APPENDIX B

AIR QUALITY MODELING RESULTS

AIR QUALITY TECHNICAL INFORMATION

I. Carbon Monoxide Modeling Approach and Assumptions
II. Carbon Monoxide Input and Output Files
III. URBEMIS2002 Results

I. Carbon Monoxide Modeling Approach and Assumptions

Dispersion Modeling

Predicting the ambient air quality impacts of pollutant emissions requires an assessment of the transport, dispersion, chemical transformation, and removal processes that affect pollutant emissions after their release from a source. Gaussian dispersion models are frequently used for such analyses. The term "Gaussian dispersion" refers to a general type of mathematical equation used to describe the horizontal and vertical distribution of pollutants downwind from an emission source.

Gaussian dispersion models treat pollutant emissions as being carried downwind in a defined plume, subject to horizontal and vertical mixing with the surrounding atmosphere. The plume spreads horizontally and vertically with a reduction in pollutant concentrations as it travels downwind. Mixing with the surrounding atmosphere is greatest at the edge of the plume, resulting in lower pollutant concentrations outward (horizontally and vertically) from the center of the plume. This decrease in concentration outward from the center of the plume is treated as following a Gaussian ("normal") statistical distribution. Horizontal and vertical mixing generally occurs at different rates. Because turbulent motions in the atmosphere occur on a variety of spatial and time scales, vertical and horizontal mixing also vary with distance downwind from the emission source.

The CALINE4 Model

The ambient air quality effects of traffic emissions were evaluated using the CALINE4 dispersion model (Benson 1989). CALINE4 is a Gaussian dispersion model specifically designed to evaluate air quality impacts of roadway projects. Each roadway link analyzed in the model is treated as a sequence of short segments. Each segment of a roadway link is treated as a separate emission source producing a plume of pollutants which disperses downwind. Pollutant concentrations at any specific location are calculated using the total contribution from overlapping pollution plumes originating from the sequence of roadway segments.

When winds are essentially parallel to a roadway link, pollution plumes from all roadway segments overlap. This produces high concentrations near the roadway (near the center of the overlapping pollution plumes), and low concentrations well away from the roadway (at the edges of the overlapping pollution plumes). When winds are at an angle to the roadway link, pollution plumes from distant roadway segments make essentially no contribution to the pollution

concentration observed at a receptor location. Under such cross-wind situations, pollutant concentrations near the highway are lower than under parallel wind conditions (fewer overlapping plume contributions), while pollutant concentrations away from the highway may be greater than would occur with parallel winds (near the center of at least some pollution plumes).

The CALINE4 model employs a "mixing cell" approach to estimating pollutant concentrations over the roadway itself. The size of the mixing cell over each roadway segment is based on the width of the traffic lanes of the highway (generally 12 feet per lane) plus an additional turbulence zone on either side (generally 10 feet on each side). Parking lanes and roadway shoulders are not counted as traffic lanes. The height of the mixing cell is calculated by the model.

Pollutants emitted along a highway link are treated as being well mixed within the mixing cell volume due to mechanical turbulence from moving vehicles and convective mixing due to the temperature of vehicle exhaust gases. Pollutant concentrations downwind from the mixing cell are calculated using horizontal and vertical dispersion rates which are a function of various meteorological and ground surface conditions.

Modeling Procedures

Roadway and Traffic Conditions. Traffic volumes and operating conditions used in the modeling were obtained from the traffic analysis prepared for this project. Free flow traffic speeds were adjusted to reflect congested speeds using methodology from the Highway Capacity Manual (Highway Research Board 1965). CO modeling was conducted for the following intersections:

- San Tomas Expressway/Pruneridge Avenue;
- San Tomas Expressway/Stevens Creek Road;
- Monroe Blvd/Stevens Creek Road, and

CO modeling was performed for the following conditions:

- Existing;
- Future without project;
- Future with project; and
- Cumulative conditions.

Vehicle Emission Rates. Vehicle emission rates were determined using the California Air Resources Board's EMFAC72002 emission rate program.

Receptor Locations. CO concentrations were estimated at 3 and 7 meters in accordance with the CO Protocol at each of the proposed intersections. Receptor heights were set at 5.9 feet.

Meteorological Conditions. Meteorological inputs to the CALINE4 model were determined using methodology recommended in the BAAQMD's CEQA Guidelines 1999 and using the California Department of Transportation's CO modeling protocol (Garza, V.J., et. al. 1997). The meteorological conditions used in the modeling represent a calm winter period. The worst case wind angle option was used to determine a worst-case concentration for each receptor. The meteorological inputs include: 1.0 meter per second wind speed, ground-level temperature inversion (atmospheric stability class G), wind direction standard deviation equal to five degrees, and a mixing height of 1000 meters.

Background Concentration and Eight-Hour Values. Background concentration of 6.0 ppm was added to the modeled 1-hour values to account for sources of CO not included in the modeling. Eight-hour values were calculated from the 1-hour values using a persistence factor of 0.7. Background concentration of 3.7 ppm was added to the modeled 8-hour values. The background concentration data were taken from the nearest monitoring data in accordance with the CO protocol.

Title : Santa Clara County Avg 2004 Winter Default Title
Version : Emfac2002 V2.2 Apr 23 2003
Run Date : 07/21/04 11:24:55
Scen Year: 2004 -- Model Years: 1965 to 2004
Season : Winter
Area : Santa Clara County

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Year:2004 -- Model Years 1965 to 2004 Inclusive -- Winter
Emfac2002 Emission Factors: V2.2 Apr 23 2003

County Average Santa Clara Count County Average

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Total Organic Gases Temperature: 45F Relative Humidity: 20%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
1	1.433	1.860	1.741	3.498	8.002	7.045	1.700
2	1.433	1.860	1.741	3.498	8.002	7.045	1.700
3	1.373	1.785	1.679	3.498	8.002	7.045	1.638
8	0.916	1.215	1.160	2.854	6.290	6.077	1.133
10	0.791	1.055	1.004	2.512	5.403	5.557	0.983
18	0.473	0.647	0.609	1.600	3.142	4.181	0.600
20	0.424	0.584	0.547	1.450	2.789	3.965	0.540
21	0.403	0.556	0.520	1.383	2.635	3.872	0.514

Pollutant Name: Carbon Monoxide Temperature: 45F Relative Humidity: 20%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
1	11.070	18.244	14.656	36.030	59.812	53.618	14.628
2	11.070	18.244	14.656	36.030	59.812	53.618	14.628
3	10.860	17.817	14.361	36.030	59.812	53.618	14.364
8	9.114	14.357	11.535	28.188	46.277	47.339	11.760
10	8.558	13.298	10.582	24.188	39.443	44.017	10.862
18	6.883	10.262	7.942	14.267	22.771	35.721	8.325
20	6.565	9.721	7.487	12.769	20.298	34.606	7.877
21	6.419	9.474	7.281	12.118	19.229	34.167	7.674

Pollutant Name: Oxides of Nitrogen Temperature: 45F Relative Humidity: 20%

Intersection #1 (Run/STD).

CL4 - Version 1.30

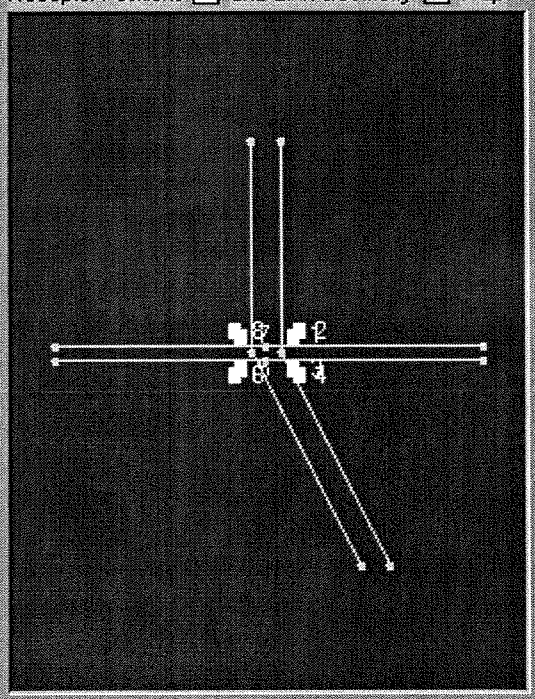
File Edit View Help

Job Parameters | Link Geometry | Link Activity | Run Conditions | Receptor Positions

Receptor List

	Name	X	Y	Z
1	Recpt 1	60.84	38.84	1.8
2	Recpt 2	74	52	1.8
3	Recpt 3	60.84	-38.84	1.8
4	Recpt 4	74	-52	1.8
5	Recpt 5	-60.84	-38.84	1.8
6	Recpt 6	-74	-52	1.8
7	Recpt 7	-60.84	38.84	1.8
8	Recpt 8	-74	52	1.8
9	Recpt 9			1.8
10	Recpt 10			1.8
11	Recpt 11			1.8
12	Recpt 12			1.8
13	Recpt 13			1.8
14	Recpt 14			1.8
15	Recpt 15			1.8
16	Recpt 16			1.8
17	Recpt 17			1.8
18	Recpt 18			1.8
19	Recpt 19			1.8
20	Recpt 20			1.8

