramento Metropolitan Area AQMD	1.73	2.00	0.11	0.12	0.03	0.16
CEQA Daily Threshold Limits	-	85	-	-	-	65
Feather River AQMD	2.08	2.40	0.13	0.14	0.03	0.20
CEQA Daily Threshold Limits	-	25	-	80	-	25

Note:
– = no CEQA daily threshold for this pollutant in the AQMD

TABLE F-12

Mitigated Emissions for Scenario 5 - Maximum Ballast from Quarries Nearest Project Balance from Kaiser Eagle Mountain Quarry by Truck Only

	Emissions (pounds per day) Merced to Fresno					
Air Quality Management District (AQMD)	**CO**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**
Bay Area AQMD	5.32	6.15	0.33	0.35	0.08	0.50
CEQA Daily Threshold Limits	-	54	54	82	-	54
Los Angeles County/Riverside County (South Coast AQMD)	22.10	25.56	1.36	1.47	0.32	2.08
CEQA Daily Threshold Limits	550	100	55	150	150	75

Note:
– = no CEQA daily threshold for this pollutant in the AQMD

TABLE F-13
Mitigated Emissions for Scenario 2 –Ballast from Quarries Nearest Project and Balance From Kaiser Eagle Quarry by Rail and Truck (Fresno to Bakersfield Section), Comparison to Daily CEQA Thresholds

	Emissions (pounds per day) Fresno to Bakersfield					
Air Quality Management District (AQMD)	**CO**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**
Bay Area AQMD	24.22	117.73	3.09	3.19	0.10	5.37
CEQA Daily Threshold Limits	-	54	54	82	-	54
San Bernardino/Los Angeles County (Mojave Desert AQMD)	19.72	99.98	2.59	2.67	0.07	4.52
CEQA Daily Threshold Limits	548	137	82	82	137	137
Los Angeles County/Riverside County (South Coast AQMD)	72.39	367.06	9.49	9.79	0.26	16.59
CEQA Daily Threshold Limits	550	100	55	150	150	75
East Kern County APCD	20.46	103.76	2.68	2.77	0.07	4.69
CEQA Daily Threshold Limits	-	137	-	-	-	137

Notes:

– = no CEQA daily threshold for this pollutant in the AQMD

TABLE F-14
Mitigated Emissions for Scenario 3 - Ballast from a Mixture of Quarries by Truck and Rail (Fresno to Bakersfield Section), Comparison to Daily CEQA Thresholds

	Emissions (pounds per day) Fresno to Bakersfield					
Air Quality Management District (AQMD)	**CO**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**
Bay Area AQMD	24.22	***117.73***	3.09	3.19	0.10	5.37
CEQA Daily Threshold Limits	-	***54***	54	82	-	54
Butte County AQMD	3.21	11.94	0.34	0.36	0.02	0.59
CEQA Daily Threshold Limits	-	-	-	80	-	25
Sacramento Metropolitan Area AQMD	7.14	36.20	0.94	0.97	0.03	1.64
CEQA Daily Threshold Limits	-	85	-	-	-	65
Feather River AQMD	8.61	43.65	1.13	1.16	0.03	1.97
CEQA Daily Threshold Limits	-	-	-	80	-	-
San Bernardino/Los Angeles County (Mojave Desert AQMD)	8.59	43.55	1.13	1.16	0.03	1.97
CEQA Daily Threshold Limits	548	137	82	82	137	137
Los Angeles County/Riverside County (South Coast AQMD)	16.21	82.18	2.13	2.19	0.06	3.71
CEQA Daily Threshold Limits	550	100	55	150	150	75
East Kern County APCD	8.91	45.20	1.17	1.21	0.03	2.04
CEQA Daily Threshold Limits	-	137	-	-	-	137

Note:
– = no CEQA daily threshold for this pollutant in the AQMD

TABLE F-15

Mitigated Emissions for Scenario 4 - Maximum Ballast from Quarries Nearest to the Project and Balance from Bangor Rock Quarry and Kaiser Eagle Mountain Quarry by Truck Only (Fresno to Bakersfield Section), Comparison to Daily CEQA Thresholds

