

APPENDIX B

AIR QUALITY CALCULATIONS

Attachment 1
EMFAC Data

Title : West Ceres Specific Plan
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2009/09/04 18:29:00
 Scen Year: 2010 -- All model years in the range 1966 to 2010 selected
 Season : Annual
 Area : Stanislaus

Year: Inclusive --
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average

Table 1: Running Exhaust Emissions (grams/mile; grams/idle-hour)

Pollutant Name: Carbon Monoxide

Temperature: 40F

Speed MPH	LDA ALL	LDT1 ALL	LDT2 ALL	MDV ALL	LHD1 ALL	LHD2 ALL	MHD ALL	HHD ALL	OBUS ALL	UBUS ALL	MCY ALL	SBUS ALL	MH ALL	ALL ALL
0	0	0	0	0	110.682	79.55	41.678	50.344	72.764	0	0	55.264	0	9.124
5	5.757	9.056	7.189	9.439	9.09	8.263	17.34	19.098	23.405	43.163	44.994	33.921	64.559	9.015
10	4.889	7.331	6.087	7.743	6.067	5.541	11.703	13.801	15.687	28.319	37.177	22.748	42.963	7.187
15	4.252	6.147	5.278	6.563	4.275	3.918	8.315	9.955	11.088	19.664	32.256	16.086	30.206	5.924
20	3.77	5.311	4.666	5.716	3.18	2.921	6.218	7.508	8.264	14.45	29.37	11.993	22.436	5.056
25	3.396	4.708	4.193	5.096	2.497	2.296	4.894	6.298	6.495	11.235	28.061	9.426	17.606	4.474
30	3.104	4.274	3.825	4.639	2.07	1.902	4.053	5.326	5.382	9.242	28.141	7.811	14.596	4.05
35	2.875	3.969	3.54	4.309	1.811	1.662	3.533	4.563	4.702	8.043	29.646	6.823	12.783	3.75
40	2.702	3.774	3.324	4.088	1.672	1.53	3.241	3.993	4.332	7.403	32.84	6.283	11.828	3.56
45	2.579	3.681	3.173	3.968	1.631	1.486	3.13	3.61	4.208	7.208	38.293	6.101	11.562	3.477
50	2.508	3.698	3.087	3.956	1.678	1.522	3.182	3.41	4.312	7.423	47.049	6.247	11.941	3.514
55	2.497	3.847	3.074	4.075	1.824	1.644	3.407	3.398	4.66	8.085	60.95	6.747	13.028	3.701
60	2.561	4.173	3.153	4.368	2.094	1.873	3.843	3.581	5.315	9.313	83.287	7.688	15.017	4.099
65	2.732	4.761	3.361	4.917	2.537	2.253	4.569	3.977	6.397	11.345	120.053	9.243	18.289	4.817