Receptor Positions ☐ and Link Geometry ☐ Map



Units: Feet

Left-drag to zoom. Right-click to unzoom. X = -5.012E+02 Y = 3.821E+02

CL4 Input

Input from traffic report

Name Pruneridge/STE

Condition bkp

	1	2	3	4	5	6	7	8	9	10	11	12
	sbr	sbt	sbl	wbr	wbt	wbl	nbl	nbt	nbr	ebr	ebt	ebl
volume	138	2848	279	184	391	10	162	1145	17	355	573	73
green time	137.7	127	40.4	62.5	22	7	8.3	95.3	102	33.5	25.3	10.2
cycle time	180											

Development of coordinate system with 0,0 origin

segment	direction	a or d	lanes	med (feet)	start x	start y	end x	end y	offset (feet)	mzw	Link Activity	cars/lane	% red time	cruise speed	speed	Factor
1	sb	a	3	30	-33	500	-33	0		56	3265	1088.33333	33.304373	25	8.4	12
2	nb	d	3	30	33	0	33	500		56	1402	467.333333	51.9087415	25	20	8
3	wb	a	2	10	500	17	0	17		44	585	292.5	80.8433048	25	2	15
4	eb	d	2	10	0	-17	500	-17		44	1014	507	85.1451348	25	3	15
5	nb	a	3	30	283	-500	33	0	250	56	1324	441.333333	52.91952	25	9.5	11
6	sb	d	3	30	-33	0	217	-500	250	56	3213	1071	35.3912059	25	21	8
7	eb	a	2	10	-500	-17	0	-17		44	1001	500.5	84.9406149	25	0.1	15
8	wb	d	2	10	0	17	-500	17		44	546	273	70.1427554	25	18	8
																**

*assumes 12 feet/lane

Receptor positions

	hour	dist. (ft)	x	y
1	1	9.84	60.84	38.84
2	8	23	74	52
3	1	9.84	60.84	-38.84
4	8	23	74	-52
5	1	9.84	-60.84	-38.84
6	8	23	-74	-52
7	1	9.84	-60.84	38.84
8	8	23	-74	52

**EMFAC based on ambient T and a and d speeds based on traffic volumes and red time

CL4 Input

Input from traffic report

Name Pruneridge/STE

Condition Existing

	1	2	3	4	5	6	7	8	9	10	11	12
	sbr	sbt	sbl	wbr	wbt	wbl	nbl	nbt	nbr	ebr	ebt	ebl
volume	138	2632	239	169	342	10	66	1019	17	130	438	73
green time	137.7	127	40.4	62.5	22	7	8.3	95.3	102	33.5	25.3	10.2
cycle time	180											

Development of coordinate system with 0,0 origin

segment	direction	a or d	lanes	med (feet)	start x	start y	end x	end y	offset (feet)	mzw	Link Activity	cars/lane	% red time	cruise speed	speed	Factor
1	sb	a	3	30	-33	500	-33	0		56	3009	1003	32.9932056	25	8.4	12
2	nb	d	3	30	33	0	33	500		56	1261	420.333333	52.2346462	25	20	8
3	wb	a	2	10	500	17	0	17		44	521	260.5	80.6392621	25	2	15
4	eb	d	2	10	0	-17	500	-17		44	743	371.5	84.0849409	25	3	15
5	nb	a	3	30	283	-500	33	0	250	56	1102	367.333333	49.8903005	25	9.5	11
6	sb	d	3	30	-33	0	217	-500	250	56	2772	924	32.1210117	25	21	8
7	eb	a	2	10	-500	-17	0	-17		44	641	320.5	85.9759057	25	0.1	15
8	wb	d	2	10	0	17	-500	17		44	497	248.5	68.4040912	25	18	8
																**

*assumes 12 feet/lane

Receptor positions

	hour	dist. (ft)	x	y
1	1	9.84	60.84	38.84
2	8	23	74	52
3	1	9.84	60.84	-38.84
4	8	23	74	-52
5	1	9.84	-60.84	-38.84
6	8	23	-74	-52
7	1	9.84	-60.84	38.84
8	8	23	-74	52

**EMFAC based on ambient T and a and d speeds based on traffic volumes and red time

CL4 Input

Input from traffic report

Name Pruneridge/STE

Condition bkap

	1	2	3	4	5	6	7	8	9	10	11	12
	sbr	sbt	sbl	wbr	wbt	wbl	nbl	nbt	nbr	ebr	ebt	ebl
volume	138	2848	282	185	392	10	162	1145	17	355	576	73
green time	137.7	127	40.4	62.5	22	7	8.3	95.3	102	33.5	25.3	10.2
cycle time	180											

Development of coordinate system with 0,0 origin

segment	direction	a or d	lanes	med (feet)	start x	start y	end x	end y	offset (feet)	mzw	Link Activity	cars/lane	% red time	cruise speed	speed	Factor
1	sb	a	3	30	-33	500	-33	0		56	3268	1089.33333	33.3449952	25	8.4	12
2	nb	d	3	30	33	0	33	500		56	1403	467.666667	51.9182704	25	20	8
3	wb	a	2	10	500	17	0	17		44	587	293.5	80.8286012	25	2	15
4	eb	d	2	10	0	-17	500	-17		44	1020	510	85.1251634	25	3	15
5	nb	a	3	30	283	-500	33	0	250	56	1324	441.333333	52.91952	25	9.5	11
6	sb	d	3	30	-33	0	217	-500	250	56	3213	1071	35.3912059	25	21	8
7	eb	a	2	10	-500	-17	0	-17		44	1004	502	84.9436144	25	0.1	15
8	wb	d	2	10	0	17	-500	17		44	547	273.5	70.1749949	25	18	8
																**

*assumes 12 feet/lane

Receptor positions

	hour	dist. (ft)	x	y
1	1	9.84	60.84	38.84
2	8	23	74	52
3	1	9.84	60.84	-38.84
4	8	23	74	-52
5	1	9.84	-60.84	-38.84
6	8	23	-74	-52
7	1	9.84	-60.84	38.84
8	8	23	-74	52

**EMFAC based on ambient T and a and d speeds based on traffic volumes and red time

CL4 Input

Input from traffic report

Name Pruneridge/STE

Condition bk

	1	2	3	4	5	6	7	8	9	10	11	12
	sbr	sbt	sbl	wbr	wbt	wbl	nbl	nbt	nbr	ebr	ebt	ebl
volume	138	2848	273	181	387	10	162	1144	17	355	567	73
green time	137.7	127	40.4	62.5	22	7	8.3	95.3	102	33.5	25.3	10.2
cycle time	180											

Development of coordinate system with 0,0 origin

segment	direction	a or d	lanes	med (feet)	start x	start y	end x	end y	offset (feet)	mzw	Link Activity	cars/lane	% red time	cruise speed	speed	Factor
1	sb	a	3	30	-33	500	-33	0		56	3259	1086.33333	33.2229041	25	8.4	12
2	nb	d	3	30	33	0	33	500		56	1398	466	51.8835241	25	20	8
3	wb	a	2	10	500	17	0	17		44	578	289	80.8761053	25	2	15
4	eb	d	2	10	0	-17	500	-17		44	1002	501	85.1857951	25	3	15
5	nb	a	3	30	283	-500	33	0	250	56	1323	441	52.9239523	25	9.5	11
6	sb	d	3	30	-33	0	217	-500	250	56	3213	1071	35.3912059	25	21	8
7	eb	a	2	10	-500	-17	0	-17		44	995	497.5	84.9345617	25	0.1	15
8	wb	d	2	10	0	17	-500	17		44	542	271	70.0126076	25	18	8
																**

*assumes 12 feet/lane

Receptor positions

	hour	dist. (ft)	x	y
1	1	9.84	60.84	38.84
2	8	23	74	52
3	1	9.84	60.84	-38.84
4	8	23	74	-52
5	1	9.84	-60.84	-38.84
6	8	23	-74	-52
7	1	9.84	-60.84	38.84
8	8	23	-74	52

**EMFAC based on ambient T and a and d speeds based on traffic volumes and red time

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: ste/prun ext
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=	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	-10	150	-10	0	AG	3009	12.0	.0	16.8
B. Link B	10	0	10	150	AG	1261	8.0	.0	16.8
C. Link C	150	5	0	5	AG	521	15.0	.0	13.2
D. Link D	0	-5	150	-5	AG	743	15.0	.0	13.2
E. Link E	85	-150	10	0	AG	1102	11.0	.0	16.8
F. Link F	-10	0	65	-150	AG	2772	8.0	.0	16.8
G. Link G	-150	-5	0	-5	AG	641	15.0	.0	13.2
H. Link H	0	5	-150	5	AG	497	8.0	.0	13.2

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	18	12	.5
2. Recpt 2	22	16	.5
3. Recpt 3	18	-12	.5
4. Recpt 4	22	-16	.5
5. Recpt 5	-18	-12	.5
6. Recpt 6	-22	-16	.5
7. Recpt 7	-18	12	.5
8. Recpt 8	-22	16	.5