	Emissions (pounds per day) Fresno to Bakersfield					
Air Quality Management District (AQMD)	**CO**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**
Bay Area AQMD	7.99	9.24	0.49	0.53	0.12	0.75
CEQA Daily Threshold Limits	-	54	54	82	-	54
Los Angeles County/Riverside County (South Coast AQMD)	12.2	14.1	0.8	0.8	0.2	1.1
CEQA Daily Threshold Limits	550	100	55	150	150	75
Butte County AQMD	1.37	1.59	0.08	0.09	0.02	0.13
CEQA Daily Threshold Limits	-	-	-	80	-	25
Sacramento Metropolitan Area AQMD	2.60	3.01	0.16	0.17	0.04	0.24
CEQA Daily Threshold Limits	-	85	-	-	-	65
Feather River AQMD	3.12	3.61	0.19	0.21	0.05	0.29
CEQA Daily Threshold Limits	-	-	-	80	-	-

Note:
– = no CEQA daily threshold for this pollutant in the AQMD

TABLE F-16
Mitigated Emissions for Scenario 5 - Maximum Ballast from Quarries Nearest Project Balance from Kaiser Eagle Mountain Quarry by Truck Only (Fresno to Bakersfield Section), Comparison to Daily CEQA Thresholds

	Emissions (pounds per day) Fresno to Bakersfield					
Air Quality Management District (AQMD)	**CO**	**NO_x**	**$PM_{2.5}$**	**PM_{10}**	**SO_2**	**VOC**
Bay Area AQMD	7.99	9.24	0.49	0.53	0.12	0.75
CEQA Daily Threshold Limits	–	54	54	82	–	54
Los Angeles County/Riverside County (South Coast AQMD)	28.03	32.42	1.73	1.87	0.41	2.63
CEQA Daily Threshold Limits	550	100	55	150	150	75

Note:
– = no CEQA daily threshold for this pollutant in the AQMD

Appendix G.1

Material Hauling NOx Offset Memo

URS/HMM/Arup Joint Venture
1333 Broadway St. Suite 800
Oakland, CA 94612
Tel: 510 893 3600
Fax: 510 874 3268

MEMORANDUM

To: **Rebecca Kohlstrand/PMT; Bryan Porter/PMT**
From: **Jonathan Tamimi /URS/HMM/Arup; Avanti Tamhane /URS/HMM/Arup**
Date: **06/22/2012**
Subject: **Ballast Hauling NO_X Emission Offset Availability in the Bay Area, Mojave Desert, and South Coast Air Basins – Merced to Fresno and Fresno to Bakersfield Sections of the California High-Speed Train Project**

Analysis of pollutant emissions that are associated with hauling railway ballast material needed for the Merced to Fresno and Fresno to Bakersfield Sections of the California High-Speed Train Project determined that the project could potentially exceed CEQA NO_X emission thresholds in the South Coast, Mojave Desert, and Bay Area Air Basins (URS/HHM/Arup, 2012). Since the construction period for the Merced to Fresno Section and the Fresno to Bakersfield would overlap, the total amount of emission offsets required for both sections were analyzed together to ensure enough NO_X offsets were available in each basin to offset the CEQA exceedances. Representatives from all air districts were consulted to determine the amount of offset availability from each district to offset potential hauling emissions.

The maximum exceedances, and therefore the amount of potential offsets required, would occur under Hauling Scenario 1 for the South Coast and Mojave Desert Air Basins and in Hauling Scenarios 2 and 3 for the Bay Area Air Basin.

Maximum Potential Offsets Required for Mitigated Scenarios

	Pollutant	Threshold Exceeded	Offsets Required (tons/year)
Bay Area Air Basin	NO_X	CEQA	11.5
South Coast Air Basin	NO_X	CEQA	20.3
Mojave Desert Air Basin	NO_X	CEQA	2.9

Notes:
Maximum offsets required were calculated based on per day exceedances of CEQA thresholds multiplied by number of days of hauling per year (260 for Bay Area via truck, and 104 for Mojave Desert and South Coast via rail).

Bay Area Air Quality Management District (BAAQMD)

The BAAQMD's emissions bank currently holds 2,681 tons of NO_X emission offsets (BAAQMD 2012). While the entirety of these offsets are not currently for sale, as large entities typically hold on to their offsets for use with their own future projects, in 2010, 91.48 tons of NO_X credits were traded in the BAAQMD in a total of five transactions, at a price ranging from $10,000 to $13,000/ton (CARB 2012a). In 2009, 265.95 tons of NO_X credits

were traded over 8 transactions, with the price ranging from $11,000 to $16,800/ton (CARB 2012b). This data shows that even though the entirety of ERCs are not available for sale, enough are seemingly traded on a yearly basis to cover the amount required by the potential maximum emission exceendances.