Pollutant Name: Carbon Dioxide

Temperature: 40F

Speed MPH	LDA ALL	LDT1 ALL	LDT2 ALL	MDV ALL	LHD1 ALL	LHD2 ALL	MHD ALL	HHD ALL	OBUS ALL	UBUS ALL	MCY ALL	SBUS ALL	MH ALL	ALL ALL
0	0	0	0	0	4588.54	4412.11	4189.59	6451.02	4380.41	0	0	4273.36	0	778.07
5	957.337	1127.72	1184.95	1621.67	1960.51	1449.44	1641.06	3826.89	1924.52	2647.9	241.428	1765.5	2390.64	1379.71
10	723.612	858.355	895.651	1225.7	1352.67	1060.22	1527.57	3144.74	1574.58	2432.23	204.17	1548.21	1651.89	1064.76
15	567.698	678.67	702.661	961.548	993.722	830.371	1460.54	2576.26	1367.93	2304.86	176.497	1419.89	1215.63	848.116
20	462.267	557.164	572.159	782.927	775.161	690.42	1419.74	2164.99	1242.1	2227.31	155.925	1341.76	950.001	700.683
25	390.68	474.664	483.549	661.647	639.33	603.444	1394.37	2023.86	1163.9	2179.12	140.785	1293.2	784.917	611.785
30	342.683	419.349	424.139	580.331	554.707	549.257	1378.57	1905.43	1115.18	2149.09	129.959	1262.95	682.069	550.65
35	311.958	383.938	386.107	528.276	503.786	516.651	1369.07	1809.36	1085.87	2131.02	122.733	1244.74	620.182	510.108
40	294.726	364.08	364.778	499.083	476.983	499.489	1364.06	1735.48	1070.44	2121.51	118.699	1235.16	587.607	485.916
45	288.972	357.449	357.656	489.334	469.583	494.75	1362.68	1683.69	1066.18	2118.89	117.725	1232.52	578.613	475.83
50	294.039	363.288	363.927	497.918	480.326	501.629	1364.69	1653.96	1072.36	2122.7	119.947	1236.36	591.67	479.133
55	310.503	382.263	384.307	525.812	511.046	521.3	1370.42	1646.34	1090.05	2133.6	125.827	1247.34	629.006	496.497
60	340.29	416.59	421.176	576.276	567.203	557.259	1380.91	1660.93	1122.38	2153.52	136.258	1267.42	697.257	530.119
65	387.045	470.474	479.05	655.488	659.53	616.378	1398.15	1697.92	1175.53	2186.28	152.775	1300.42	809.467	584.179

Title : West Ceres Specific Plan
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2009/09/04 18:29:00
 Scen Year: 2020 -- All model years in the range 1976 to 2020 selected
 Season : Annual
 Area : Stanislaus

Year: Inclusive --
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average

Table 1: Running Exhaust Emissions (grams/mile; grams/idle-hour)

Pollutant Name: Carbon Monoxide

Temperature: 40F

Speed MPH	LDA ALL	LDT1 ALL	LDT2 ALL	MDV ALL	LHD1 ALL	LHD2 ALL	MHD ALL	HHD ALL	OBUS ALL	UBUS ALL	MCY ALL	SBUS ALL	MH ALL	ALL ALL
0	0	0	0	0	108.042	83.658	44.086	44.696	56.676	0	0	46.065	0	8.349
5	1.678	2.422	2.791	4.205	3.266	2.494	5.566	8.042	15.657	47.278	30.103	17.6	8.874	3.329
10	1.505	2.118	2.483	3.624	2.19	1.691	3.807	5.184	10.526	31.085	25.328	11.882	5.912	2.701
15	1.36	1.879	2.23	3.186	1.548	1.205	2.732	3.307	7.457	21.627	22.215	8.444	4.16	2.26
20	1.236	1.687	2.018	2.845	1.154	0.903	2.056	2.378	5.567	15.919	20.278	6.316	3.092	1.968
25	1.13	1.53	1.84	2.575	0.907	0.712	1.622	2.095	4.378	12.395	19.256	4.971	2.427	1.779
30	1.038	1.4	1.688	2.357	0.751	0.589	1.342	1.889	3.627	10.209	19.041	4.117	2.012	1.634
35	0.959	1.292	1.558	2.183	0.656	0.513	1.165	1.745	3.165	8.894	19.648	3.588	1.761	1.527
40	0.89	1.203	1.448	2.044	0.605	0.469	1.06	1.66	2.911	8.194	21.222	3.291	1.628	1.454
45	0.83	1.131	1.354	1.94	0.587	0.451	1.012	1.627	2.82	7.983	24.079	3.177	1.59	1.414
50	0.78	1.074	1.276	1.869	0.602	0.457	1.014	1.648	2.88	8.226	28.798	3.229	1.64	1.414
55	0.737	1.034	1.212	1.835	0.65	0.486	1.065	1.723	3.1	8.962	36.407	3.456	1.787	1.464
60	0.701	1.011	1.164	1.849	0.741	0.544	1.174	1.856	3.518	10.325	48.74	3.896	2.056	1.585
65	0.675	1.01	1.132	1.927	0.892	0.641	1.36	2.055	4.211	12.579	69.142	4.629	2.5	1.818