JOB: ste/prun ext
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	261.	3.6	1.1	.7	.6	.0	.0	.0	.7	.5
2. Recpt 2	255.	2.7	1.0	.6	.2	.0	.0	.0	.6	.3
3. Recpt 3	345.	4.2	1.5	.9	.4	.9	.6	.0	.0	.0
4. Recpt 4	344.	3.9	1.3	.8	.3	.7	.7	.0	.0	.0
5. Recpt 5	6.	5.4	4.4	.0	.0	.0	.0	.0	.8	.2
6. Recpt 6	11.	4.1	3.1	.3	.0	.0	.0	.0	.6	.2
7. Recpt 7	151.	5.4	1.6	.0	.0	.0	.1	2.9	.5	.3
8. Recpt 8	149.	4.5	1.1	.0	.0	.0	.3	2.5	.4	.3

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: ste/prun bk
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=	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	-10	150	-10	0	AG	3259	12.0	.0	16.8
B. Link B	10	0	10	150	AG	1398	8.0	.0	16.8
C. Link C	150	5	0	5	AG	578	15.0	.0	13.2
D. Link D	0	-5	150	-5	AG	1002	15.0	.0	13.2
E. Link E	85	-150	10	0	AG	1323	11.0	.0	16.8
F. Link F	-10	0	65	-150	AG	3213	8.0	.0	16.8
G. Link G	-150	-5	0	-5	AG	995	15.0	.0	13.2
H. Link H	0	5	-150	5	AG	542	8.0	.0	13.2

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	18	12	.5
2. Recpt 2	22	16	.5
3. Recpt 3	18	-12	.5
4. Recpt 4	22	-16	.5
5. Recpt 5	-18	-12	.5
6. Recpt 6	-22	-16	.5
7. Recpt 7	-18	12	.5
8. Recpt 8	-22	16	.5

JOB: ste/prun bk
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	260.	4.2	1.2	.8	.7	.0	.0	.0	1.1	.5
2. Recpt 2	255.	3.2	1.1	.6	.2	.0	.0	.0	.9	.4
3. Recpt 3	276.	5.1	.0	.0	.0	1.1	.7	1.0	2.1	.2
4. Recpt 4	344.	4.4	1.4	.9	.3	.9	.9	.0	.0	.0
5. Recpt 5	6.	6.2	4.7	.0	.0	.0	.0	.0	1.2	.2
6. Recpt 6	11.	4.7	3.3	.3	.0	.0	.0	.0	.9	.2
7. Recpt 7	150.	6.2	1.7	.0	.0	.0	.3	3.1	.7	.4
8. Recpt 8	149.	5.2	1.2	.0	.0	.0	.3	2.8	.6	.3

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: ste/prun bkp
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=	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	-10	150	-10	0	AG	3265	12.0	.0	16.8
B. Link B	10	0	10	150	AG	1402	8.0	.0	16.8
C. Link C	150	5	0	5	AG	585	15.0	.0	13.2
D. Link D	0	-5	150	-5	AG	1014	15.0	.0	13.2
E. Link E	85	-150	10	0	AG	1324	11.0	.0	16.8
F. Link F	-10	0	65	-150	AG	3213	8.0	.0	16.8
G. Link G	-150	-5	0	-5	AG	1001	15.0	.0	13.2
H. Link H	0	5	-150	5	AG	546	8.0	.0	13.2

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	18	12	.5
2. Recpt 2	22	16	.5
3. Recpt 3	18	-12	.5
4. Recpt 4	22	-16	.5
5. Recpt 5	-18	-12	.5
6. Recpt 6	-22	-16	.5
7. Recpt 7	-18	12	.5
8. Recpt 8	-22	16	.5

JOB: ste/prun bkp
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	260.	4.2	1.2	.8	.7	.0	.0	.0	1.1	.5
2. Recpt 2	255.	3.2	1.1	.6	.2	.0	.0	.0	.9	.4
3. Recpt 3	276.	5.2	.0	.0	.0	1.1	.7	1.0	2.1	.2
4. Recpt 4	344.	4.5	1.4	.9	.4	.9	.9	.0	.0	.0
5. Recpt 5	6.	6.2	4.7	.0	.0	.0	.0	.0	1.2	.2
6. Recpt 6	11.	4.7	3.3	.3	.0	.0	.0	.0	.9	.2
7. Recpt 7	150.	6.2	1.7	.0	.0	.0	.3	3.1	.7	.4
8. Recpt 8	149.	5.2	1.2	.0	.0	.0	.3	2.8	.6	.3

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: ste/prun bkap
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=	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	-10	150	-10	0	AG	3268	12.0	.0	16.8
B. Link B	10	0	10	150	AG	1403	8.0	.0	16.8
C. Link C	150	5	0	5	AG	587	15.0	.0	13.2
D. Link D	0	-5	150	-5	AG	1020	15.0	.0	13.2
E. Link E	85	-150	10	0	AG	1324	11.0	.0	16.8
F. Link F	-10	0	65	-150	AG	3213	8.0	.0	16.8
G. Link G	-150	-5	0	-5	AG	1004	15.0	.0	13.2
H. Link H	0	5	-150	5	AG	547	8.0	.0	13.2

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	18	12	.5
2. Recpt 2	22	16	.5
3. Recpt 3	18	-12	.5
4. Recpt 4	22	-16	.5
5. Recpt 5	-18	-12	.5
6. Recpt 6	-22	-16	.5
7. Recpt 7	-18	12	.5
8. Recpt 8	-22	16	.5

JOB: ste/prun bkap
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	260.	4.2	1.2	.8	.7	.0	.0	.0	1.1	.5
2. Recpt 2	255.	3.2	1.1	.6	.2	.0	.0	.0	.9	.4
3. Recpt 3	276.	5.2	.0	.0	.0	1.1	.7	1.0	2.1	.2
4. Recpt 4	344.	4.5	1.4	.9	.4	.9	.9	.0	.0	.0
5. Recpt 5	6.	6.2	4.7	.0	.0	.0	.0	.0	1.2	.2
6. Recpt 6	11.	4.7	3.3	.3	.0	.0	.0	.0	.9	.2
7. Recpt 7	150.	6.2	1.7	.0	.0	.0	.3	3.1	.7	.4
8. Recpt 8	149.	5.2	1.2	.0	.0	.0	.3	2.8	.6	.3

CL4 - Version 1.30

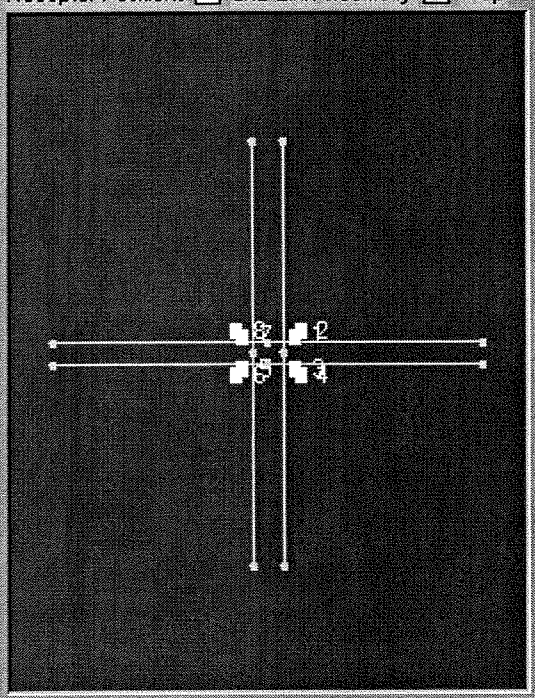
File Edit View Help

Job Parameters | Link Geometry | Link Activity | Run Conditions | Receptor Positions

Receptor List

	Name	X	Y	Z
1	Recpt 1	60.8	38.8	1.8
2	Recpt 2	74	52	1.8
3	Recpt 3	60.8	-38.8	1.8
4	Recpt 4	74	-52	1.8
5	Recpt 5	-60.8	-38.8	1.8
6	Recpt 6	-74	-52	1.8
7	Recpt 7	-60.8	38.8	1.8
8	Recpt 8	-74	52	1.8
9	Recpt 9			1.8
10	Recpt 10			1.8
11	Recpt 11			1.8
12	Recpt 12			1.8
13	Recpt 13			1.8
14	Recpt 14			1.8
15	Recpt 15			1.8
16	Recpt 16			1.8
17	Recpt 17			1.8
18	Recpt 18			1.8
19	Recpt 19			1.8
20	Recpt 20			1.8

Receptor Positions ☐ and Link Geometry ☐ Map



Units: Feet

Left-drag to zoom. Right-click to unzoom.