While the BAAQMD does not have a formal program to use emission reduction credits (ERCs) to offset construction emissions, such as the SCAQMD's RECLAIM program, it is likely feasible to use them in this manner. Looking at the past few years of data, and the amount of ERCs currently in the BAAQMD emissions bank, it would seem likely that offsetting the NO_X emissions from construction would not be hindered by the quantity of emission credits available.

Mojave Desert Air Quality Management District (MDAQMD)

The MDAQMD's emissions bank currently holds 2,061 tons of available, Class A (approved for use as emission offsets), NO_X emission credits (MDAQMD 2012). In 2010, 17 tons of NO_X credits were traded in the MDAB at an average price of $10,000/ton (CARB 2012a) although in 2009, no NO_X credits were traded in the MDAB (CARB 2012b).

The MDAQMD, similar to the BAAQMD, does not have a formal construction emission offset program. It is likely, however, that emission offsets could be purchased to offset the potential maximum 2.9 tons of NO_X per year.

South Coast Air Quality Management District (SCAQMD)

Mobile Source Emission Reduction Credits (MSERC)

MSERCs have, and can be used, in the SCAQMD to offset NO_X construction emissions. Unfortunately, MSERCs are not being generated as quickly as they have been in past years, and it is unlikely, without new legislation encouraging generation of new MSERCs, that sufficient amounts would be available to offset the hauling emissions the South Coast Air Basin.

Regional Clean Air Incentives Market (RECLAIM)

Formal guidance is available from the SCAQMD specifying how RECLAIM credits can be used to offset construction emissions, specifically NO_X. The following criteria must be met prior to utilizing RECLAIM credits for mitigation:

- Utilize alternative technology mitigation
- Provide localized air quality modeling analysis to show localized impacts are less than significant
- Purchase the emission credits prior to the commencement of construction
- Retire the entire amount of NO_X emission credits prior to construction commencement
- Reconcile disparities (emissions higher than anticipated) in a timely manner
- Record construction equipment usage and submit monthly reports

- Post contact information at construction site

In a report, published by the SCAQMD in April 2012, the total amount of NO_X RECLAIM Trading Credits (RTCs) traded in the year ending April 2012, for compliance year 2011 was 1,198.6 tons at an average price of $1,013/ton. As of April 2012, 234.8 tons of NOX RTCs were traded for compliance year 2012 at an average price of $4,121 (SCAQMD 2012).

Based on the amount of trades and volume of credits traded in the past two years, it would seem likely that enough credits would be available to cover the potentially maximum 20 tons a year. The HST Project meets the RECLAIM criteria by exhausting technological mitigation and would not require localized air quality monitoring as the emissions are not occurring at one specific site, but are going to be spread over the air basin.

Conclusion

According to this analysis, sufficient offsets for NO_X emissions are available in the Bay Area, Mojave Desert, and South Coast Air Basins for the maximum potential offsets required under the various scenarios. This conclusion is based on the amount of emission offsets available in emission banks, as well as recent activity regarding emission trade in each air basin.

References

Bay Area AQMD. 2012. BAAQMD Emission Bank Status. Available at: http://hank.baaqmd.gov/pmt/emissions_banking/banking.htm. April 2012.

Brunelle, David. 2012. BAAQMD. Personal communication via telephone regarding mitigating construction emissions with ERCs and the availability of such credits, with Jonathan Tamimi/URS Corporation. April 19, 2012.

California Air Resources Board (CARB). 2012a. *Emission Reduction Offset Transaction Summary Report for 2010*. Available at: http://www.arb.ca.gov/nsr/erco/erc10.pdf. February 2012.

———. 2012b. Emission Reduction Offset Transaction Summary Report for 2010. Available at: http://www.arb.ca.gov/nsr/erco/erc09.pdf. February 2012.

Lopez, Ernest. 2012. SCAQMD. Personal communication via telephone regarding mitigating construction emissions with mobile source ERCs and the availability of such credits, with Jonathan Tamimi/URS Corporation. May 10th, 2012.

Mojave Desert AQMD. 2012. MD ERC Registry Report. Available at: http://www.mdaqmd.ca.gov/Modules/ShowDocument.aspx?documentid=3081. May 2012

South Coast AQMD. 2012. Twelve-Month Rolling Average Price of Compliance Year 2011 and 2012 NOX RTCs. Available at: http://www.aqmd.gov/reclaim/docs/2012-4_Avg_NOx_Price.pdf. April 2012.

URS/HHM/Arup. 2012. *Estimate Emissions from Hauling Ballast Material - Merced to Fresno and Fresno to Bakersfield Sections of the California High-Speed Train Project.* March 23, 2012