Pollutant Name: Carbon Dioxide

Temperature: 40F

Speed MPH	LDA ALL	LDT1 ALL	LDT2 ALL	MDV ALL	LHD1 ALL	LHD2 ALL	MHD ALL	HHD ALL	OBUS ALL	UBUS ALL	MCY ALL	SBUS ALL	MH ALL	ALL ALL
0	0	0	0	0	4622.28	4462.21	4210.82	6468.64	4298.07	0	0	4227.4	0	783.664
5	946.148	1170.95	1188.82	1620.25	2059.37	1591.02	1672.59	3830.48	1802.2	2612.72	263.583	1697.23	2400.63	1385.41
10	715.003	886.705	898.393	1224.46	1409.71	1139.72	1532.8	3148.77	1554.29	2406.57	220.057	1536.88	1653.55	1069.04
15	560.811	697.088	704.651	960.433	1026.07	873.21	1450.24	2580.09	1407.9	2284.82	189.141	1442.19	1212.37	851.011
20	456.543	568.866	573.639	781.895	792.479	710.935	1399.98	2168.52	1318.76	2210.7	167.323	1384.54	943.736	702.533
25	385.747	481.805	484.685	660.67	647.304	610.085	1368.74	2027.52	1263.36	2164.63	152.361	1348.71	776.788	613.405
30	338.28	423.433	425.043	579.392	556.861	547.255	1349.28	1909.08	1228.85	2135.93	142.859	1326.39	672.779	552.038
35	307.894	386.066	386.862	527.361	502.437	509.447	1337.57	1812.95	1208.08	2118.66	138.03	1312.95	610.193	511.289
40	290.853	365.11	365.45	498.181	473.791	489.547	1331.4	1738.96	1197.15	2109.57	137.566	1305.88	577.25	486.932
45	285.162	358.112	358.3	488.437	465.882	484.053	1329.7	1687.06	1194.13	2107.06	141.606	1303.93	568.155	476.733
50	290.173	364.274	364.596	497.017	477.364	492.029	1332.17	1657.21	1198.51	2110.7	150.773	1306.76	581.359	479.984
55	306.456	384.297	385.055	524.898	510.197	514.838	1339.24	1649.45	1211.04	2121.12	166.315	1314.87	619.117	497.362
60	335.913	420.522	422.068	575.339	570.217	556.533	1352.15	1663.86	1233.94	2140.17	190.377	1329.68	688.138	531.065
65	382.152	477.384	480.167	654.514	668.894	625.082	1373.38	1700.61	1271.6	2171.48	226.481	1354.04	801.615	585.28

Title : West Ceres Specific Plan
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2009/09/04 18:29:00
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Annual
 Area : Stanislaus

Year: Inclusive --
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average

Table 1: Running Exhaust Emissions (grams/mile; grams/idle-hour)

Pollutant Name: Carbon Monoxide

Temperature: 40F

Speed MPH	LDA ALL	LDT1 ALL	LDT2 ALL	MDV ALL	LHD1 ALL	LHD2 ALL	MHD ALL	HHD ALL	OBUS ALL	UBUS ALL	MCY ALL	SBUS ALL	MH ALL	ALL ALL
0	0	0	0	0	108.014	84.588	44.404	43.43	46.12	0	0	41.248	0	8.178
5	0.937	1.148	1.673	2.29	1.327	1.364	3.936	5.656	5.439	37.505	28.289	12.356	1.249	2.055
10	0.852	1.037	1.517	2.077	0.895	0.932	2.707	3.48	3.702	24.703	23.888	8.397	0.836	1.673
15	0.777	0.942	1.381	1.891	0.636	0.668	1.951	2.104	2.647	17.213	20.997	5.996	0.591	1.406
20	0.711	0.859	1.262	1.728	0.476	0.502	1.472	1.489	1.988	12.688	19.176	4.499	0.44	1.236
25	0.653	0.787	1.158	1.585	0.374	0.396	1.163	1.346	1.567	9.891	18.187	3.545	0.346	1.129
30	0.601	0.724	1.065	1.459	0.31	0.328	0.962	1.255	1.297	8.155	17.934	2.935	0.287	1.048
35	0.556	0.668	0.984	1.348	0.27	0.285	0.833	1.203	1.128	7.11	18.428	2.553	0.25	0.988
40	0.515	0.619	0.912	1.249	0.248	0.259	0.756	1.186	1.029	6.555	19.801	2.332	0.231	0.949
45	0.479	0.576	0.849	1.162	0.24	0.248	0.718	1.2	0.986	6.39	22.335	2.239	0.224	0.932
50	0.447	0.539	0.792	1.085	0.244	0.249	0.714	1.244	0.993	6.587	26.553	2.259	0.23	0.941
55	0.418	0.505	0.742	1.016	0.261	0.262	0.744	1.32	1.051	7.178	33.382	2.395	0.249	0.986
60	0.392	0.476	0.698	0.955	0.294	0.289	0.812	1.432	1.168	8.271	44.476	2.671	0.284	1.084
65	0.37	0.45	0.659	0.902	0.35	0.336	0.929	1.584	1.366	10.077	62.851	3.134	0.343	1.266