CL4 Input

Input from traffic report

Name stevens ste (10)

Condition bkp

	1	2	3	4	5	6	7	8	9	10	11	12
	sbr	sbt	sbl	wbr	wbt	wbl	nbl	nbt	nbr	ebr	ebt	ebl
volume	129	3079	297	168	900	275	207	926	180	392	1070	110
green time	124.9	111	37.9	77	39.1	16.9	14	87	104	50.2	36.2	14
cycle time	190											

Development of coordinate system with 0,0 origin

segment	direction	a or d	lanes	med (feet)	start x	start y	end x	end y	offset (feet)	mzw	Link Activity	cars/lane	% red time	cruise speed	speed	Factor
1	sb	a	3	30	-33	500	-33	0		56	3505	1168.33333	44.5698025	25	2	13
2	nb	d	3	30	33	0	33	500		56	1204	401.333333	58.4551495	25	19	7
3	wb	a	3	15	500	25.5	0	25.5		56	1343	447.666667	79.3182976	25	1	13
4	eb	d	3	15	0	-26	500	-26		56	1574	524.666667	82.3151541	25	1	13
5	nb	a	3	30	33	-500	33	0	0	56	1313	437.666667	59.0483826	25	7	11
6	sb	d	3	30	-33	0	-33	-500	0	56	3746	1248.66667	48.5633939	25	8	11
7	eb	a	3	15	-500	-26	0	-26		56	1572	524	79.9275479	25	1	13
8	wb	d	3	15	0	25.5	-500	25.5		56	1209	403	69.5250098	25	15	9
																**

*assumes 12 feet/lane

Receptor positions

	hour	dist. (ft)	x	y
1	1	9.84	60.84	53.34
2	8	23	74	66.5
3	1	9.84	60.84	-53.34
4	8	23	74	-66.5
5	1	9.84	-60.84	-53.34
6	8	23	-74	-66.5
7	1	9.84	-60.84	53.34
8	8	23	-74	66.5

**EMFAC based on ambient T and a and d speeds based on traffic volumes and red time

CL4 Input

Input from traffic report

Name stevens ste (10)

Condition Existing

	1	2	3	4	5	6	7	8	9	10	11	12
	sbr	sbt	sbl	wbr	wbt	wbl	nbl	nbt	nbr	ebr	ebt	ebl
volume	133	2534	448	213	917	269	208	708	263	338	1044	96
green time	124.9	111	37.9	77	39.1	16.9	14	87	104	50.2	36.2	14
cycle time	190											

Development of coordinate system with 0,0 origin

segment	direction	a or d	lanes	med (feet)	start x	start y	end x	end y	offset (feet)	mzw	Link Activity	cars/lane	% red time	cruise speed	speed	Factor
1	sb	a	3	30	-33	500	-33	0		56	3115	1038.33333	46.7998817	25	2	13
2	nb	d	3	30	33	0	33	500		56	1017	339	58.9396057	25	19	7
3	wb	a	3	15	500	25.5	0	25.5		56	1399	466.333333	78.630676	25	1	13
4	eb	d	3	15	0	-26	500	-26		56	1700	566.666667	82.1411765	25	1	13
5	nb	a	3	30	33	-500	33	0	0	56	1179	393	59.0046426	25	7	11
6	sb	d	3	30	-33	0	-33	-500	0	56	3141	1047	49.2639454	25	8	11
7	eb	a	3	15	-500	-26	0	-26		56	1478	492.666667	80.0212236	25	1	13
8	wb	d	3	15	0	25.5	-500	25.5		56	1313	437.666667	68.0153525	25	15	9
																**

*assumes 12 feet/lane

Receptor positions

	hour	dist. (ft)	x	y
1	1	9.84	60.84	53.34
2	8	23	74	66.5
3	1	9.84	60.84	-53.34
4	8	23	74	-66.5
5	1	9.84	-60.84	-53.34
6	8	23	-74	-66.5
7	1	9.84	-60.84	53.34
8	8	23	-74	66.5

**EMFAC based on ambient T and a and d speeds based on traffic volumes and red time

CL4 Input

Input from traffic report

Name stevens ste (10)

Condition bkap

	1	2	3	4	5	6	7	8	9	10	11	12
	sbr	sbt	sbl	wbr	wbt	wbl	nbl	nbt	nbr	ebr	ebt	ebl
volume	129	3079	297	168	902	276	207	926	180	392	1073	110
green time	124.9	111	37.9	77	39.1	16.9	14	87	104	50.2	36.2	14
cycle time	190											

Development of coordinate system with 0,0 origin

segment	direction	a or d	lanes	med (feet)	start x	start y	end x	end y	offset (feet)	mzw	Link Activity	cars/lane	% red time	cruise speed	speed	Factor
1	sb	a	3	30	-33	500	-33	0		56	3505	1168.33333	44.5698025	25	2	13
2	nb	d	3	30	33	0	33	500		56	1204	401.333333	58.4551495	25	19	7
3	wb	a	3	15	500	25.5	0	25.5		56	1346	448.666667	79.3272073	25	1	13
4	eb	d	3	15	0	-26	500	-26		56	1577	525.666667	82.3125521	25	1	13
5	nb	a	3	30	33	-500	33	0	0	56	1313	437.666667	59.0483826	25	7	11
6	sb	d	3	30	-33	0	-33	-500	0	56	3747	1249	48.5747475	25	8	11
7	eb	a	3	15	-500	-26	0	-26		56	1575	525	79.9294904	25	1	13
8	wb	d	3	15	0	25.5	-500	25.5		56	1211	403.666667	69.5413534	25	15	9
																**

*assumes 12 feet/lane

Receptor positions

	hour	dist. (ft)	x	y
1	1	9.84	60.84	53.34
2	8	23	74	66.5
3	1	9.84	60.84	-53.34
4	8	23	74	-66.5
5	1	9.84	-60.84	-53.34
6	8	23	-74	-66.5
7	1	9.84	-60.84	53.34
8	8	23	-74	66.5

**EMFAC based on ambient T and a and d speeds based on traffic volumes and red time

CL4 Input

Input from traffic report

Name stevens ste (10)

Condition bk

	1	2	3	4	5	6	7	8	9	10	11	12
	sbr	sbt	sbl	wbr	wbt	wbl	nbl	nbt	nbr	ebr	ebt	ebl
volume	129	3079	297	167	894	275	207	926	178	392	1059	110
green time	124.9	111	37.9	77	39.1	16.9	14	87	104	50.2	36.2	14
cycle time	190											

Development of coordinate system with 0,0 origin

segment	direction	a or d	lanes	med (feet)	start x	start y	end x	end y	offset (feet)	mzw	Link Activity	cars/lane	% red time	cruise speed	speed	Factor
1	sb	a	3	30	-33	500	-33	0		56	3505	1168.33333	44.5698025	25	2	13
2	nb	d	3	30	33	0	33	500		56	1203	401	58.4543028	25	19	7
3	wb	a	3	15	500	25.5	0	25.5		56	1336	445.333333	79.3326899	25	1	13
4	eb	d	3	15	0	-26	500	-26		56	1563	521	82.3247803	25	1	13
5	nb	a	3	30	33	-500	33	0	0	56	1311	437	59.0693324	25	7	11
6	sb	d	3	30	-33	0	-33	-500	0	56	3746	1248.66667	48.5633939	25	8	11
7	eb	a	3	15	-500	-26	0	-26		56	1561	520.333333	79.9203614	25	1	13
8	wb	d	3	15	0	25.5	-500	25.5		56	1201	400.333333	69.5158859	25	15	9
																**

*assumes 12 feet/lane

Receptor positions

	hour	dist. (ft)	x	y
1	1	9.84	60.84	53.34
2	8	23	74	66.5
3	1	9.84	60.84	-53.34
4	8	23	74	-66.5
5	1	9.84	-60.84	-53.34
6	8	23	-74	-66.5
7	1	9.84	-60.84	53.34
8	8	23	-74	66.5

**EMFAC based on ambient T and a and d speeds based on traffic volumes and red time

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: ste/stevens 2 ext
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=	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	*	-10	150	-10	0	* AG	3115	13.0	.0	16.8
B. Link B	*	10	0	10	150	* AG	1017	7.0	.0	16.8
C. Link C	*	150	8	0	8	* AG	1399	13.0	.0	16.8
D. Link D	*	0	-8	150	-8	* AG	1700	13.0	.0	16.8
E. Link E	*	10	-150	10	0	* AG	1179	11.0	.0	16.8
F. Link F	*	-10	0	-10	-150	* AG	3141	11.0	.0	16.8
G. Link G	*	-150	-8	0	-8	* AG	1478	13.0	.0	16.8
H. Link H	*	0	8	-150	8	* AG	1313	9.0	.0	16.8

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. Recpt 1	*	18	16	.5
2. Recpt 2	*	22	20	.5
3. Recpt 3	*	18	-16	.5
4. Recpt 4	*	22	-20	.5
5. Recpt 5	*	-18	-16	.5
6. Recpt 6	*	-22	-20	.5
7. Recpt 7	*	-18	16	.5
8. Recpt 8	*	-22	20	.5

JUNE 1989 VERSION
PAGE 2

JOB: ste/stevens 2 ext
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	CONC/LINK (PPM) D	E	F	G	H
1. Recpt 1	259.	4.8	1.2	.5	1.0	.0	.0	.0	1.0	1.1
2. Recpt 2	196.	4.1	.0	.1	1.0	.7	1.0	1.3	.0	.0
3. Recpt 3	277.	5.7	.0	.0	.0	1.2	.9	1.0	2.2	.3
4. Recpt 4	284.	4.2	.0	.0	.0	.5	.7	.9	1.5	.6
5. Recpt 5	6.	7.9	4.4	.0	.0	.0	.0	1.6	1.3	.4
6. Recpt 6	77.	5.2	.0	.0	.9	1.8	.4	1.8	.3	.0
7. Recpt 7	173.	7.3	2.0	.0	.0	.0	.2	3.7	.7	.8
8. Recpt 8	103.	5.1	2.2	.2	1.5	1.0	.0	.0	.0	.2