Pollutant Name: Carbon Dioxide

Temperature: 40F

Speed MPH	LDA ALL	LDT1 ALL	LDT2 ALL	MDV ALL	LHD1 ALL	LHD2 ALL	MHD ALL	HHD ALL	OBUS ALL	UBUS ALL	MCY ALL	SBUS ALL	MH ALL	ALL ALL
0	0	0	0	0	4641.11	4484.26	4218.12	6472.19	4231.31	0	0	4200.12	0	772.788
5	943.798	1186.13	1190.26	1619.32	2114.58	1654.23	1683.44	3831.21	1703.04	2506.51	266.263	1656.7	2415.63	1382.54
10	713.192	896.727	899.433	1223.68	1441.6	1175.6	1534.6	3149.58	1537.85	2261.4	221.963	1530.16	1656.03	1065.76
15	559.358	703.672	705.427	959.754	1044.19	892.961	1446.7	2580.86	1440.29	2116.65	190.652	1455.43	1207.47	847.804
20	455.333	573.126	574.238	781.283	802.205	720.864	1393.18	2169.24	1380.9	2028.51	168.687	1409.93	934.34	699.48
25	384.702	484.487	485.162	660.104	651.817	613.909	1359.91	2028.26	1343.98	1973.73	153.754	1381.66	764.597	610.167
30	337.345	425.057	425.439	578.857	558.126	547.276	1339.19	1909.82	1320.98	1939.61	144.425	1364.04	658.847	548.743
35	307.029	387.012	387.206	526.845	501.748	507.18	1326.72	1813.67	1307.14	1919.07	139.902	1353.44	595.213	508.012
40	290.028	365.675	365.765	497.677	472.073	486.075	1320.16	1739.66	1299.86	1908.27	139.891	1347.86	561.719	483.717
45	284.35	358.551	358.605	487.936	463.88	480.249	1318.35	1687.74	1297.85	1905.28	144.565	1346.32	552.471	473.609
50	289.349	364.824	364.91	496.513	475.774	488.708	1320.98	1657.86	1300.77	1909.61	154.608	1348.55	565.896	476.975
55	305.595	385.211	385.397	524.384	509.786	512.897	1328.5	1650.08	1309.12	1922	171.368	1354.95	604.286	494.499
60	334.983	422.093	422.461	574.805	571.962	557.116	1342.25	1664.46	1324.38	1944.65	197.146	1366.64	674.463	528.398
65	381.115	479.986	480.639	653.951	674.182	629.815	1364.86	1701.16	1349.47	1981.88	235.716	1385.86	789.84	582.893

Attachment 2
URBEMIS Data

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: Z:\I&R Docs\08-025 West Ceres\west ceres.urb924