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: ste/stevens 2 bk
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=	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	*	-10	150	-10	0	* AG	3505	13.0	.0	16.8
B. Link B	*	10	0	10	150	* AG	1203	7.0	.0	16.8
C. Link C	*	150	8	0	8	* AG	1336	13.0	.0	16.8
D. Link D	*	0	-8	150	-8	* AG	1563	13.0	.0	16.8
E. Link E	*	10	-150	10	0	* AG	1311	11.0	.0	16.8
F. Link F	*	-10	0	-10	-150	* AG	3746	11.0	.0	16.8
G. Link G	*	-150	-8	0	-8	* AG	1561	13.0	.0	16.8
H. Link H	*	0	8	-150	8	* AG	1201	9.0	.0	16.8

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. Recpt 1	*	18	16	.5
2. Recpt 2	*	22	20	.5
3. Recpt 3	*	18	-16	.5
4. Recpt 4	*	22	-20	.5
5. Recpt 5	*	-18	-16	.5
6. Recpt 6	*	-22	-20	.5
7. Recpt 7	*	-18	16	.5
8. Recpt 8	*	-22	20	.5

JUNE 1989 VERSION
PAGE 2

JOB: ste/stevens 2 bk
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	CONC/LINK (PPM) D	E	F	G	H
1. Recpt 1	259.	4.9	1.3	.6	1.0	.0	.0	.0	1.0	1.0
2. Recpt 2	196.	4.3	.0	.2	1.0	.7	1.1	1.4	.0	.0
3. Recpt 3	277.	6.0	.0	.0	.0	1.1	1.0	1.2	2.3	.3
4. Recpt 4	283.	4.4	.0	.0	.0	.4	.8	1.1	1.6	.5
5. Recpt 5	6.	8.7	4.9	.0	.0	.0	.0	2.0	1.4	.4
6. Recpt 6	13.	5.6	3.4	.3	.0	.0	.0	.5	1.1	.4
7. Recpt 7	173.	8.1	2.2	.0	.0	.0	.2	4.3	.7	.8
8. Recpt 8	164.	5.4	.9	.0	.0	.0	.6	2.6	.7	.6

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: ste/stevens 2 bkp
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=	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	*	-10	150	-10	0	* AG	3505	13.0	.0	16.8
B. Link B	*	10	0	10	150	* AG	1204	7.0	.0	16.8
C. Link C	*	150	8	0	8	* AG	1343	13.0	.0	16.8
D. Link D	*	0	-8	150	-8	* AG	1574	13.0	.0	16.8
E. Link E	*	10	-150	10	0	* AG	1313	11.0	.0	16.8
F. Link F	*	-10	0	-10	-150	* AG	3746	11.0	.0	16.8
G. Link G	*	-150	-8	0	-8	* AG	1572	13.0	.0	16.8
H. Link H	*	0	8	-150	8	* AG	1209	9.0	.0	16.8

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. Recpt 1	*	18	16	.5
2. Recpt 2	*	22	20	.5
3. Recpt 3	*	18	-16	.5
4. Recpt 4	*	22	-20	.5
5. Recpt 5	*	-18	-16	.5
6. Recpt 6	*	-22	-20	.5
7. Recpt 7	*	-18	16	.5
8. Recpt 8	*	-22	20	.5

JOB: ste/stevens 2 bkp
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	CONC/LINK (PPM) D	E	F	G	H
1. Recpt 1	*	259.	*	5.0	*	1.3	.6	1.0	.0	.0	.0	1.0	1.0
2. Recpt 2	*	196.	*	4.3	*	.0	.2	1.0	.7	1.1	1.4	.0	.0
3. Recpt 3	*	277.	*	6.0	*	.0	.0	.0	1.2	1.0	1.2	2.4	.3
4. Recpt 4	*	283.	*	4.4	*	.0	.0	.0	.4	.8	1.1	1.7	.5
5. Recpt 5	*	6.	*	8.7	*	4.9	.0	.0	.0	.0	2.0	1.4	.4
6. Recpt 6	*	13.	*	5.7	*	3.4	.3	.0	.0	.0	.5	1.1	.4
7. Recpt 7	*	173.	*	8.1	*	2.2	.0	.0	.0	.2	4.3	.7	.8
8. Recpt 8	*	164.	*	5.4	*	.9	.0	.0	.0	.6	2.6	.7	.6

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: ste/stevens 2 bkap
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=	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	*	-10	150	-10	0	* AG	3505	13.0	.0	16.8
B. Link B	*	10	0	10	150	* AG	1204	7.0	.0	16.8
C. Link C	*	150	8	0	8	* AG	1346	13.0	.0	16.8
D. Link D	*	0	-8	150	-8	* AG	1577	13.0	.0	16.8
E. Link E	*	10	-150	10	0	* AG	1313	11.0	.0	16.8
F. Link F	*	-10	0	-10	-150	* AG	3747	11.0	.0	16.8
G. Link G	*	-150	-8	0	-8	* AG	1575	13.0	.0	16.8
H. Link H	*	0	8	-150	8	* AG	1211	9.0	.0	16.8

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. Recpt 1	*	18	16	.5
2. Recpt 2	*	22	20	.5
3. Recpt 3	*	18	-16	.5
4. Recpt 4	*	22	-20	.5
5. Recpt 5	*	-18	-16	.5
6. Recpt 6	*	-22	-20	.5
7. Recpt 7	*	-18	16	.5
8. Recpt 8	*	-22	20	.5

JOB: ste/stevens 2 bkap
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	CONC/LINK (PPM) D	E	F	G	H
1. Recpt 1	*	259.	*	5.0	*	1.3	.6	1.0	.0	.0	.0	1.0	1.0
2. Recpt 2	*	196.	*	4.3	*	.0	.2	1.0	.7	1.1	1.4	.0	.0
3. Recpt 3	*	277.	*	6.0	*	.0	.0	.0	1.2	1.0	1.2	2.4	.3
4. Recpt 4	*	283.	*	4.4	*	.0	.0	.0	.4	.8	1.1	1.7	.5
5. Recpt 5	*	6.	*	8.7	*	4.9	.0	.0	.0	.0	2.0	1.4	.4
6. Recpt 6	*	13.	*	5.7	*	3.4	.3	.0	.0	.0	.5	1.1	.4
7. Recpt 7	*	173.	*	8.1	*	2.2	.0	.0	.0	.2	4.3	.7	.8
8. Recpt 8	*	164.	*	5.4	*	.9	.0	.0	.0	.6	2.6	.7	.6

CL4 Input

Input from traffic report

Name stevens monroe (12)

Condition bkp

	1	2	3	4	5	6	7	8	9	10	11	12
	sbr	sbt	sbl	wbr	wbt	wbl	nbl	nbt	nbr	ebr	ebt	ebl
volume	83	12	551	317	2117	452	55	41	532	31	2197	88
green time	30.9	30.9	30.9	91.9	61	15.5	23.1	23.1	23.1	52.6	52.6	7
cycle time	190											

Development of coordinate system with 0,0 origin

segment	direction	a or d	lanes	med (feet)	start x	start y	end x	end y	offset (feet)	mzw	Link Activity	cars/lane	% red time	cruise speed	speed	Factor
1	sb	a	1	0	-6	500	-6	0		32	646	646	83.7368421	25	1	13
2	nb	d	1	0	6	0	6	500		32	446	446	63.7769648	25	19	7
3	wb	a	3	15	500	25.5	0	25.5		56	2886	962	69.8589744	25	1	13
4	eb	d	4	15	0	-32	500	-32		68	2803	700.75	74.8655388	25	4	12
5	nb	a	1	0	6	-500	6	0	0	32	628	628	87.8421053	25	1	13
6	sb	d	1	0	-6	0	-6	-500	0	32	495	495	90.4227539	25	1	13
7	eb	a	4	15	-500	-32	0	-32		68	2316	579	73.2277066	25	1	13
8	wb	d	3	15	0	25.5	-500	25.5		56	2732	910.666667	72.2603645	25	3	13
																**

*assumes 12 feet/lane

Receptor positions

	hour	dist. (ft)	x	y	
1	1	9.84	21.84	53.34	eliminate
2	8	23	35	66.5	eliminate
3	1	9.84	21.84	-65.34	
4	8	23	35	-78.5	
5	1	9.84	-21.84	-65.34	
6	8	23	-35	-78.5	
7	1	9.84	-21.84	53.34	
8	8	23	-35	66.5	

**EMFAC based on ambient T and a and d speeds based on traffic volumes and red time

Improvement 3

CL4 Input

Input from traffic report

Name stevens monroe (12)

Condition Existing

	1	2	3	4	5	6	7	8	9	10	11	12
	sbr	sbt	sbl	wbr	wbt	wbl	nbl	nbt	nbr	ebr	ebt	ebl
volume	83	9	551	317	1775	244	35	29	206	26	1949	88
green time	30.9	30.9	30.9	91.9	61	15.5	23.1	23.1	23.1	52.6	52.6	7
cycle time	190											

Development of coordinate system with 0,0 origin

segment	direction	a or d	lanes	med (feet)	start x	start y	end x	end y	offset (feet)	mzw	Link Activity	cars/lane	% red time	cruise speed	speed	Factor
1	sb	a	1	0	-6	500	-6	0		32	643	643	83.7368421	25	1	13
2	nb	d	1	0	6	0	6	500		32	434	434	63.1115692	25	19	7
3	wb	a	3	15	500	25.5	0	25.5		56	2336	778.666667	68.1891447	25	1	13
4	eb	d	4	15	0	-32	500	-32		68	2535	633.75	75.0126025	25	4	12
5	nb	a	1	0	6	-500	6	0	0	32	270	270	87.8421053	25	1	13
6	sb	d	1	0	-6	0	-6	-500	0	32	279	279	89.7609885	25	1	13
7	eb	a	4	15	-500	-32	0	-32		68	2063	515.75	73.3395413	25	1	13
8	wb	d	3	15	0	25.5	-500	25.5		56	2064	688	70.5226693	25	3	13
																**

*assumes 12 feet/lane

Receptor positions

	hour	dist. (ft)	x	y	
1	1	9.84	21.84	53.34	eliminate
2	8	23	35	66.5	eliminate
3	1	9.84	21.84	-65.34	
4	8	23	35	-78.5	
5	1	9.84	-21.84	-65.34	
6	8	23	-35	-78.5	
7	1	9.84	-21.84	53.34	
8	8	23	-35	66.5	

**EMFAC based on ambient T and a and d speeds based on traffic volumes and red time

CL4 Input

Input from traffic report

Name stevens monroe (12)

Condition bkap

	1	2	3	4	5	6	7	8	9	10	11	12
	sbr	sbt	sbl	wbr	wbt	wbl	nbl	nbt	nbr	ebr	ebt	ebl
volume	83	12	551	317	2126	452	55	41	532	31	2200	88
green time	30.9	30.9	30.9	91.9	61	15.5	23.1	23.1	23.1	52.6	52.6	7
cycle time	190											

Development of coordinate system with 0,0 origin

segment	direction	a or d	lanes	med (feet)	start x	start y	end x	end y	offset (feet)	mzw	Link Activity	cars/lane	% red time	cruise speed	speed	Factor
1	sb	a	1	0	-6	500	-6	0		32	646	646	83.7368421	25	1	13
2	nb	d	1	0	6	0	6	500		32	446	446	63.7769648	25	19	7
3	wb	a	3	15	500	25.5	0	25.5		56	2895	965	69.8528679	25	1	13
4	eb	d	4	15	0	-32	500	-32		68	2806	701.5	74.8628128	25	4	12
5	nb	a	1	0	6	-500	6	0	0	32	628	628	87.8421053	25	1	13
6	sb	d	1	0	-6	0	-6	-500	0	32	495	495	90.4227539	25	1	13
7	eb	a	4	15	-500	-32	0	-32		68	2319	579.75	73.2265269	25	1	13
8	wb	d	3	15	0	25.5	-500	25.5		56	2741	913.666667	72.2460301	25	3	13
																**

*assumes 12 feet/lane

Receptor positions

	hour	dist. (ft)	x	y	
1	1	9.84	21.84	53.34	eliminate
2	8	23	35	66.5	eliminate
3	1	9.84	21.84	-65.34	
4	8	23	35	-78.5	
5	1	9.84	-21.84	-65.34	
6	8	23	-35	-78.5	
7	1	9.84	-21.84	53.34	
8	8	23	-35	66.5	

**EMFAC based on ambient T and a and d speeds based on traffic volumes and red time

CL4 Input

Input from traffic report

Name stevens monroe (12)

Condition bk

	1	2	3	4	5	6	7	8	9	10	11	12
	sbr	sbt	sbl	wbr	wbt	wbl	nbl	nbt	nbr	ebr	ebt	ebl
volume	83	12	551	317	2092	452	55	41	532	31	2185	88
green time	30.9	30.9	30.9	91.9	61	15.5	23.1	23.1	23.1	52.6	52.6	7
cycle time	190											

Development of coordinate system with 0,0 origin

segment	direction	a or d	lanes	med (feet)	start x	start y	end x	end y	offset (feet)	mzw	Link Activity	cars/lane	% red time	cruise speed	speed	Factor
1	sb	a	1	0	-6	500	-6	0		32	646	646	83.7368421	25	1	13
2	nb	d	1	0	6	0	6	500		32	446	446	63.7769648	25	19	7
3	wb	a	3	15	500	25.5	0	25.5		56	2861	953.666667	69.8761383	25	1	13
4	eb	d	4	15	0	-32	500	-32		68	2791	697.75	74.8765015	25	4	12
5	nb	a	1	0	6	-500	6	0	0	32	628	628	87.8421053	25	1	13
6	sb	d	1	0	-6	0	-6	-500	0	32	495	495	90.4227539	25	1	13
7	eb	a	4	15	-500	-32	0	-32		68	2304	576	73.2324561	25	1	13
8	wb	d	3	15	0	25.5	-500	25.5		56	2707	902.333333	72.3006824	25	3	13
																**

*assumes 12 feet/lane

Receptor positions

	hour	dist. (ft)	x	y	
1	1	9.84	21.84	53.34	eliminate
2	8	23	35	66.5	eliminate
3	1	9.84	21.84	-65.34	
4	8	23	35	-78.5	
5	1	9.84	-21.84	-65.34	
6	8	23	-35	-78.5	
7	1	9.84	-21.84	53.34	
8	8	23	-35	66.5	

**EMFAC based on ambient T and a and d speeds based on traffic volumes and red time

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: monroe/stevens 3 ext
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= 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	-2	150	-2	0	AG	643	13.0	.0	9.9
B. Link B	2	0	2	150	AG	434	7.0	.0	9.9
C. Link C	150	8	0	8	AG	2336	13.0	.0	16.8
D. Link D	0	-10	150	-10	AG	2535	12.0	.0	20.4
E. Link E	2	-150	2	0	AG	270	13.0	.0	9.9
F. Link F	-2	0	-2	-150	AG	279	13.0	.0	9.9
G. Link G	-150	-10	0	-10	AG	2063	13.0	.0	20.4
H. Link H	0	8	-150	8	AG	2064	13.0	.0	16.8

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	7	-20	.5
2. Recpt 2	11	-24	.5
3. Recpt 3	-7	-20	.5
4. Recpt 4	-11	-24	.5
5. Recpt 5	-7	16	.5
6. Recpt 6	-11	20	.5

JOB: monroe/stevens 3 ext
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	282.	5.0	.0	.0	.0	.5	.3	.2	2.9	1.0
2. Recpt 2	351.	3.6	.8	.4	.9	1.6	.0	.0	.0	.0
3. Recpt 3	78.	5.4	.0	.0	1.1	3.3	.2	.3	.4	.0
4. Recpt 4	75.	4.1	.0	.0	1.2	2.5	.2	.2	.0	.0
5. Recpt 5	100.	6.4	.7	.2	3.9	1.0	.0	.0	.0	.6
6. Recpt 6	104.	4.6	.5	.2	2.7	1.2	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: monroe/stevens 3 ext
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= 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	-2	150	-2	0	AG	646	13.0	.0	9.9
B. Link B	2	0	2	150	AG	446	7.0	.0	9.9
C. Link C	150	8	0	8	AG	2861	13.0	.0	16.8
D. Link D	0	-10	150	-10	AG	2791	12.0	.0	20.4
E. Link E	2	-150	2	0	AG	628	13.0	.0	9.9
F. Link F	-2	0	-2	-150	AG	495	13.0	.0	9.9
G. Link G	-150	-10	0	-10	AG	2304	13.0	.0	20.4
H. Link H	0	8	-150	8	AG	2707	13.0	.0	16.8

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	7	-20	.5
2. Recpt 2	11	-24	.5
3. Recpt 3	-7	-20	.5
4. Recpt 4	-11	-24	.5
5. Recpt 5	-7	16	.5
6. Recpt 6	-11	20	.5

JOB: monroe/stevens 3 ext
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	282.	6.2	.0	.0	.0	.5	.7	.4	3.2	1.3
2. Recpt 2	286.	4.7	.0	.0	.0	.0	.5	.3	2.4	1.3
3. Recpt 3	78.	6.4	.0	.0	1.3	3.6	.5	.6	.5	.0
4. Recpt 4	74.	4.9	.0	.0	1.4	2.7	.4	.4	.0	.0
5. Recpt 5	99.	7.4	.7	.2	4.8	.9	.0	.0	.0	.8
6. Recpt 6	104.	5.2	.5	.2	3.2	1.3	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: monroe/stevens 3 ext bkp
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=	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	-2	150	-2	0	AG	646	13.0	.0	9.9
B. Link B	2	0	2	150	AG	446	7.0	.0	9.9
C. Link C	150	8	0	8	AG	2886	13.0	.0	16.8
D. Link D	0	-10	150	-10	AG	2803	12.0	.0	20.4
E. Link E	2	-150	2	0	AG	628	13.0	.0	9.9
F. Link F	-2	0	-2	-150	AG	495	13.0	.0	9.9
G. Link G	-150	-10	0	-10	AG	2316	13.0	.0	20.4
H. Link H	0	8	-150	8	AG	2732	13.0	.0	16.8