Project Name: West Ceres Specific plan

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

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2010 TOTALS (tons/year unmitigated)	0.29	2.02	0.96	0.00	35.68	0.09	35.77	7.45	0.08	7.53	199.45
2010 TOTALS (tons/year mitigated)	0.29	2.02	0.96	0.00	2.49	0.09	2.58	0.52	0.08	0.60	199.45
Percent Reduction	0.00	0.00	0.00	0.00	93.03	0.00	92.80	93.03	0.00	92.02	0.00
2011 TOTALS (tons/year unmitigated)	70.11	14.79	69.48	0.08	10.77	0.68	11.45	2.30	0.61	2.91	8,128.38
2011 TOTALS (tons/year mitigated)	63.42	14.79	69.48	0.08	1.09	0.68	1.77	0.28	0.61	0.89	8,128.38
Percent Reduction	9.55	0.00	0.00	0.00	89.90	0.00	84.55	87.80	0.00	69.51	0.00

AREA SOURCE EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	41.82	12.09	93.36	0.25	12.71	12.23	15,266.46
TOTALS (tons/year, mitigated)	32.11	8.46	12.63	0.00	0.04	0.04	10,501.16
Percent Reduction	23.22	30.02	86.47	100.00	99.69	99.67	31.21

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OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	35.98	37.39	378.75	0.71	64.76	13.71	71,961.17
TOTALS (tons/year, mitigated)	32.92	33.60	340.29	0.64	58.19	12.33	64,650.48
Percent Reduction	8.50	10.14	10.15	9.86	10.15	10.07	10.16

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	77.80	49.48	472.11	0.96	77.47	25.94	87,227.63
TOTALS (tons/year, mitigated)	65.03	42.06	352.92	0.64	58.23	12.37	75,151.64
Percent Reduction	16.41	15.00	25.25	33.33	24.84	52.31	13.84

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
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2011	70.11	14.79	69.48	0.08	10.77	0.68	11.45	2.30	0.61	2.91	8,128.38
Asphalt 12/28/2010-01/11/2011	0.16	0.44	0.17	0.00	0.00	0.02	0.02	0.00	0.02	0.02	61.87
Paving Off-Gas	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.06	0.04	0.00	0.00	0.01	0.01	0.00	0.01	0.01	4.97
Paving On Road Diesel	0.03	0.38	0.13	0.00	0.00	0.01	0.02	0.00	0.01	0.01	56.45
Paving Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45
Mass Grading 11/30/2010-01/11/2011	0.05	0.48	0.23	0.00	10.41	0.02	10.43	2.17	0.02	2.19	47.86
Mass Grading Dust	0.00	0.00	0.00	0.00	10.41	0.00	10.41	2.17	0.00	2.17	0.00
Mass Grading Off Road Diesel	0.05	0.48	0.22	0.00	0.00	0.02	0.02	0.00	0.02	0.02	46.70
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.16
Building 01/11/2011-08/22/2011	2.91	13.81	67.85	0.07	0.36	0.64	0.99	0.13	0.57	0.69	7,895.34
Building Off Road Diesel	0.30	1.75	1.12	0.00	0.00	0.13	0.13	0.00	0.12	0.12	180.74
Building Vendor Trips	0.72	8.89	7.42	0.02	0.07	0.35	0.41	0.02	0.32	0.34	1,781.18
Building Worker Trips	1.89	3.17	59.31	0.06	0.29	0.17	0.46	0.10	0.13	0.24	5,933.42
Coating 08/08/2011-09/05/2011	66.99	0.07	1.23	0.00	0.01	0.00	0.01	0.00	0.00	0.00	123.30
Architectural Coating	66.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.04	0.07	1.23	0.00	0.01	0.00	0.01	0.00	0.00	0.00	123.30

Phase Assumptions

Phase: Mass Grading 11/30/2010 - 1/11/2011 - Default Fine Site Grading Description

Total Acres Disturbed: 594.63

Maximum Daily Acreage Disturbed: 148.66

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

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On Road Truck Travel (VMT): 0

Off-Road Equipment:

- 2 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
- 1 Plate Compactors (8 hp) operating at a 0.43 load factor for 8 hours per day
- 2 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day
- 5 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
- 2 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 12/28/2010 - 1/11/2011 - Default Paving Description

Acres to be Paved: 148.66

Off-Road Equipment:

- 1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
- 2 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day
- 2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 1/11/2011 - 8/22/2011 - Default Building Construction Description

Off-Road Equipment:

- 1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day
- 3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day
- 1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day
- 3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
- 1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 8/8/2011 - 9/5/2011 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 130

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 130

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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2011	63.42	14.79	69.48	0.08	1.09	0.68	1.77	0.28	0.61	0.89	8,128.38
Asphalt 12/28/2010-01/11/2011	0.16	0.44	0.17	0.00	0.00	0.02	0.02	0.00	0.02	0.02	61.87
Paving Off-Gas	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.06	0.04	0.00	0.00	0.01	0.01	0.00	0.01	0.01	4.97
Paving On Road Diesel	0.03	0.38	0.13	0.00	0.00	0.01	0.02	0.00	0.01	0.01	56.45
Paving Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45
Mass Grading 11/30/2010-01/11/2011	0.05	0.48	0.23	0.00	0.73	0.02	0.75	0.15	0.02	0.17	47.86
Mass Grading Dust	0.00	0.00	0.00	0.00	0.73	0.00	0.73	0.15	0.00	0.15	0.00
Mass Grading Off Road Diesel	0.05	0.48	0.22	0.00	0.00	0.02	0.02	0.00	0.02	0.02	46.70
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.16
Building 01/11/2011-08/22/2011	2.91	13.81	67.85	0.07	0.36	0.64	0.99	0.13	0.57	0.69	7,895.34
Building Off Road Diesel	0.30	1.75	1.12	0.00	0.00	0.13	0.13	0.00	0.12	0.12	180.74
Building Vendor Trips	0.72	8.89	7.42	0.02	0.07	0.35	0.41	0.02	0.32	0.34	1,781.18
Building Worker Trips	1.89	3.17	59.31	0.06	0.29	0.17	0.46	0.10	0.13	0.24	5,933.42
Coating 08/08/2011-09/05/2011	60.30	0.07	1.23	0.00	0.01	0.00	0.01	0.00	0.00	0.00	123.30
Architectural Coating	60.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.04	0.07	1.23	0.00	0.01	0.00	0.01	0.00	0.00	0.00	123.30

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 11/30/2010 - 1/11/2011 - Default Fine Site Grading Description

For Soil Stabilizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stabilizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

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For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stabilizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Architectural Coating 8/8/2011 - 9/5/2011 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Nonresidential Architectural Coating Measures, the Nonresidential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Nonresidential Architectural Coating Measures, the Nonresidential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
Natural Gas	0.79	10.45	5.85	0.00	0.02	0.02	13,085.19
Hearth	8.56	1.53	77.58	0.25	12.66	12.18	2,165.12
Landscape	1.70	0.11	9.93	0.00	0.03	0.03	16.15
Consumer Products	24.09						
Architectural Coatings	6.68						
TOTALS (tons/year, unmitigated)	41.82	12.09	93.36	0.25	12.71	12.23	15,266.46

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Area Source Mitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Mitigated

<u>Source</u>	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
Natural Gas	0.63	8.36	4.68	0.00	0.02	0.02	10,468.16
Hearth	0.02	0.01	0.01	0.00	0.00	0.00	16.86
Landscape	1.36	0.09	7.94	0.00	0.02	0.02	16.14
Consumer Products	24.09						
Architectural Coatings	6.01						
TOTALS (tons/year, mitigated)	32.11	8.46	12.63	0.00	0.04	0.04	10,501.16

Area Source Mitigation Measures Selected

<u>Mitigation Description</u>	<u>Percent Reduction</u>
Residential Increase Energy Efficiency Beyond Title 24	20.00
Commercial Increase Energy Efficiency Beyond Title 24	20.00
Industrial Increase Energy Efficiency Beyond Title 24	20.00
Percent of Wood Stoves changed from: 19% to: 0%	
Percent of Gas Fireplaces changed from: 81% to: 100%	
Percent of Residential Landscape Equipment that are Electrically Powered and have Electrical Outlets at the the Front and Rear of Residences	20.00
Percent of Commercial and Industrial Landscape Equipment that are Electrically Powered and have Electrical Outlets Available	20.00
For Residential Interior Use Low VOC Coating	10.00
For Residential Exterior Use Low VOC Coating	10.00
For Nonresidential Interior Use Low VOC Coating	10.00
For Nonresidential Exterior Use Low VOC Coating	10.00