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	7	-20	.5
2. Recpt 2	11	-24	.5
3. Recpt 3	-7	-20	.5
4. Recpt 4	-11	-24	.5
5. Recpt 5	-7	16	.5
6. Recpt 6	-11	20	.5

JOB: monroe/stevens 3 ext
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	282.	6.2	.0	.0	.0	.5	.7	.4	3.3	1.3
2. Recpt 2	286.	4.7	.0	.0	.0	.0	.5	.3	2.4	1.4
3. Recpt 3	78.	6.5	.0	.0	1.3	3.6	.5	.6	.5	.0
4. Recpt 4	74.	4.9	.0	.0	1.4	2.7	.4	.4	.0	.0
5. Recpt 5	99.	7.5	.7	.2	4.8	.9	.0	.0	.0	.8
6. Recpt 6	104.	5.3	.5	.2	3.2	1.3	.0	.0	.0	.0

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

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: monroe/stevens 3 ext bkm
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=	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	-2	150	-2	0	AG	646	13.0	.0	9.9
B. Link B	2	0	2	150	AG	446	7.0	.0	9.9
C. Link C	150	8	0	8	AG	2895	13.0	.0	16.8
D. Link D	0	-10	150	-10	AG	2806	12.0	.0	20.4
E. Link E	2	-150	2	0	AG	628	13.0	.0	9.9
F. Link F	-2	0	-2	-150	AG	495	13.0	.0	9.9
G. Link G	-150	-10	0	-10	AG	2319	13.0	.0	20.4
H. Link H	0	8	-150	8	AG	2741	13.0	.0	16.8

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	7	-20	.5
2. Recpt 2	11	-24	.5
3. Recpt 3	-7	-20	.5
4. Recpt 4	-11	-24	.5
5. Recpt 5	-7	16	.5
6. Recpt 6	-11	20	.5

JOB: monroe/stevens 3 ext
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	282.	6.2	.0	.0	.0	.5	.7	.4	3.3	1.3
2. Recpt 2	286.	4.7	.0	.0	.0	.0	.5	.3	2.4	1.4
3. Recpt 3	78.	6.5	.0	.0	1.3	3.6	.5	.6	.5	.0
4. Recpt 4	74.	4.9	.0	.0	1.4	2.7	.4	.4	.0	.0
5. Recpt 5	99.	7.5	.7	.2	4.8	.9	.0	.0	.0	.8
6. Recpt 6	104.	5.3	.5	.2	3.2	1.3	.0	.0	.0	.0

SANTA CLARA GARDENS DEVELOPMENT PROJECT

URBEMIS MODELING RESULTS

URBEMIS 2002 For Windows 8.7.0

.le Name: <Not Saved>
:oject Name: SC Gardens
:oject Location: San Francisco Bay Area
ı-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Pounds/Day - Summer)

ERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
OTALS (lbs/day,unmitigated)	22.09	22.24	234.45	0.14	21.13

URBEMIS 2002 For Windows 8.7.0

.le Name: <Not Saved>
:oject Name: SC Gardens
:oject Location: San Francisco Bay Area
ı-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Pounds/Day - Winter)

'ERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
:OTALS (lbs/day,unmitigated)	23.36	33.63	258.19	0.12	21.13

URBEMIS 2002 For Windows 8.7.0

.le Name: <Not Saved>
:oject Name: SC Gardens
:oject Location: San Francisco Bay Area
ı-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Tons/Year)

'ERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
:OTALS (tpy, unmitigated)	4.11	4.75	44.23	0.02	3.86

URBEMIS 2002 For Windows 8.7.0

.le Name: <Not Saved>
·oject Name: SC Gardens
·oject Location: San Francisco Bay Area
ı-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Winter)

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
.ngle family housing	13.28	19.11	146.72	0.07	12.01
›nior Housing	10.07	14.50	111.33	0.05	9.11
.ty park	0.01	0.02	0.13	0.00	0.01
)TAL EMISSIONS (lbs/day)	23.36	33.63	258.19	0.12	21.13

ıcludes correction for passby trips.
›es not include double counting adjustment for internal trips.

'ERATIONAL (Vehicle) EMISSION ESTIMATES

ıalysis Year: 2007 Temperature (F): 40 Season: Winter

IFAC Version: EMFAC2002 (9/2002)

ımmary of Land Uses:

ıit Type	Acreage	Trip Rate	No. Units	Total Trips
.ngle family housing	10.00	10.22 trips/dwelling unit	120.00	1,226.40
›nior Housing	6.00	5.64 trips/dwelling unit	165.00	930.60
.ty park		1.59 trips/acres	1.00	1.59
		Sum of Total Trips		2,158.59
		Total Vehicle Miles Traveled		13,864.14

›hicle Assumptions:

.eet Mix:

›hicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
.ght Auto	55.20	1.80	97.80	0.40
.ght Truck < 3,750 lbs	15.10	3.30	94.00	2.70
.ght Truck 3,751- 5,750	16.10	1.90	96.90	1.20
›d Truck 5,751- 8,500	7.10	1.40	95.80	2.80
.te-Heavy 8,501-10,000	1.10	0.00	81.80	18.20
.te-Heavy 10,001-14,000	0.40	0.00	50.00	50.00
›d-Heavy 14,001-33,000	1.00	0.00	20.00	80.00
›avy-Heavy 33,001-60,000	0.90	0.00	11.10	88.90
.ne Haul > 60,000 lbs	0.00	0.00	0.00	100.00
:ban Bus	0.10	0.00	0.00	100.00
›torcycle	1.70	82.40	17.60	0.00
:hool Bus	0.10	0.00	0.00	100.00
›tor Home	1.20	8.30	83.30	8.40

:avel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
:ban Trip Length (miles)	11.8	4.6	6.1	11.8	5.0	5.0
ıral Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
:ip Speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
of Trips - Residential	27.3	21.2	51.5			
of Trips - Commercial (by land use)						
.ty park				5.0	2.5	92.5

URBEMIS 2002 For Windows 8.7.0

.le Name: <Not Saved>
·oject Name: SC Gardens
·oject Location: San Francisco Bay Area
ı-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Summer)

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
.ngle family housing	12.00	12.64	133.24	0.08	12.01
›nior Housing	10.07	9.59	101.10	0.06	9.11
.ty park	0.02	0.01	0.11	0.00	0.01
)TAL EMISSIONS (lbs/day)	22.09	22.24	234.45	0.14	21.13

ıcludes correction for passby trips.
›es not include double counting adjustment for internal trips.

'ERATIONAL (Vehicle) EMISSION ESTIMATES

ıalysis Year: 2007 Temperature (F): 85 Season: Summer

IFAC Version: EMFAC2002 (9/2002)

ımmary of Land Uses:

ıit Type	Acreage	Trip Rate	No. Units	Total Trips
.ngle family housing	10.00	10.22 trips/dwelling unit	120.00	1,226.40
›nior Housing	6.00	5.64 trips/dwelling unit	165.00	930.60
.ty park		1.59 trips/acres	1.00	1.59
		Sum of Total Trips		2,158.59
		Total Vehicle Miles Traveled		13,864.14

›hicle Assumptions:

.eet Mix:

›hicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
.ght Auto	55.20	1.80	97.80	0.40
.ght Truck < 3,750 lbs	15.10	3.30	94.00	2.70
.ght Truck 3,751- 5,750	16.10	1.90	96.90	1.20
›d Truck 5,751- 8,500	7.10	1.40	95.80	2.80
.te-Heavy 8,501-10,000	1.10	0.00	81.80	18.20
.te-Heavy 10,001-14,000	0.40	0.00	50.00	50.00
›d-Heavy 14,001-33,000	1.00	0.00	20.00	80.00
›avy-Heavy 33,001-60,000	0.90	0.00	11.10	88.90
.ne Haul > 60,000 lbs	0.00	0.00	0.00	100.00
·ban Bus	0.10	0.00	0.00	100.00
›torcycle	1.70	82.40	17.60	0.00
·hool Bus	0.10	0.00	0.00	100.00
›tor Home	1.20	8.30	83.30	8.40

·avel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
·ban Trip Length (miles)	11.8	4.6	6.1	11.8	5.0	5.0
ıral Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
·ip Speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
of Trips - Residential	27.3	21.2	51.5			
of Trips - Commercial (by land use)						
.ty park				5.0	2.5	92.5

URBEMIS 2002 For Windows 8.7.0

le Name: <Not Saved>
oject Name: SC Gardens
oject Location: San Francisco Bay Area
-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Tons/Year)

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
ngle family housing	2.27	2.70	25.14	0.01	2.19
nior Housing	1.84	2.05	19.07	0.01	1.66
ty park	0.00	0.00	0.02	0.00	0.00
TAL EMISSIONS (tons/yr)	4.11	4.75	44.23	0.02	3.86

cludes correction for passby trips.
es not include double counting adjustment for internal trips.

ERATIONAL (Vehicle) EMISSION ESTIMATES

alysis Year: 2007 Season: Annual

FAC Version: EMFAC2002 (9/2002)

mmary of Land Uses:

it Type	Acreage	Trip Rate	No. Units	Total Trips
ngle family housing	10.00	10.22 trips/dwelling unit	120.00	1,226.40
nior Housing	6.00	5.64 trips/dwelling unit	165.00	930.60
ty park		1.59 trips/acres	1.00	1.59
		Sum of Total Trips		2,158.59
		Total Vehicle Miles Traveled		13,864.14

hicle Assumptions:

eet Mix:

hicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
ght Auto	55.20	1.80	97.80	0.40
ght Truck < 3,750 lbs	15.10	3.30	94.00	2.70
ght Truck 3,751- 5,750	16.10	1.90	96.90	1.20
d Truck 5,751- 8,500	7.10	1.40	95.80	2.80
te-Heavy 8,501-10,000	1.10	0.00	81.80	18.20
te-Heavy 10,001-14,000	0.40	0.00	50.00	50.00
d-Heavy 14,001-33,000	1.00	0.00	20.00	80.00
avy-Heavy 33,001-60,000	0.90	0.00	11.10	88.90
ne Haul > 60,000 lbs	0.00	0.00	0.00	100.00
ban Bus	0.10	0.00	0.00	100.00
torcycle	1.70	82.40	17.60	0.00
hool Bus	0.10	0.00	0.00	100.00
tor Home	1.20	8.30	83.30	8.40

avel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
ban Trip Length (miles)	11.8	4.6	6.1	11.8	5.0	5.0
ral Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
ip Speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
of Trips - Residential	27.3	21.2	51.5			
of Trips - Commercial (by land use)						
ty park				5.0	2.5	92.5

SANTA CLARA GARDENS DEVELOPMENT PROJECT—
DEVELOPMENT ALTERNATIVES

URBEMIS MODELING RESULTS

URBEMIS 2002 For Windows 7.4.2

File Name: C:\Program Files\URBEMIS 2002 For Windows\Projects2k2\BAREC Optional Dev Scenario.urb
Project Name: BAREC
Project Location: San Francisco Bay Area
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Pounds/Day - Summer)

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	10.07	0.03	2.44	0.08	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	24.48	24.92	272.80	0.21	19.22

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	34.55	24.95	275.24	0.29	19.22

URBEMIS 2002 For Windows 7.4.2

File Name: C:\Program Files\URBEMIS 2002 For Windows\Projects2k2\BAREC Optional Dev Scenario.urb
Project Name: BAREC
Project Location: San Francisco Bay Area
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Pounds/Day - Winter)

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	9.78	0.00	0.00	0.00	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	27.34	38.10	303.53	0.19	19.22

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	37.12	38.10	303.53	0.19	19.22

URBEMIS 2002 For Windows 7.4.2

File Name: C:\Program Files\URBEMIS 2002 For Windows\Projects2k2\BAREC Optional Dev Scenario.urb
Project Name: BAREC
Project Location: San Francisco Bay Area
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Tons/Year)

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (tpy, unmitigated)	1.81	0.00	0.22	0.01	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (tpy, unmitigated)	4.64	5.35	51.66	0.04	3.51

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (tpy, unmitigated)	6.45	5.35	51.88	0.04	3.51

URBEMIS 2002 For Windows 7.4.2

File Name: C:\Program Files\URBEMIS 2002 For Windows\Projects2k2\BAREC Optional Dev Scenario.urb
Project Name: BAREC
Project Location: San Francisco Bay Area
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Winter)

AREA SOURCE EMISSION ESTIMATES (Winter Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	0.00	0.00	0.00	-	0.00
Wood Stoves	0.00	0.00	0.00	0.00	0.00
Fireplaces	0.00	0.00	0.00	0.00	0.00
Landscaping - No winter emissions					
Consumer Prdcts	9.78	-	-	-	-
TOTALS(lbs/day,unmitigated)	9.78	0.00	0.00	0.00	0.00

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Single family housing	27.34	38.10	303.53	0.19	19.22
TOTAL EMISSIONS (lbs/day)	27.34	38.10	303.53	0.19	19.22

Includes correction for passby trips.
Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2004 Temperature (F): 40 Season: Winter

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
Single family housing	9.81 trips / dwelling units	200.00	1,962.00

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	56.10	2.70	96.80	0.50
Light Truck < 3,750 lbs	15.10	4.60	92.70	2.70
Light Truck 3,751- 5,750	15.60	2.60	96.20	1.20
Med Truck 5,751- 8,500	6.90	2.90	94.20	2.90
Lite-Heavy 8,501-10,000	1.00	0.00	80.00	20.00
Lite-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
Med-Heavy 14,001-33,000	1.00	10.00	20.00	70.00
Heavy-Heavy 33,001-60,000	0.80	0.00	12.50	87.50
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.10	0.00	0.00	100.00
Motorcycle	1.60	87.50	12.50	0.00
School Bus	0.20	0.00	0.00	100.00
Motor Home	1.30	15.40	76.90	7.70

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	11.8	4.6	6.1	11.8	5.0	5.0
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip Speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	27.3	21.2	51.5			

URBEMIS 2002 For Windows 7.4.2

File Name: C:\Program Files\URBEMIS 2002 For Windows\Projects2k2\BAREC Optional Dev Scenario.urb
Project Name: BAREC
Project Location: San Francisco Bay Area
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Summer)

AREA SOURCE EMISSION ESTIMATES (Summer Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	0.00	0.00	0.00	-	0.00
Wood Stoves - No summer emissions					
Fireplaces - No summer emissions					
Landscaping	0.28	0.03	2.44	0.08	0.00
Consumer Prdcts	9.78	-	-	-	-
TOTALS(lbs/day,unmitigated)	10.07	0.03	2.44	0.08	0.00

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Single family housing	24.48	24.92	272.80	0.21	19.22
TOTAL EMISSIONS (lbs/day)	24.48	24.92	272.80	0.21	19.22

Includes correction for passby trips.
Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2004 Temperature (F): 85 Season: Summer

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
Single family housing	9.81 trips / dwelling units	200.00	1,962.00

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	56.10	2.70	96.80	0.50
Light Truck < 3,750 lbs	15.10	4.60	92.70	2.70
Light Truck 3,751- 5,750	15.60	2.60	96.20	1.20
Med Truck 5,751- 8,500	6.90	2.90	94.20	2.90
Lite-Heavy 8,501-10,000	1.00	0.00	80.00	20.00
Lite-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
Med-Heavy 14,001-33,000	1.00	10.00	20.00	70.00
Heavy-Heavy 33,001-60,000	0.80	0.00	12.50	87.50
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.10	0.00	0.00	100.00
Motorcycle	1.60	87.50	12.50	0.00
School Bus	0.20	0.00	0.00	100.00
Motor Home	1.30	15.40	76.90	7.70

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	11.8	4.6	6.1	11.8	5.0	5.0
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip Speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	27.3	21.2	51.5			

URBEMIS 2002 For Windows 7.4.2

File Name: C:\Program Files\URBEMIS 2002 For Windows\Projects2k2\BAREC Optional Dev Scenario.urb
Project Name: BAREC
Project Location: San Francisco Bay Area
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Tons/Year)

AREA SOURCE EMISSION ESTIMATES

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	0.00	0.00	0.00	-	0.00
Wood Stoves	0.00	0.00	0.00	0.00	0.00
Fireplaces	0.00	0.00	0.00	0.00	0.00
Landscaping	0.03	0.00	0.22	0.01	0.00
Consumer Prdcts	1.79	-	-	-	-
TOTALS (tpy, unmitigated)	1.81	0.00	0.22	0.01	0.00

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Single family housing	4.64	5.35	51.66	0.04	3.51
TOTAL EMISSIONS (tons/yr)	4.64	5.35	51.66	0.04	3.51

Includes correction for passby trips.
Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2004 Temperature (F): 85 Season: Annual

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
Single family housing	9.81 trips / dwelling units	200.00	1,962.00

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	56.10	2.70	96.80	0.50
Light Truck < 3,750 lbs	15.10	4.60	92.70	2.70
Light Truck 3,751- 5,750	15.60	2.60	96.20	1.20
Med Truck 5,751- 8,500	6.90	2.90	94.20	2.90
Lite-Heavy 8,501-10,000	1.00	0.00	80.00	20.00
Lite-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
Med-Heavy 14,001-33,000	1.00	10.00	20.00	70.00
Heavy-Heavy 33,001-60,000	0.80	0.00	12.50	87.50
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.10	0.00	0.00	100.00
Motorcycle	1.60	87.50	12.50	0.00
School Bus	0.20	0.00	0.00	100.00
Motor Home	1.30	15.40	76.90	7.70

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	11.8	4.6	6.1	11.8	5.0	5.0
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip Speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	27.3	21.2	51.5			

Changes made to the default values for Land Use Trip Percentages

Changes made to the default values for Area

The natural gas option switch changed from on to off.
The wood stove option switch changed from on to off.
The fireplcase option switch changed from on to off.

Changes made to the default values for Operations

The travel mode environment settings changed from both to: none