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 0% to 19%

Percentage of residences with natural gas fireplaces changed from 0% to 81%

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	8.15	8.61	88.82	0.17	15.33	3.24	17,071.44
Apartments low rise	5.10	5.35	55.23	0.10	9.53	2.02	10,614.97
Elementary school	2.30	1.01	10.24	0.02	1.71	0.36	1,905.71
City park	0.09	0.05	0.50	0.00	0.09	0.02	96.04
Regnl shop. center	13.56	14.72	146.02	0.27	24.61	5.21	27,283.92
General office building	1.97	2.15	21.79	0.04	3.77	0.80	4,182.48
Office park	4.42	5.00	51.07	0.10	8.84	1.87	9,826.46
General light industry	0.39	0.50	5.08	0.01	0.88	0.19	980.15
TOTALS (tons/year, unmitigated)	35.98	37.39	378.75	0.71	64.76	13.71	71,961.17

Operational Mitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Mitigated

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	7.49	7.74	79.80	0.15	13.78	2.92	15,337.11
Apartments low rise	4.69	4.81	49.62	0.09	8.57	1.81	9,536.57
Elementary school	2.21	0.91	9.20	0.02	1.54	0.33	1,712.10
City park	0.09	0.05	0.45	0.00	0.08	0.02	86.28

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Regnl shop. center	12.25	13.22	131.19	0.24	22.11	4.68	24,512.09
General office building	1.80	1.93	19.58	0.04	3.38	0.72	3,757.58
Office park	4.04	4.49	45.88	0.09	7.94	1.68	8,828.17
General light industry	0.35	0.45	4.57	0.01	0.79	0.17	880.58
TOTALS (tons/year, mitigated)	32.92	33.60	340.29	0.64	58.19	12.33	64,650.48

Operational Mitigation Options Selected

Residential Mitigation Measures

Residential Mix of Uses Mitigation

Percent Reduction in Trips is 5% (calculated as a % of 9.57 trips/day))

Note that the above percent is applied to the 'double counting adjusted' trip rate

to get Mitigated Trips

Inputs Selected:

The number of housing units within a 1/2 mile radius of the project, plus the number of residential units included in the project are 4000.

The employment for the study area (within a 1/2 mile radius of the project) is 3000.

Residential Local-Serving Retail Mitigation

Percent Reduction in Trips is 2% (calculated as a % of 9.57 trips/day)))

Note that the above percent is applied to the 'double counting adjusted' trip rate

to get Mitigated Trips

Inputs Selected:

The Presence of Local-Serving Retail checkbox was selected.

Operational Mitigation Options Selected

Residential Mitigation Measures

Residential Pedestrian/Bicycle Friendliness Mitigation

Percent Reduction in Trips is 3.16% (calculated as a % of 9.57 trips/day)

Note that the above percent is applied to the 'double counting adjusted' trip rate

to get Mitigated Trips

Inputs Selected:

The Number of Intersections per Square Mile is 199

The Percent of Streets with Sidewalks on One Side is 20%

The Percent of Streets with Sidewalks on Both Sides is 80%

The Percent of Arterials/Collectors with Bike Lanes or where Suitable,

Direct Parallel Routes Exist is 0%

Residential Affordable Housing Mitigation

Percent Reduction in Trips is 0% (calculated as a % of 9.57 trips/day)

Note that the above percent is applied to the 'double counting adjusted' trip rate

to get Mitigated Trips

Inputs Selected:

The Percent of Housing Units that are Deed-Restricted Below Market Rate Housing is 0%

Nonresidential Mitigation Measures

Non-Residential Mix of Uses Mitigation

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Nonresidential Mitigation Measures

Percent Reduction in Trips is 5%

Inputs Selected:

The number of housing units within a 1/2 mile radius of the project, plus the number of residential units included in the project are 4000.

The employment for the study area (within a 1/2 mile radius of the project) is 3000.

Non-Residential Local-Serving Retail Mitigation

Percent Reduction in Trips is 2%

Inputs Selected:

The Presence of Local-Serving Retail checkbox was selected.

Non-Residential Pedestrian/Bicycle Friendliness Mitigation

Percent Reduction in Trips is 3.16%

Inputs Selected:

The Number of Intersections per Square Mile is 199

The Percent of Streets with Sidewalks on One Side is 20%

The Percent of Streets with Sidewalks on Both Sides is 80%

The Percent of Arterials/Collectors with Bike Lanes or where Suitable,

Direct Parallel Routes Exist is 0%

Operational Settings:

Includes correction for passby trips

Includes the following double counting adjustment for internal trips:

Residential Trip % Reduction: 21.85 Nonresidential Trip % Reduction: 10.99

Analysis Year: 2020 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	220.00	5.96	dwelling units	2,229.00	13,274.59	99,363.79
Apartments low rise	120.90	5.76	dwelling units	1,433.00	8,254.10	61,784.11
Elementary school		1.15	students	1,870.00	2,147.24	11,092.45
City park		1.42	acres	70.00	99.07	563.72
Regnl shop. center		38.22	1000 sq ft	884.00	33,788.04	159,494.07
General office building		9.80	1000 sq ft	383.91	3,762.40	24,403.14
Office park		10.17	1000 sq ft	802.00	8,152.47	57,263.88
General light industry		46.11	acres	17.30	797.67	5,712.33
					70,275.58	419,677.49

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.1	0.0	100.0	0.0
Light Truck < 3750 lbs	22.5	0.0	97.5	2.5
Light Truck 3751-5750 lbs	16.4	0.0	100.0	0.0
Med Truck 5751-8500 lbs	6.4	0.0	100.0	0.0

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Lite-Heavy Truck 8501-10,000 lbs	0.2	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	44.4	55.6
Med-Heavy Truck 14,001-33,000 lbs	0.7	0.0	15.4	84.6
Heavy-Heavy Truck 33,001-60,000 lbs	0.5	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	1.3	41.0	59.0	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.8	0.0	90.0	10.0

Travel Conditions

	Residential			Commuter	Commercial	
	Home-Work	Home-Shop	Home-Other		Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Elementary school				20.0	10.0	70.0
City park				5.0	2.5	92.5
Regnl shop. center				2.0	1.0	97.0

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
General office building				35.0	17.5	47.5
Office park				48.0	24.0	28.0
General light industry				50.0	25.0	25.0

Operational Changes to Defaults

Attachment 3
CO Modeling

Emission Facotrs (EMFAC2002 - Stanislas County)				
LOS E or F (5mph)	2010	=		9.0 g/mi
LOS E or F (5mph)	2020	=		3.3 g/mi
LOS E or F (5mph)	2030	=		2.1 g/mi

Background CO Levels - Midesto	<u>1-Hour</u>	<u>8-Hour</u>
Average of 5yr Monitoring Data	4	2.8

	Lanes Per Dir.	Dispersion Factor
<u>Primary</u>		
	2 Ln	14.0
	4 Ln	11.9
<u>Secondary</u>		
	2 Ln	3.7
	4 Ln	3.3

Exist	Project only	Combined
1.4	2.1	5.3
0.9	3.0	5.0
0.7	1.9	3.5
0.4	2.4	3.4

Total 8-Hour CO Concentration

	2010	2020		2030
	Exist	Near Term W/O Project	Near Term W/ Project	Build Out
Crows landing Rd. & Hatch Rd.	5.4	3.8	6.5	4.0
Crows landing Rd. & Whitmore Ave.	4.5	3.4	6.3	3.9
Crows landing Rd. & Hackett Rd.	4.1	3.3	5.2	3.6
Crows landing Rd. & W. Service Rd.	3.6	3.1	5.2	3.5

Exist	Project only	Combined
1.0	0.7	1.6
0.6	0.9	1.6
0.5	0.6	1.1
0.3	0.7	1.1